Using the Valve Builder tool

Fluid power schematic diagrams show how cylinders are actuated by air or hydraulic fluid. The fluid is directed in and out of the cylinders by valves, which can have 1 to 4 positions and 2 to 5 ports. Many different combinations of controls determine the position that the valve is in. You can use the Valve Builder tool to efficiently create a wide range of valve shapes.

Example of valves created using the Valve Builder

To use the Valve Builder tool:

1. Choose Tools > Macro > Mechanical Engineering > Valve Builder, or drag the Valve Builder shape from the Fluid Power - Valves stencil to the drawing page.

2. Under Positions and Ports, select the required number of positions and ports.

3. From the list under Positions and Ports, select a flow path option.

   The letters A, B, P, and T are used in some options. These denote the ports of the valve; a particular combination of letters defines a flow path between ports.

4. Under Arrowheads, specify the number and direction of arrowheads for the valve.

5. Under Fluid Type, select a hydraulic or pneumatic fluid type.

6. Under Control Location, specify the location for the control.

7. Under Control Type, choose the type of control you want at that location from the list.

8. Click Options to specify the type of build mode you want the Valve Builder to use, where to draw the valve on the page, and the size of the valve.

9. Click Build to build the valve.

DIALOG BOX OPTIONS

Valve Body Preview   Shows a preview of the valve body.

Valve Controls Preview   Shows a preview of the valve controls you specify.

Positions   Specifies the number of positions; valves can have 1 to 4 positions.

Ports   Specifies the number of ports; valves can have 2 to 5 ports.

Positions/Ports list   Specifies a positions-and-ports combination for the valve. In some options the letters A, B, P, and T are used. These denote the ports of the valve; a particular combination of letters defines a flow path between ports. When no extra options are available, this list is disabled.

Infinite Positions   Draws a valve with infinite positions.

Switch Sides   Switches the left and right side positions of the valve.

Control Location   Specifies the desired location for the control, which can be placed at eight possible locations on either side of the valve. The control location is indicated by a dashed blue line in the Valve Controls Preview window. You can remove the dashed blue line by unchecking Show Location if more clarity is needed in the preview window.

Show Location   Shows the current location at which the next control will be added, indicated by a dashed blue line in the Valve Control Preview window.

Arrowheads   Specifies the number and direction of arrowheads for the valve body.

Fluid Type   Specifies a hydraulic or pneumatic fluid type. The fluid type you select will result in a change of arrowhead color from black to white.

Control Type   Specifies the type of control. For each control location, this setting defaults to None. Some control types have options that appear when you select the control.

Options   Opens the Valve Options dialog box, in which you specify the build mode you want the Valve Builder to use, where the valve is drawn on the page, and the size of the valve.

Clear Controls   Resets the control type at each location to None.

Build   Builds the valve.

VALVE OPTIONS DIALOG BOX

Build Mode   Specifies whether to build the valve in Visio, write to a text file, or read from a text file and then build in Visio. The default is Build In Visio, so that when you click the Build button in the Valve Builder dialog box, the Valve Builder draws the previewed valve in the active Visio drawing window. When you select Write To Text File in this dialog box, clicking Build in the Valve Builder dialog box writes the valve configuration to a text file. Many valve configurations can be written to the same file. To create that valve again, in this dialog box select Read From Text File And Build In Visio, select the appropriate file, and then click Build in the Valve Builder dialog box to build the valve in Visio. If you select Shape On Page under Draw Options when you write the valve to the text file, the valve will be drawn as a shape on the drawing page. If you select Master In Stencil under Draw Options when you write the valve to the text file, the valve will be drawn as a master in a stencil.

Draw Options   Specifies whether to draw the valve as a shape on a drawing page, or as a master in a stencil. By default the shape appears at the center of the drawing page, but for large drawings it can be built at the origin of the page, making it easier to find.

Size Of Each Position   Modifies the size and units of the valve. For example, if the value is 10 and the units are mm (millimeters), a two-position 2/3/4-port valve will be 20 mm wide by 10 mm high. A valve with 5 ports will be 1.25 times wider than the others.

Valve Builder

Tools > Macro > Facilities Management

Tools > Macro > Macros

Tools menu (Fluid Power - All Stencils template must be open)

Facilitates more efficient <u>creation of valve shapes</u>. You can select basic valves and assembly-required controls from a dialog box without having to drag and drop many separate shapes.

DIALOG BOX OPTIONS

Valve Body Preview   Shows a preview of the valve body.

Valve Controls Preview   Shows a preview of the valve controls you specify.

Positions   Specifies the number of positions; valves can have one to four positions.

Ports   Specifies the number of ports; valves can have two to five ports.

Positions/Ports list   Specifies a positions-and-ports combination for the valve. In some options the letters A,B,P,T are used. These denote the ports of the valve; a particular combination of letters defines a flow path between ports. When no extra options are available, this list is disabled.

Infinite Positions   Draws a valve with infinite positions.

Switch Sides   Switches the left and right side positions of the valve.

Control Location   Specifies the desired location for the control, which can be placed at eight possible locations on either side of the valve. (The control location is indicated by a dashed blue line in the Valve Controls Preview window. You can remove the dashed blue line by unchecking Show Location if more clarity is needed in the preview window.)

Show Location   Shows the current location at which the next control will be added, indicated by a dashed blue line in the Valve Control Preview window.

Arrowheads   Specifies the number and direction of arrowheads for the valve body.

Fluid Type   Specifies a hydraulic or pneumatic fluid type. The fluid type you select will result in a change of arrowhead color from black to white.

Control Type   Specifies the type of control you want from the drop-down list. For each control location this defaults to None. Some control types have options that appear when the control is selected.

Options   Opens the Valve Options dialog box, in which you specify the build mode you want the Valve Builder to use, where the valve is drawn, and the size of the valve.

Clear Controls   Resets the control type at each location to None.

Build   Builds the valve.

VALVE OPTIONS DIALOG BOX

Build Mode   Specifies whether to build the valve in Visio, write to a text file, or read from a text file and then build in Visio. The default is Build In Visio, so that when you click the Build button in the Valve Builder dialog box, the Valve Builder draws the previewed valve in the active Visio drawing window. When you select Write To Text File in this dialog box, clicking Build in the Valve Builder dialog box writes the valve configuration to a text file. Many valve configurations can be written to the same file. To create that valve again, in this dialog box select Read From Text File And Build In Visio, select the appropriate file, and then click Build in the Valve Builder dialog box to build the valve in Visio. If you select Shape On Page under Draw Options when you write the valve to the text file, the valve will be drawn as a shape on the drawing page. If you select Master In Stencil under Draw Options when you write the valve to the text file,

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