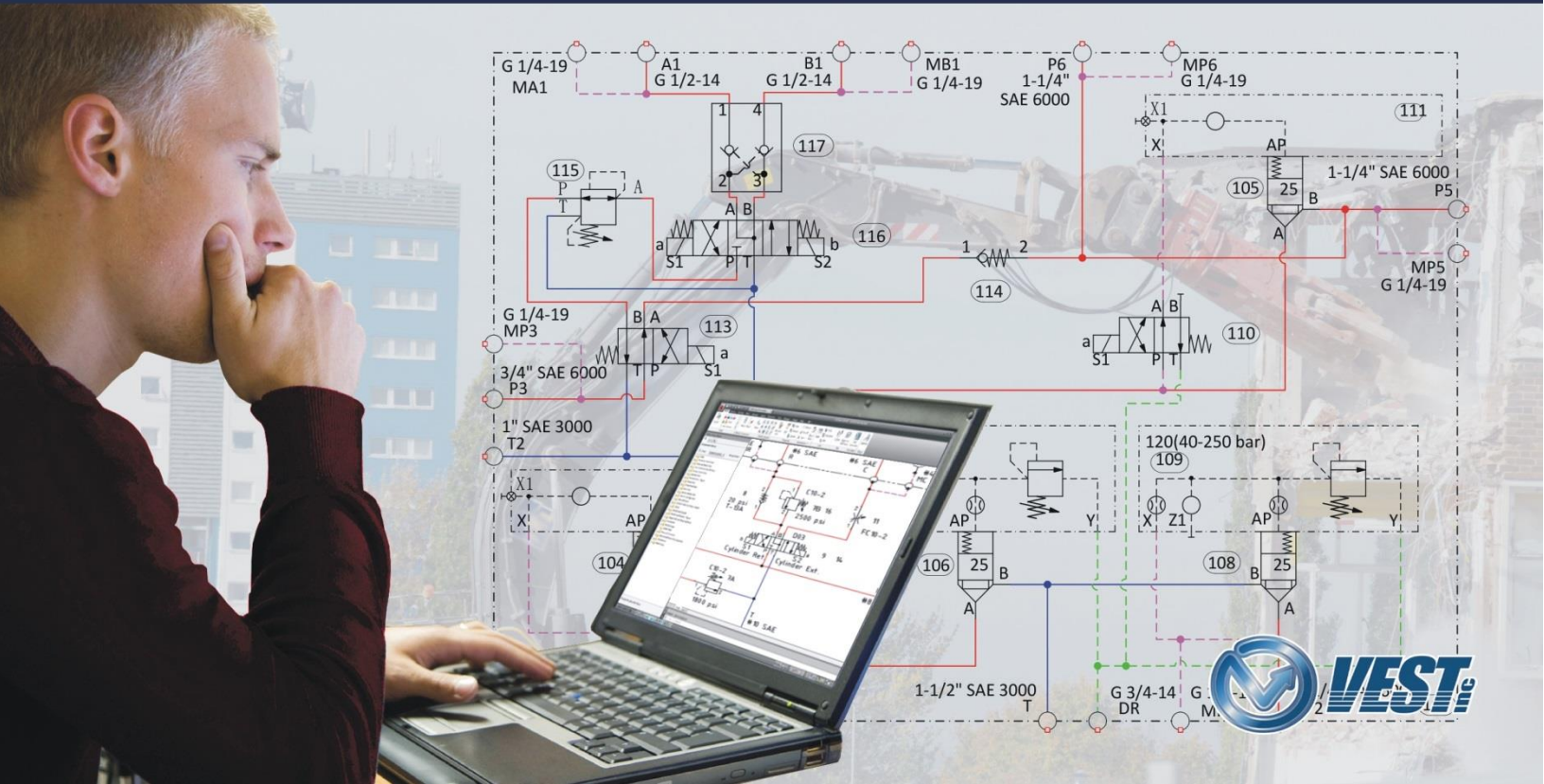
"Power-to-Design"

User Manual

HyDraw® V700



HyDraw® V700

circuit design software for Microsoft Visio

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1. Introduction

Welcome to VEST HyDraw® V700

Create accurate, error free, professionally drawn hydraulic circuits, parts lists, and quotations quickly and easily.

Drag-and-drop ‘smart’ symbols into a drawing with point-and click component selection. The ‘smart’ connection lines snap to ports and self-route with jumpers.

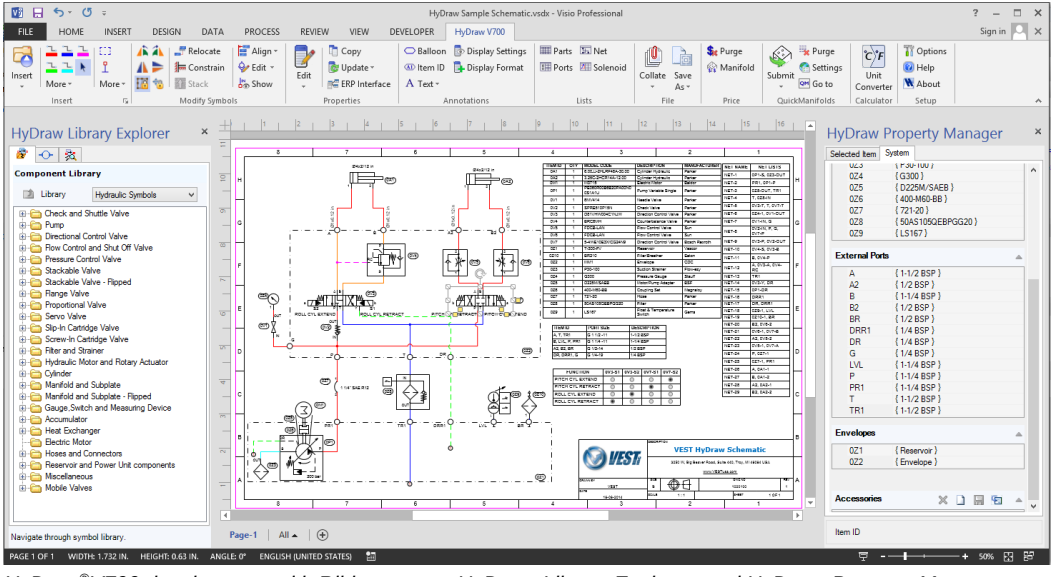
Auto BOM generation ensures accuracy of your Bill of Materials. Easily insert it into the circuit drawing, or export it to Microsoft Excel.

Get started with over 7,000 ISO 1219-1 compliant symbols covering both industrial and mobile hydraulics. ‘Remember’ your data and rules using HyDraw’s custom database. Ensure up-to-date pricing of components by linking your ERP data to HyDraw.

HyDraw works seamlessly within Microsoft Visio. Circuit design data can be easily ported to downstream manifold design and CAM systems.

HyDraw can access manufacturer component data from FluidPowerTools.com, a fee based service from VEST. Also, submit your circuit to QuickManifolds.com for ‘instant’ manifold design.

Use **HyDraw** and ensure your competitive edge.



HyDraw®V700 drawing area with Ribbon menu, HyDraw Library Explorer, and HyDraw Property Manager

HyDraw® V700 is easy to use. It works seamlessly within the Microsoft Office Visio environment with its own ribbon menu. HyDraw symbols are located quickly by navigating logically structured menus. Sets of related symbols are shown together and any required symbol can be inserted into the drawing by the drag and drop method. You can insert generic symbols or model code specific component symbols into the library. Edit parametric properties of the inserted symbols, when needed.

HyDraw Library

The HyDraw library accommodates a wide range of simple and complex graphical component symbols, and schematic diagrams covering both Industrial and Mobile Hydraulics. Designed in accordance with ISO1219-1:2012, Fluid Power Systems and Components-Graphic Symbols and Circuit Diagrams-Part 1: Graphic Symbols for Conventional Use and Data Processing Applications. A few percentile deviations from ISO standard necessitated keeping in view the large variants of symbols and customer base. The HyDraw library includes both Slip-in and Screw-in Cartridge valves and associated symbols for manifold design circuits.

Smart Symbols

HyDraw symbols are created using primitive shapes, such as lines, polylines, rectangles, squares, circles, circular arcs, ellipsis. They represent components with specified functions or method of operation in the de-energized (at rest) position, or component specific rule that do not have a clearly defined de-energized position. A pool of ISO specified primitive shapes are included in the library to help you design your own generic symbols. HyDraw symbols also include port identification and port numbering, which is essential for manifold design.

ISO guidelines

VEST has adhered to ISO guidelines of Module System (1Module = 2 Millimeter), where the symbol fits into a grid and presents a symmetry. The use of layer properties for assigning ISO defined color to Supply line, Return line, Pilot line, Drain line, Envelope line, and Flow direction exhibits appealing color graphics, which help in instant understanding of the operational aspect of the component. Layer properties are also utilized for naming ports, positions and solenoids. (both US and European pattern)

Search

The new and powerful HyDraw V700 Search command searches general or OEM specific symbols and circuits from www.FluidPowerTools.com, saving time and effort.

Teamwork

HyDraw helps standardization and teamwork. Multiple users within a local area network can share a common HyDraw library. This enhances productivity of the design and engineering team.

Customization

Customize HyDraw to your specific need using the library and data management console. Save custom components data with symbols tagged to a specific model code and relevant OEM catalog data.

More…

Dynamic Directional Control (DC) Valve design and OEM-specific circuit design with Parts List from component properties held in the library make the software very productive.

Net List creation, Manifold Cost Estimation and interface to FluidPowerTools.com and QuickManifolds.com enable significant cost and time savings.

Work Smart! Use HyDraw® today.

2. Support

1 User Manuals

The HyDraw® V700 User Manual provides comprehensive information on the features, commands, usage, processes, and design methodology of HyDraw.

The user manual can be used as a comprehensive reference to the command set and usage of HyDraw.

The Contents and Index listing guides you to relevant material for study and reference.

** Click the Help command on the HyDraw V700 ribbon menu to view the user manual in the Adobe Acrobat .pdf format.

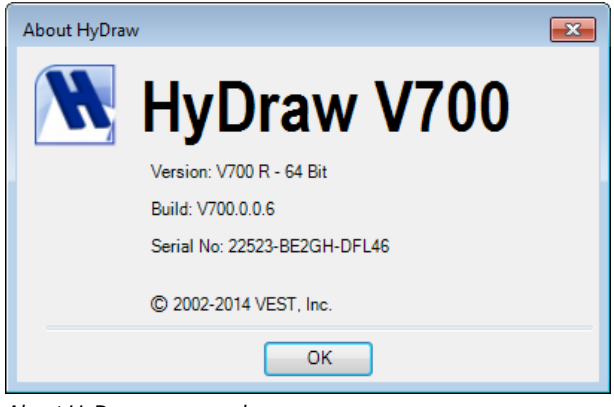
2 Support

If you have a question about HyDraw V700 email us at support@VESTusa.com.

Please include the following:

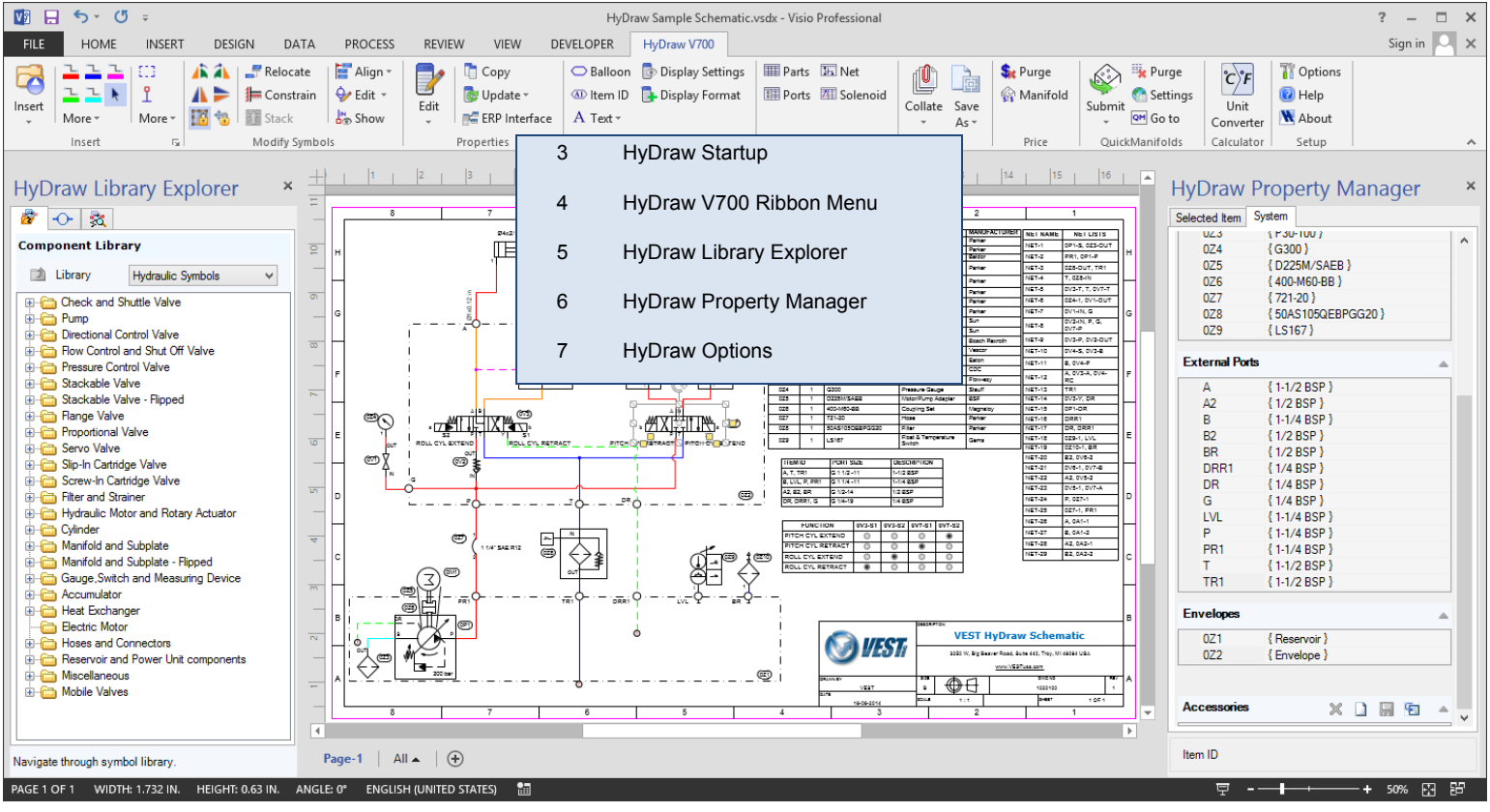
- Version Number of the software you are using.
  To see the version of HyDraw on your machine,
  select **About HyDraw** from the HyDraw ribbon menu in Microsoft Visio.
- Configuration of your machine.
- Exact messages, if any, on the screen.
  Send a screen capture, if possible.
- Description of the problem and what you were doing when the problem occurred.
- Description of how you tried to solve the problem.

*** Click the About HyDraw command on the HyDraw V700 ribbon menu to view the About HyDraw message box indicating the software version number, serial number and the copyright notice.



About HyDraw message box

Workspace


HyDraw Sample Schematic.vsdx - Visio Professional
FILE
HOME
INSERT
DESIGN
DATA
PROCESS
REVIEW
VIEW
DEVELOPER
HyDraw V700
3 HyDraw Startup
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Component Library
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Check and Shuttle Valve
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Stackable Valve
Stackable Valve - Flipped
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Proportional Valve
Servo Valve
Slip-In Cartridge Valve
Screw-In Cartridge Valve
Filter and Strainer
Hydraulic Motor and Rotary Actuator
Cylinder
Manifold and Subplate
Manifold and Subplate - Flipped
Gauge,Switch and Measuring Device
Accumulator
Heat Exchanger
Electric Motor
Hoses and Connectors
Reservoir and Power Unit components
Miscellaneous
Mobile Valves
Navigate through symbol library.
VEST HyDraw Schematic
Page-1
All
HyDraw Property Manager
Selected Item
System
External Ports
Envelopes
Accessories
Item ID
PAGE 1 OF 1
WIDTH: 1.732 IN.
HEIGHT: 0.63 IN.
ANGLE: 0°
ENGLISH (UNITED STATES)
50%

3. HyDraw Startup

Note: For HyDraw V700 installation refer Ch. 66

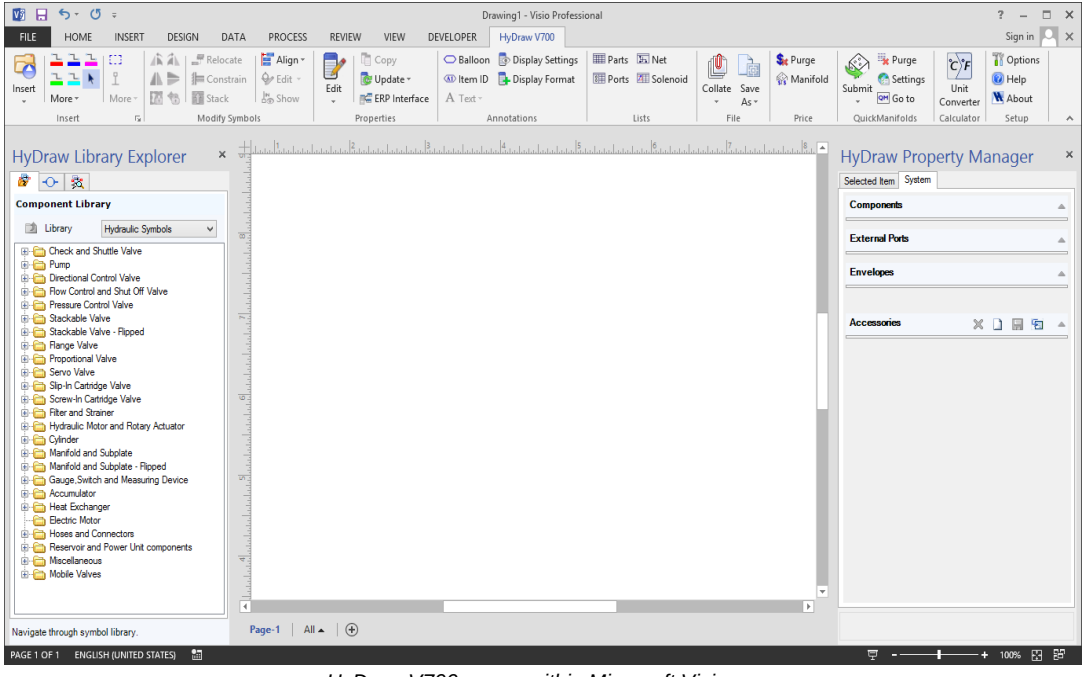
Open HyDraw® V700

Double click the HyDraw V700 desktop shortcut icon.

Alternatively,

Click **Start**
> All Programs
> VEST
> **HyDraw V700**

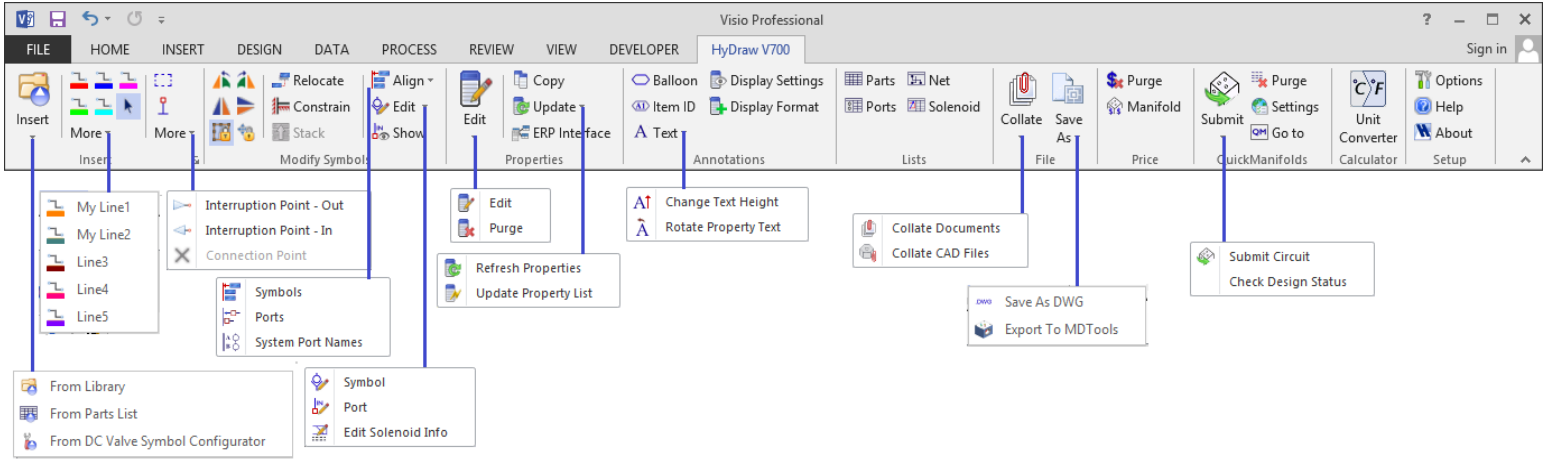
The program opens Visio and the HyDraw V700 ribbon menu within the Visio environment.



HyDraw V700 opens within Microsoft Visio

4. HyDraw V700 Ribbon Menu

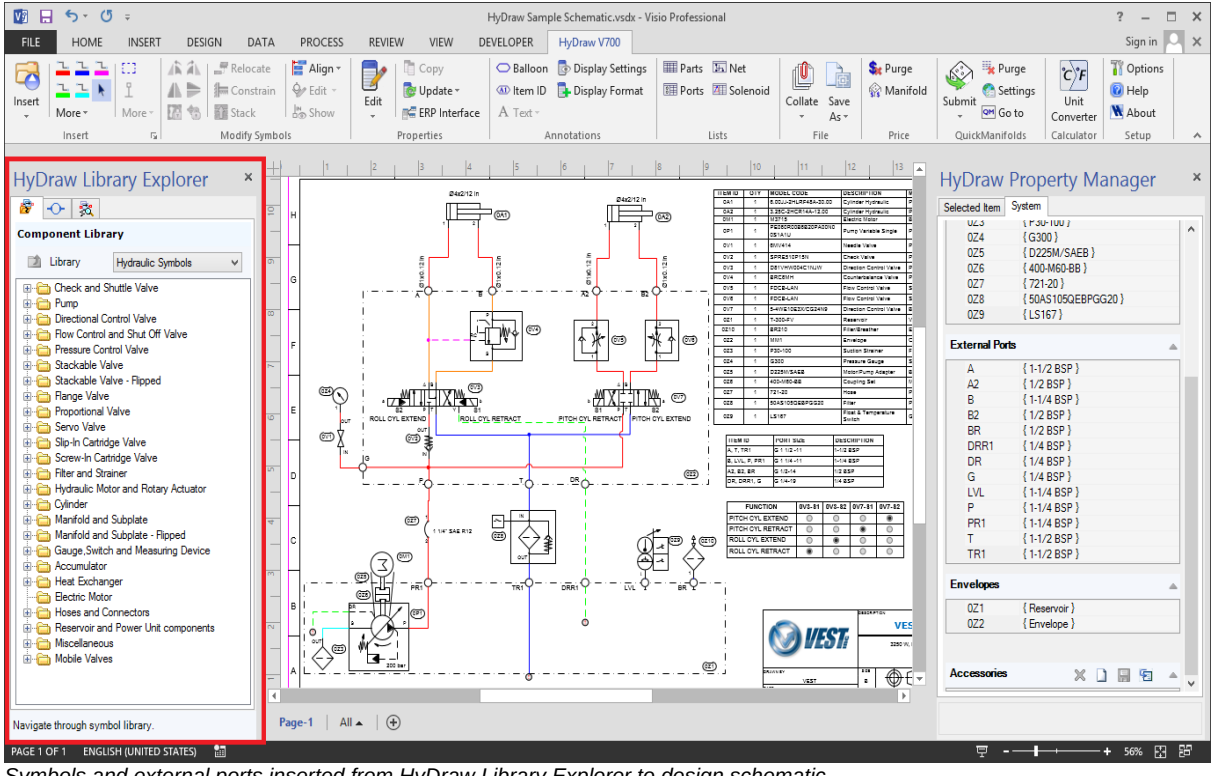
HyDraw® has a new ribbon menu for ready access to the frequently used commands.



HyDraw V700 ribbon menu and submenus

5. HyDraw Library Explorer

The HyDraw® Library Explorer provides access to symbols, external ports, and components. Locate them using either the tree view structure or the search option.



Symbols and external ports inserted from HyDraw Library Explorer to design schematic

1 Open HyDraw Library Explorer

- Click **From Library Explorer** from the Insert Symbol option on the HyDraw® V700 ribbon menu within Visio.

Alternatively,

Click the HyDraw ribbon menu.

The HyDraw Library Explorer dockable window displays and docks on the left of the Visio screen.

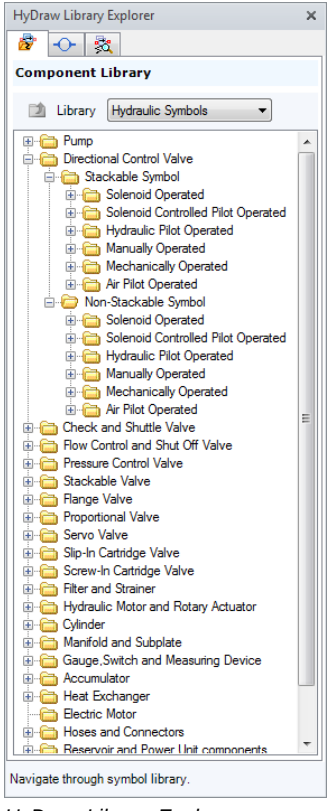
2 Move HyDraw Library Explorer

- Select the **HyDraw Library Explorer** using the caption bar and drag or dock it to the desired location.

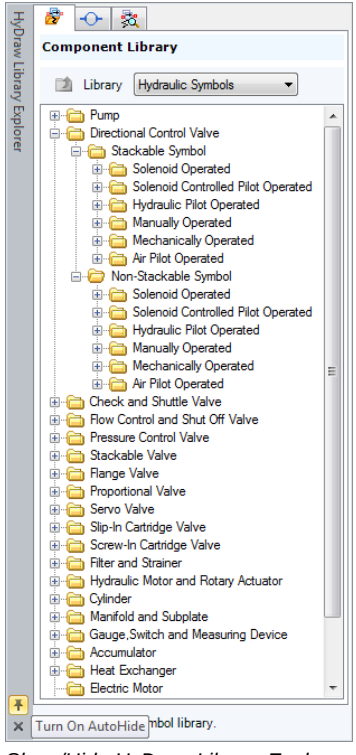
HyDraw stores the information about the docking location of the Library Explorer.

3 Show/Hide HyDraw Library Explorer

- Use the automatic **Show/Hide** feature of the Library Explorer to maximize the drawing space.
- Click icon on the caption bar to activate the Show/Hide feature.



HyDraw Library Explorer

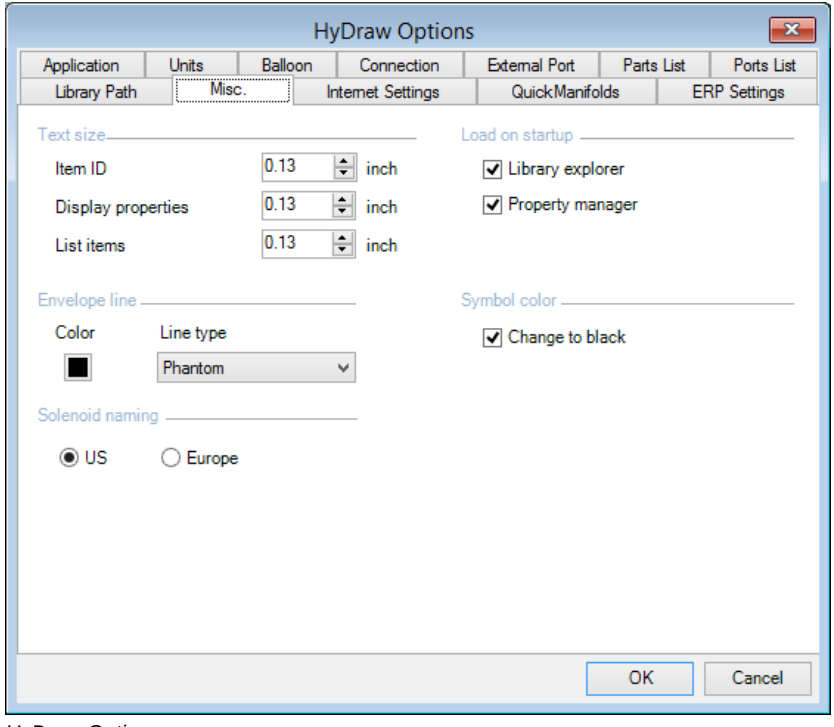


Show/Hide HyDraw Library Explorer

4 Load HyDraw Library Explorer on Startup

1. Select Options from the HyDraw® V700 ribbon menu.
2. Click the **Misc.** tab.
3. Select **Library explorer** from the Load on startup group box.

When subsequently opened, the Library explorer docks to its previous location.



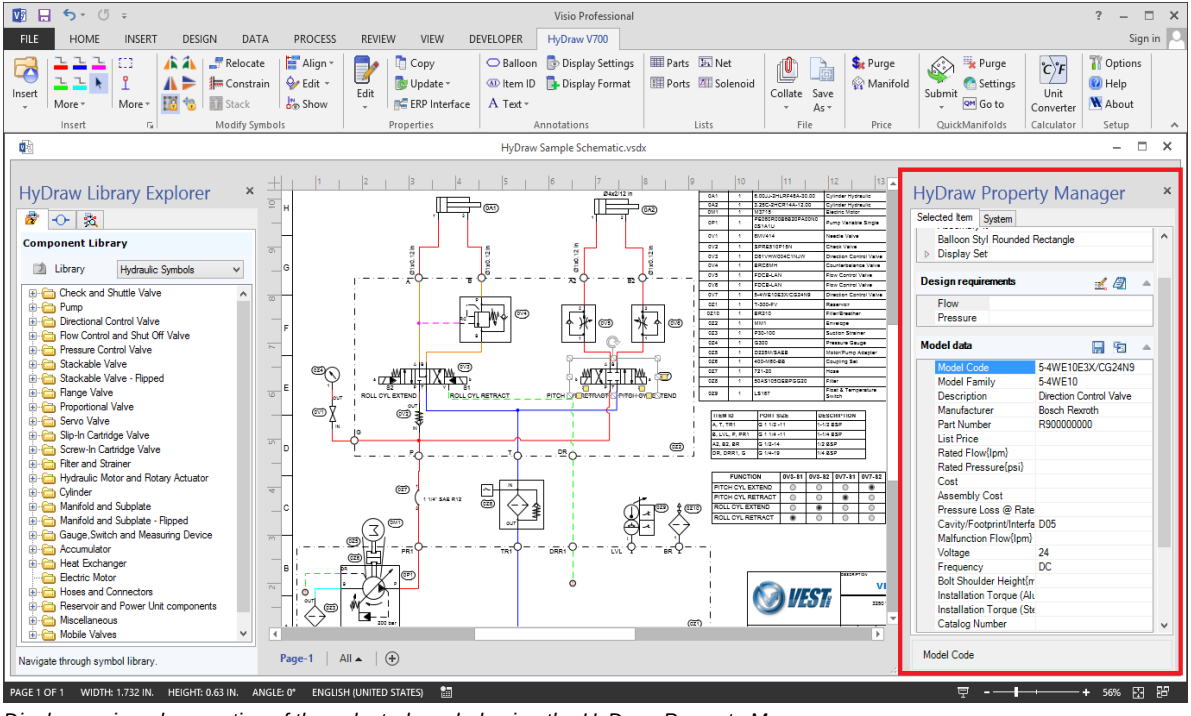
HyDraw Options

6. HyDraw Property Manager

The HyDraw® Property Manager displays assigned properties of the selected items, such as symbols, port connections, connection lines, and systems.

Search the component or model code with given inputs.

Configure your own design requirements and save the data in the library.



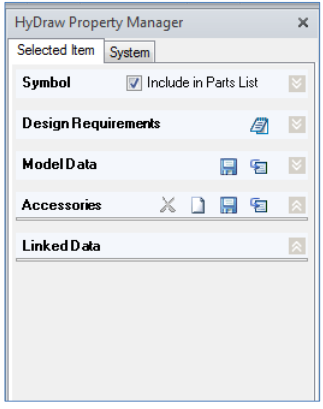
Display assigned properties of the selected symbol using the HyDraw Property Manager

1 Open HyDraw Property Manager

Click on the HyDraw® V700 ribbon menu

The HyDraw Property Manager dockable window displays and docks on the right side of the Visio screen.

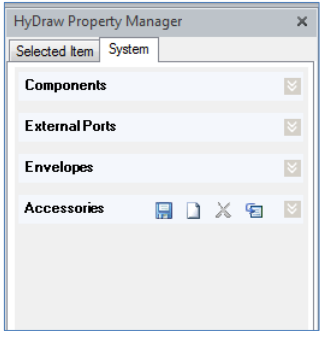
The HyDraw Property Manager displays two tabs
Selected Item** and **System



Selected Item tab page

Selected Item tab

The Selected Item tab page displays the properties of the selected component and remains collapsed, if the item is not selected in the drawing.



System tab page

System tab

The System tab page displays properties of the complete circuit and the page automatically expands whenever the schematic is opened in the Visio drawing.

When the item is selected or the schematic is open, the respective menu bar expands and the assigned values display.

Click to expand, if it is not expanded.

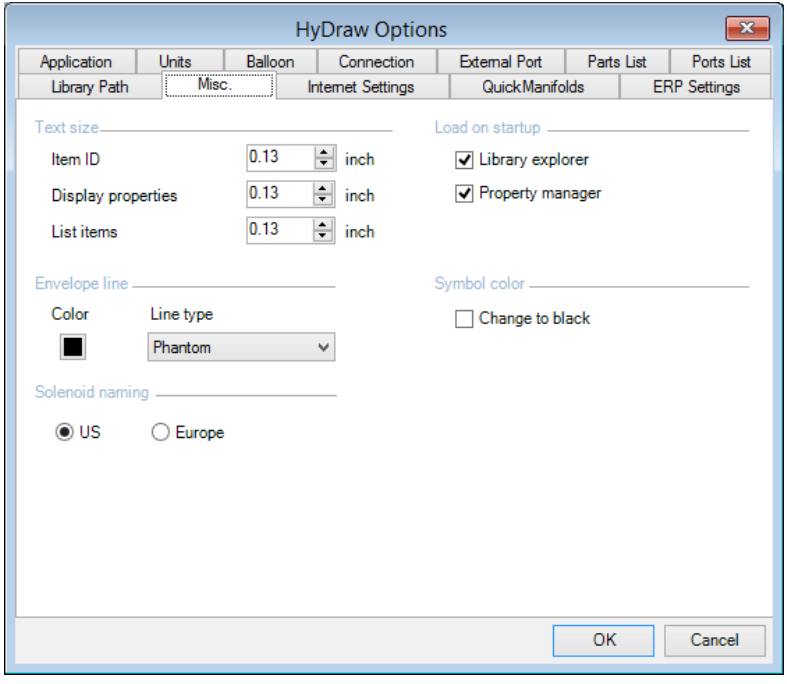
2 Dock HyDraw Property Manager

To move the Property Manager window, select it using the caption bar, then drag and dock it to the desired location.

HyDraw stores the information about the docking location of the Property Manager.

3 Load HyDraw Property Manager on Startup

1. Select **Options…** in the HyDraw® V700 ribbon menu.
2. Click the **Misc.** tab.
3. Select the **Property manager** checkbox from the Load on startup section.
   Subsequently, the Property Manager opens and docks at its previous location.



HyDraw Options: Misc

7. HyDraw Options

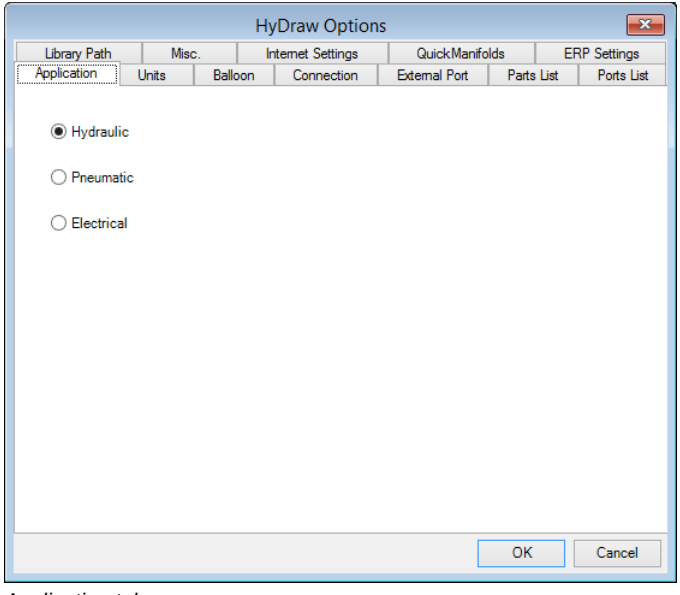
The HyDraw Options command on the HyDraw® V700 ribbon menu enables you to customize HyDraw settings, such as Application, Units, Balloon, Connection, External Port, Parts List, Ports List, Data Path, Misc. Internet settings and QuickManifolds®.

1 Application

Select one of the three applications from Hydraulic, Pneumatic, and Electrical.

1. Click the **Application** tab.
   The Application tab page displays.
2. Select the required application: Hydraulic, Pneumatic, or Electrical.
   Select any one of the three applications.

   The application is selected in the Search From Library tab page in the HyDraw Library Explorer dockable window.
3. Click **OK**.



Application tab page

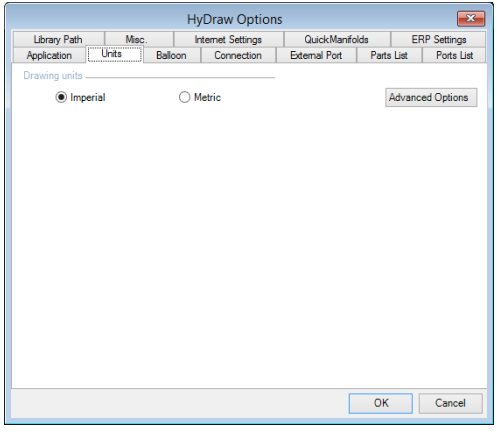
2 Units

Select units for the selected application.

1. Click the **Units** tab.
   The Units tab page displays.

2. Select the required drawing units from Imperial and Metric.

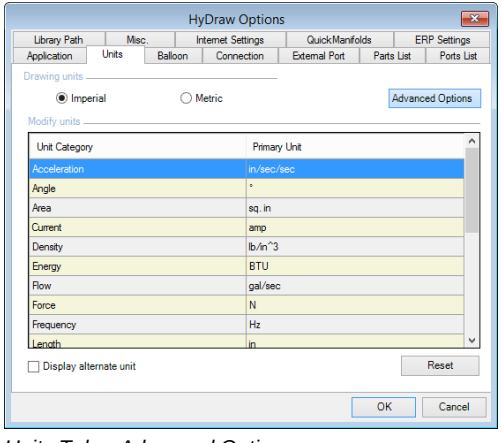
CAUTION!
Units should not be changed after symbol insertion.



Units tab page

3. Click the **Advanced Options**.
   The Modify units grid displays.

4. Configure each unit category by selecting the **Primary Unit**.

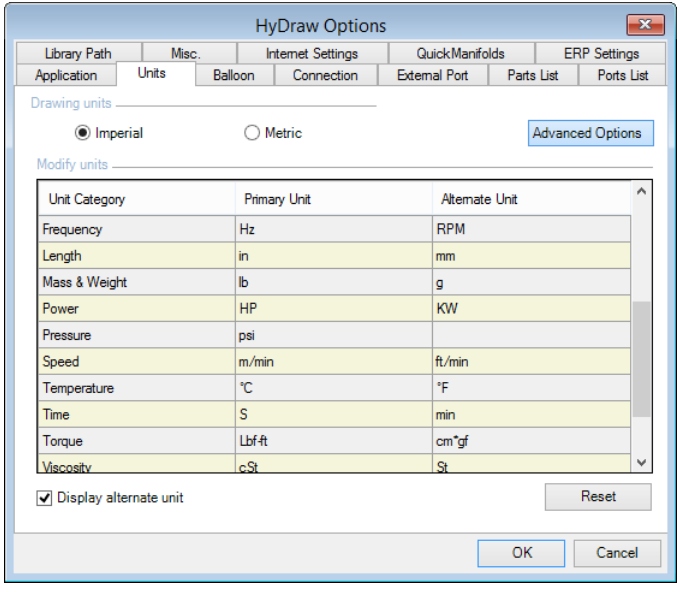


Units Tab – Advanced Options

5. Select the **Display alternate unit** check box to display the alternate unit along with the primary unit, if required.

   The Alternate Unit column displays.

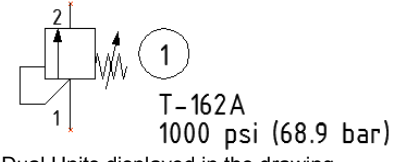
6. Configure the alternate units.
7. Click **Reset** to restore the default units.
8. Click **OK** to apply and exit.



Units Tab – Advanced Options Display Alternate Unit

Note

To display the alternate unit in the old drawing, run **Update Property List** command from the ribbon menu.



Dual Units displayed in the drawing

3 Balloon

Enclose or balloon the envelope ID, external port ID, symbol ID, and accessories ID.

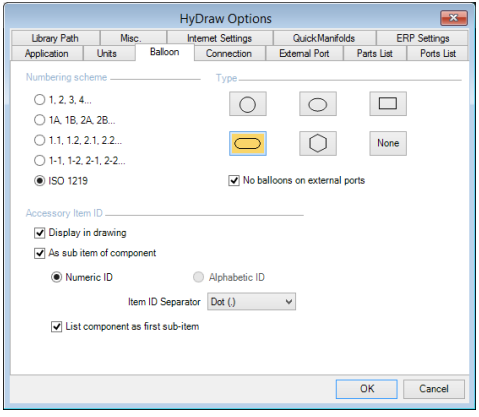
1. Click the **Balloon** tab.
   The Balloon tab page displays

2. Select the appropriate numbering scheme to assign ID to schematic, symbol, port, and accessories.
   This helps in the identification of the component.

1, 2, 3, 4...	Items numbered serially
1A, 1B, 2A, 2B...	Identical items grouped using alphabets
1.1, 1.2, 2.1, 2.2...	Identical items grouped using dot (.) separator
1-1, 1-2, 2-1, 2-2...	Identical items grouped using dash (-) separator

ISO 1219 scheme is assigned to symbols

3. Select the **Display in drawing** checkbox, if you want the accessory item ID to be displayed in the drawing.
4. Select the **As sub item of component** checkbox, if the accessory is to be numbered as the sub-item of the component.
5. **Numeric ID** defines the numerical accessory item ID and **Alphabetic ID** defines the alphabetical accessory Item ID.
6. Select the **List component as first sub-item** checkbox, if the component requires the first sub-item to be numbered.
7. Select the required balloon in the Type section.
   Select **None**, if you do not want a balloon around an ID.
8. Select **the No balloons on external ports** checkbox, if you do not want any balloon on the external port ID.
9. Click **OK**.



Balloon tab page

- Case1: If numbering scheme 1, 2, 3, 4... is selected, there will be no grouping of identical items.
- Case2: If numbering scheme 1A, 1B, 2A, 2B... is selected, identical sub-items will be grouped and numbered by using Component ID and a Numeric ID separated by chosen Item ID separator, e.g., 2-1A or 2.1A etc.
- Case3: If numbering scheme 1.1, 1.2, 2.1, 2.2... is selected, identical sub-items will be grouped and numbered by using Component ID and a Numeric or Alphabetic ID, whichever chosen, separated by chosen Item ID separator,
  e.g., 2-1.1 for numeric ID or 2- A.1 for alphabetic ID option etc.
- Case4: If numbering scheme 1-1, 1-2, 2-1, 2-2... is selected, identical sub-items will be grouped and numbered by using Component ID and a Numeric or Alphabetic ID, whichever chosen, separated by chosen Item ID separator,
  e.g., .2.1-1 for numeric ID or 2.A-1for alphabetic ID option etc.

4 Connection

Customize line properties, line jumpers, line connections, and the recommended velocity in a circuit.

1. Click the **Connection** tab.
   The Connection tab page displays.

2. In the Line properties group box, choose the default pressure, tank, pilot, drain, or suction line.
   You can also choose other lines with customized name typed in the text box.

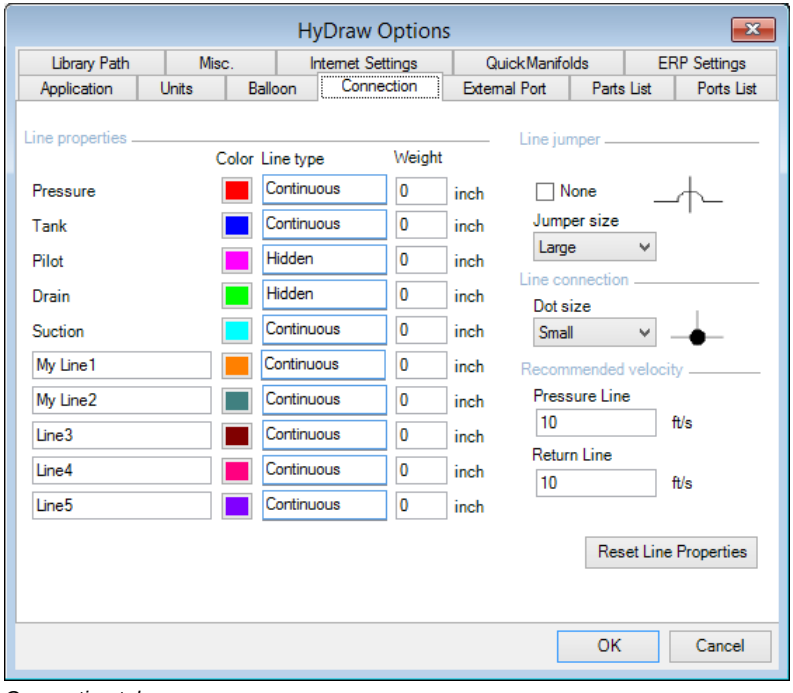
3. Click the color box to change the color.

4. Click the combo box to select the line pattern from continuous, phantom, and hidden.

5. In the Line jumper section, select the size of the jumper from large, medium, and small.
   In the Line connection section, select the size of the connection dot from large, medium, and small.
   Connection dot is automatically inserted when one line terminates on another.

6. Set the recommended velocity for Pressure and Return Line.

7. Click **OK** to apply and exit.



Connection tab page

5 External Port

Customize the external port in a circuit.

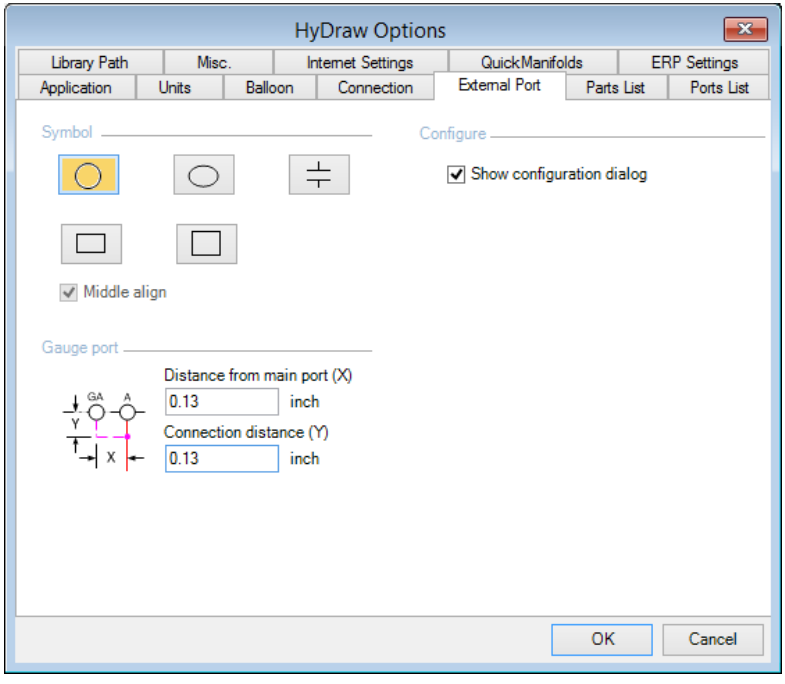
1. Click the **External Port** tab.
   The External Port tab page displays.

2. Click an appropriate button to configure the external port to a circle, oval, line, rectangle, or square shape.
   The respective shapes display in the port preview section of the HyDraw Library Explorer window and can be inserted on the envelope line of the circuit.

3. Select the **Middle align** checkbox to align the port co-axially with the envelope line.
   This option is applicable only for rectangle and square ports.

4. To displays the Port configuration dialog box during automatic insertion of ports, select the **Show configuration dialog** option.
   While automatically inserting Gauge Port the connections are established, per the distance from the main port(X) and the connection distance(Y) value settings.

5. Click **OK** to apply and exit.



External Port tab page

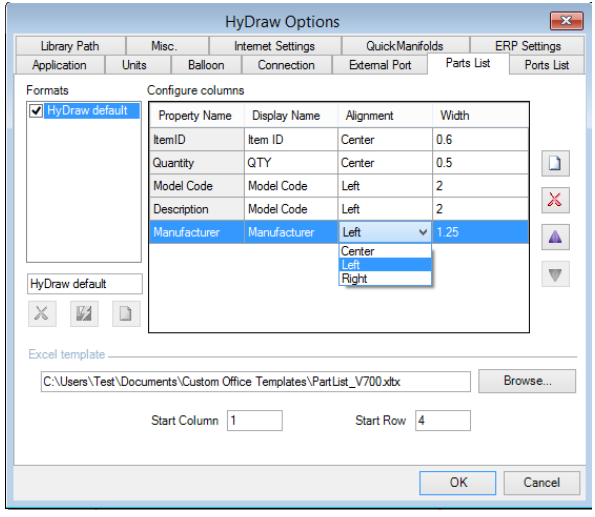
6 Parts List

Customize the Parts List format.

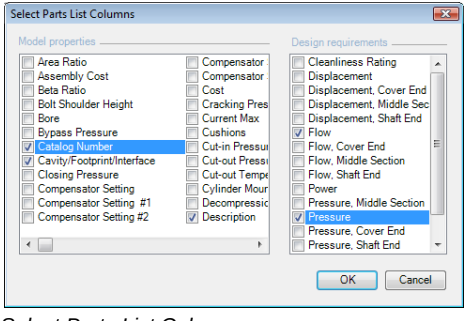
1. Click the **Parts List** tab.
   The Parts List tab page displays.
2. To rename a selected format,
   type the new name in the text box and then click .
3. To add a new format,
   type the new name in the text box and then click .
4. To delete a selected format, click .
5. Click **Select Columns**.
   The Select Parts List Columns dialog box displays.
6. Select the appropriate box and click **OK**.
   The selected properties are displayed in the Parts List tab page-Configure columns.
7. Set the Start Column and the Start Row of the Parts List to be inserted into the Excel template.
8. Click **OK**.
   The selected properties display in the tabular form, when creating Parts list in the Visio drawing.

Note

To learn more about Parts List, refer Chapter 24.



Parts List tab page



Select Parts List Columns

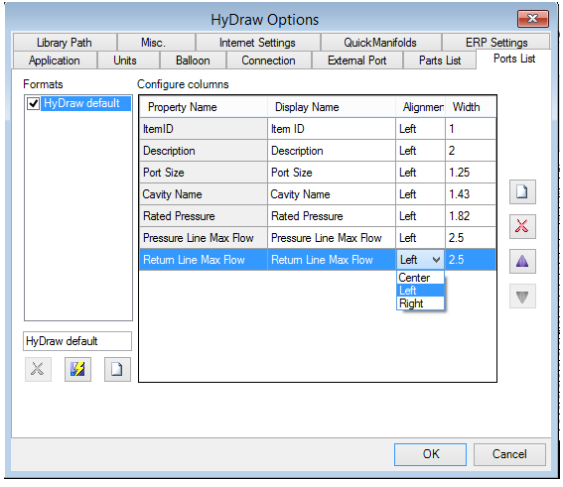
7 Ports List

Customize the Ports List format.

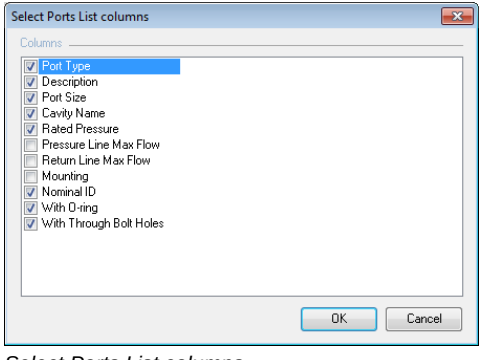
1. Click the **Ports List** tab.
   The Ports List tab page displays.
2. To rename a selected format,
   type the new name in the text box and then click .
3. To add a new format,
   type the new name in the text box and then click .
4. Click **Select Columns**
   The Select Ports List columns checklist box displays.
5. Select the appropriate box and click **OK**.
   The selected properties are displayed in the Ports List tab page-Configure columns.
6. Click **OK**.
   The selected properties display in the tabular form, when creating Ports list in the Visio drawing.

Note

To learn more about Ports List, refer Chapter 25



Ports List tab page



Select Ports List columns

8 Library Path

Multiple users get easy and hassle free access to the library and the components data from a common source over a network.

1. Click the **Library Path** tab.

   The Library Path tab page displays.

2. Select the **Local Library** option.
3. Select the **Enable modification** check box to modify the library.
4. Click **Browse…** and navigate to the folder where the HyDraw® Library data is stored.

   The Symbols and Sub-subsystems path are automatically set if the Data, Symbols and Sub-systems folders are located at the same path.

5. Repeat above steps for each of the specified HyDraw library paths, if required.
6. Select the **Corporate Library** option to configure the second library path of your common Network library and repeat steps 3 to 6.
7. Click **OK**.

   All the HyDraw library paths are configured.

Data

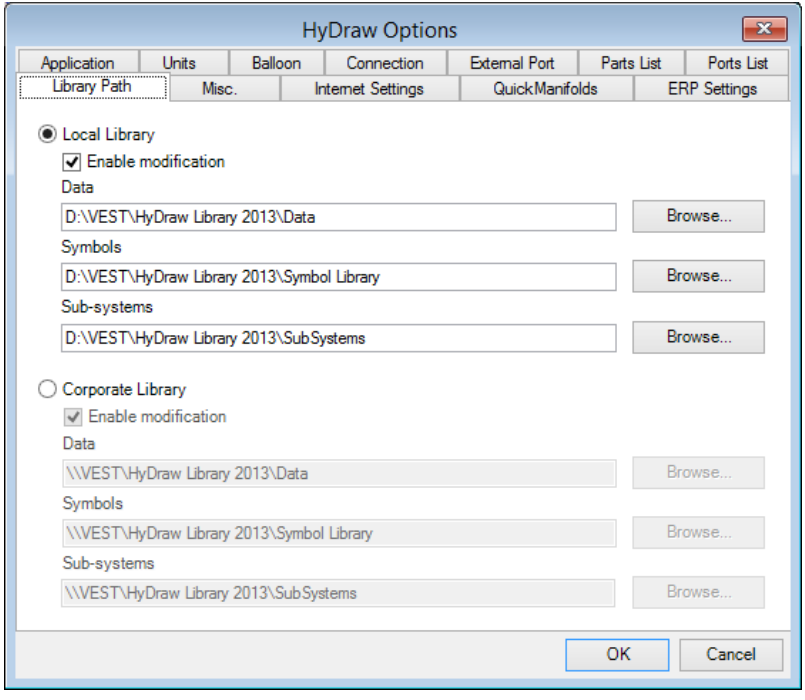
The folder path that contains component data, library listing data, and manifold manufacturing estimation data are specified.

Symbol Library

The folder path that contains all libraries are specified.

Sub-systems

The folder path that contains user-created circuit drawings and its menu data are specified.



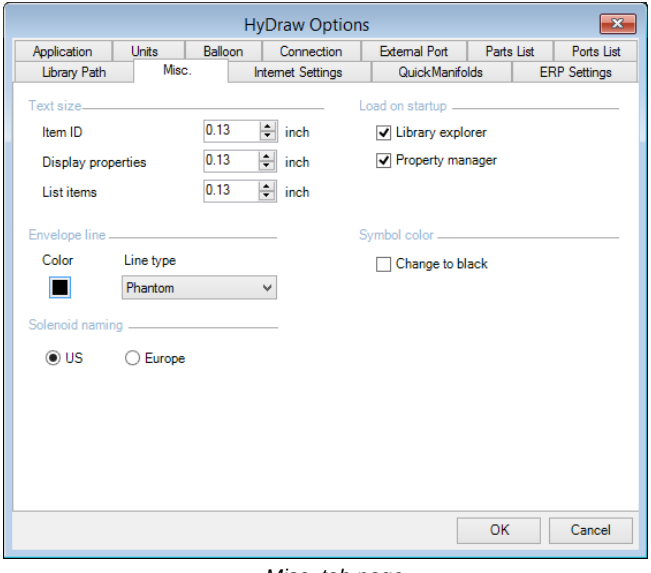
LibraryPath tab page

Note

All data paths shown are default.
You can configure to common network data paths.

9 Misc.

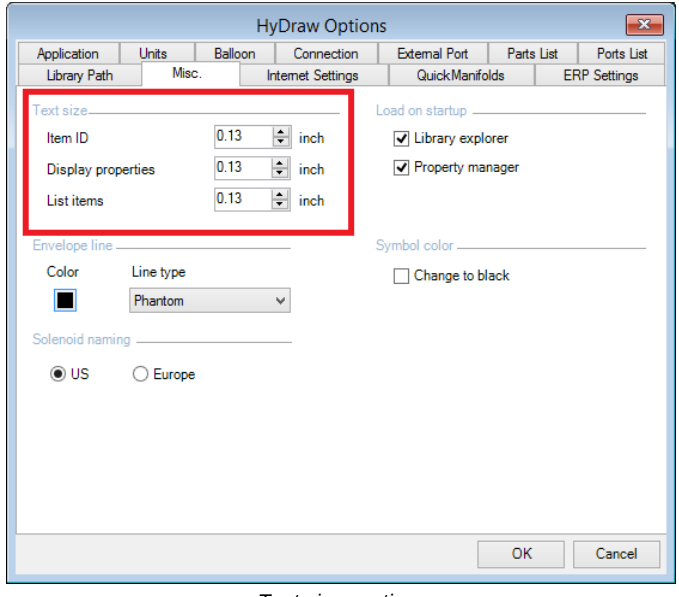
1. Configure the text size, envelope line, symbol color, and solenoid naming in the US and Europe pattern.
2. Load the HyDraw® Library Explorer and the HyDraw Property Manager into your Visio drawing during Startup.
3. Click **Misc.** to display the tab page.



Misc. tab page

9.1 Text Size

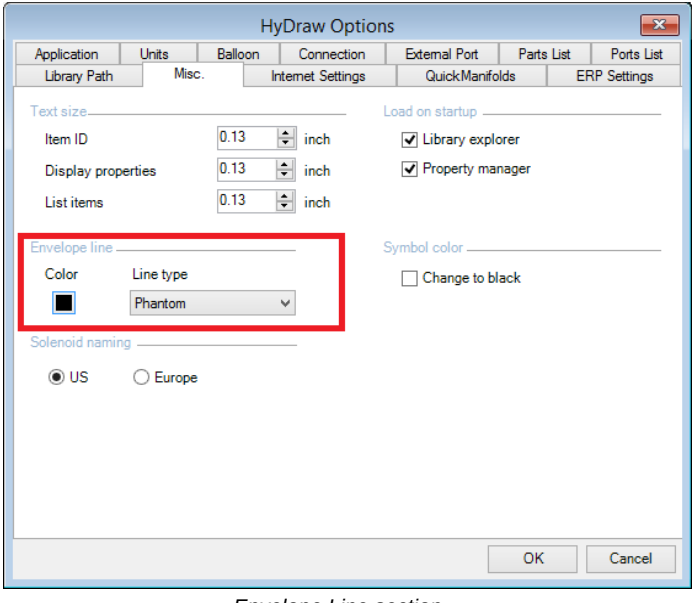
1. In the Text size group box, select the appropriate text size from the respective list box for item ID, display properties, and list items.
2. Click **OK** to affect the changes to the properties in the library.



Text size section

9.2 Envelope Line

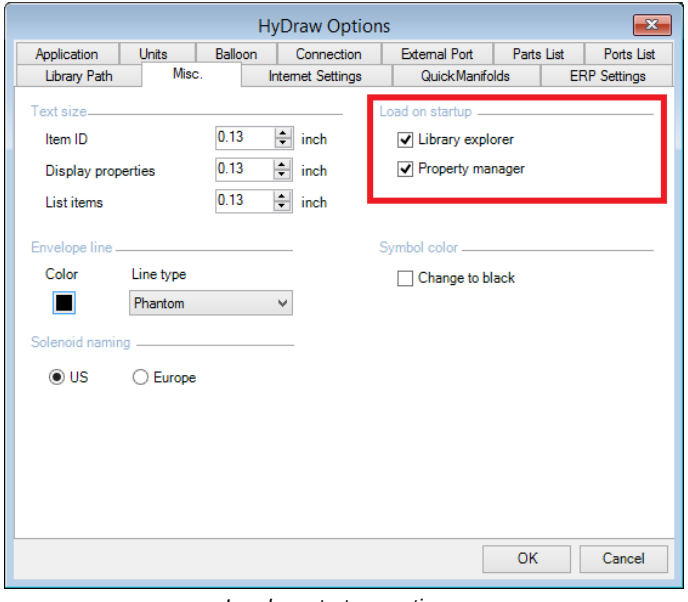
1. In the Envelope line group box, select the appropriate line pattern from continuous, phantom, and hidden list box options.
2. Click the **Color** button to open the color box and select the required color.
3. Click **OK** to effect the changes in the library.



Envelope Line section

9.3 Load on startup

1. The Library Explorer and Property Manager can be loaded to HyDraw® on startup.
2. In the Load on startup group box, select the application you want to use for loading on startup.
   The selected application loads and docks to the HyDraw drawing.
3. Click **OK** to affect the changes.

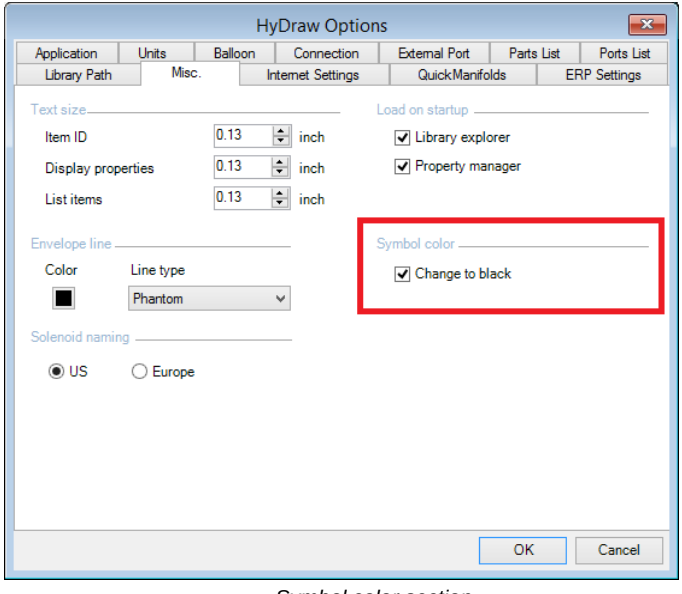


Load on startup section

9.4 Symbol Color

All symbols in the HyDraw® library are assigned with the ISO defined colors.
You can also have these symbols in black color.

1. Select the checkbox in the Symbol color section, if you want to change the color of symbols to black.
2. Click **OK** to affect the changes in the library.



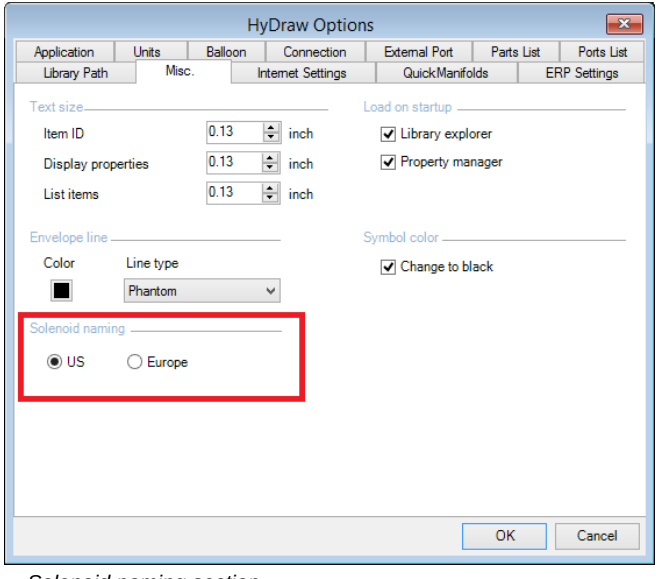
Symbol color section

9.5 Solenoid Naming

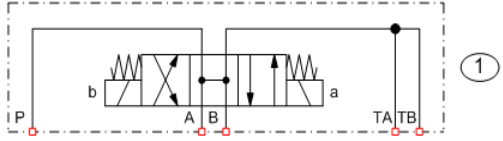
Solenoids in the Directional Control Valve symbols are named both in the US and Europe pattern using the Visio layer properties.
You can view only one pattern at a time.

1. Select the appropriate pattern.
   The selected pattern will affect the change of solenoid naming of symbols in the HyDraw® drawing.

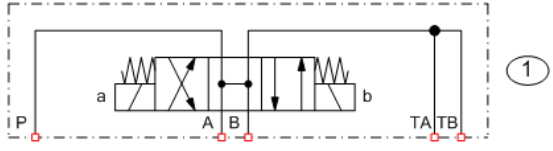
2. Click **OK** to effect the changes.



Solenoid naming section



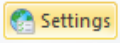
Solenoid naming –US pattern



Solenoid naming – Europe pattern

10 Internet Settings

Configure the Internet connection for FluidPowerTools and QuickManifolds®.

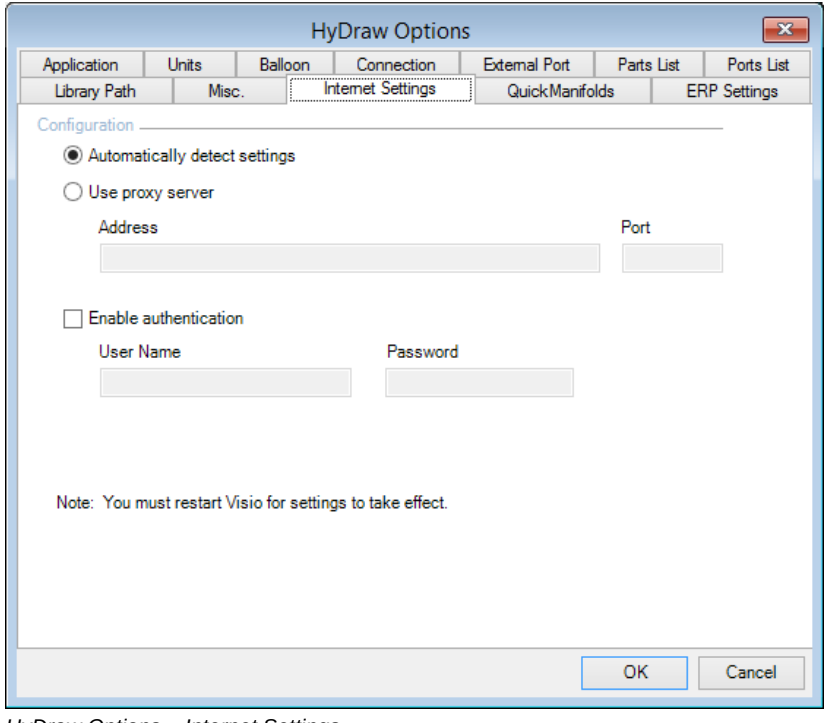
Click 

on the QuickManifolds section of the HyDraw® V700 ribbon menu.

The Internet Settings of the HyDraw Options dialog box displays.

Note

Refer chapter 2.6 for detailed configuration.



HyDraw Options – Internet Settings

11 QuickManifolds

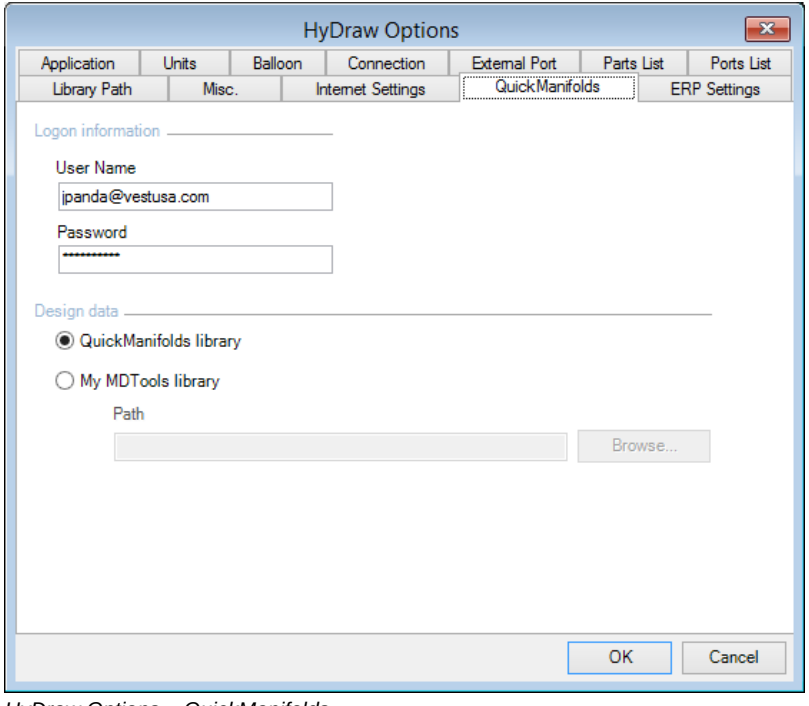
Preserve QuickManifolds.com Logon information and select the Design data library.

1. Click the **QuickManifolds®** tab.
   The QuickManifolds tab page displays.

2. Enter the Logon information, i.e. User Name and Password.

   The user name and password are preserved and used to logon to QuickManifolds.com

3. Select **QuickManifolds Library** or set the **My MDTools Library** path to use the corresponding library for the QuickManifolds design.



HyDraw Options – QuickManifolds

12 ERP Settings

Preserve the ERP settings.

1. Click the **ERP Settings** tab.
   The ERP Settings tab page displays.

2. Select **My local ERP data** and select the Excel file path by clicking Browse….
   Or

   Select **Online ERP data** and enter the Service URL.

3. Select the **Search using** options, which is either the model code or the part number.

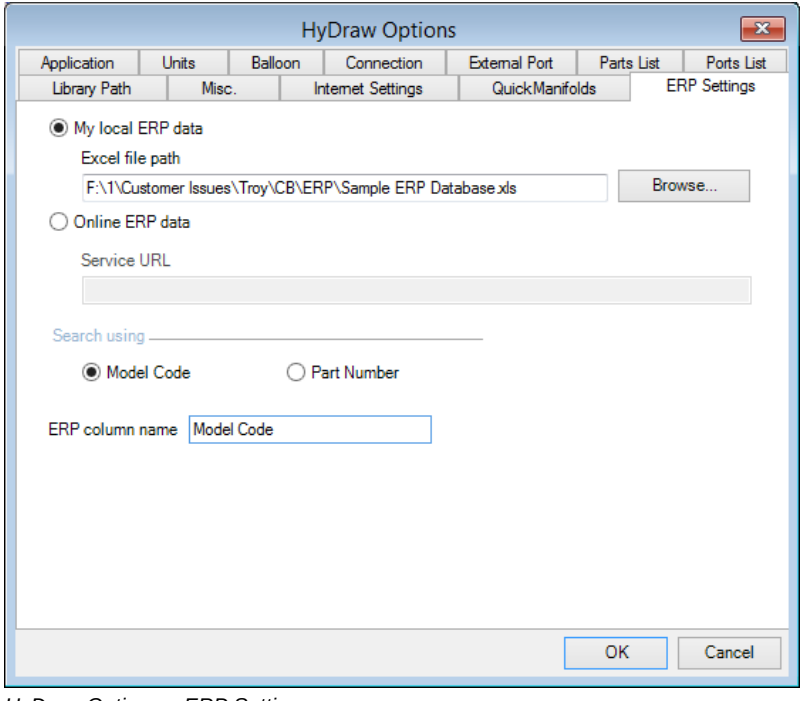
4. Enter the **ERP column name**.

5. Click **OK** to save the ERP settings and quit HyDraw Options.

Note

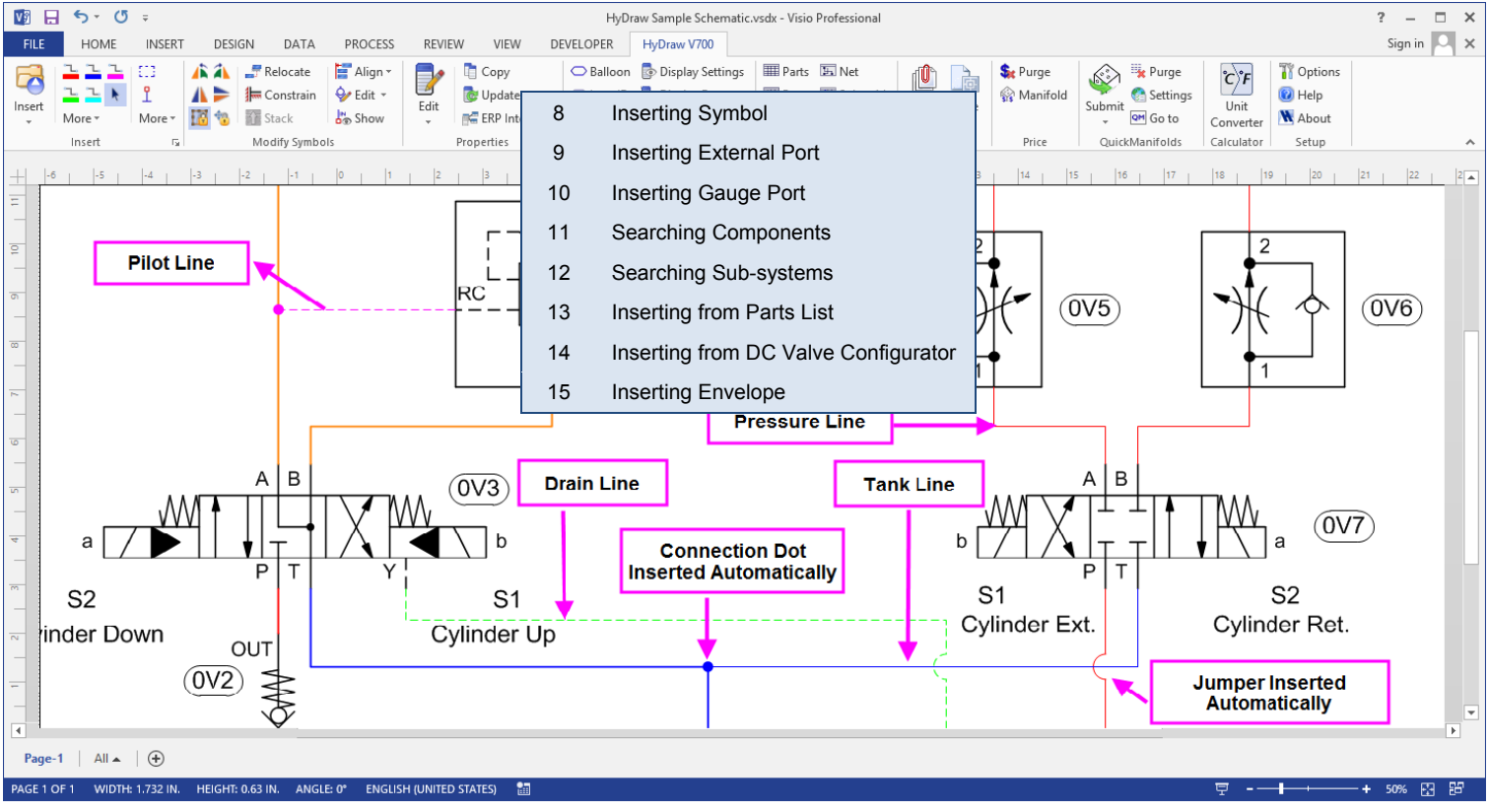
Configure and place the ERPServiceConfiguration.xml at the same location, where the ERP data file in Excel format is saved.

For details, refer Chapter 73. Configure the ERPServiceConfiguration.xml.



HyDraw Options – ERP Settings

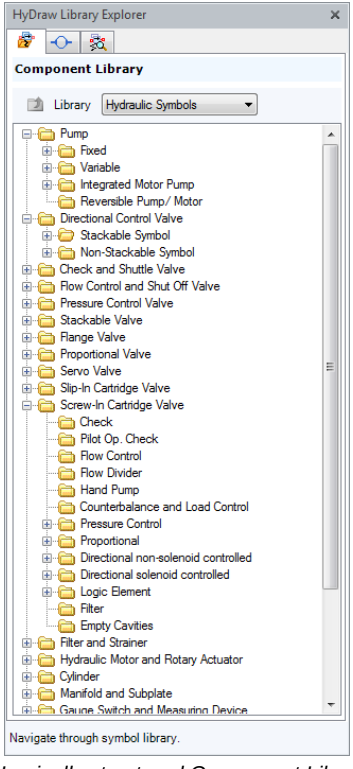
Inserting Symbols



8. Inserting Symbol

Insert symbols, external ports, and component models into the drawing.

The Component library is a logically structured symbol library of hydraulic, pneumatic, and electrical systems.



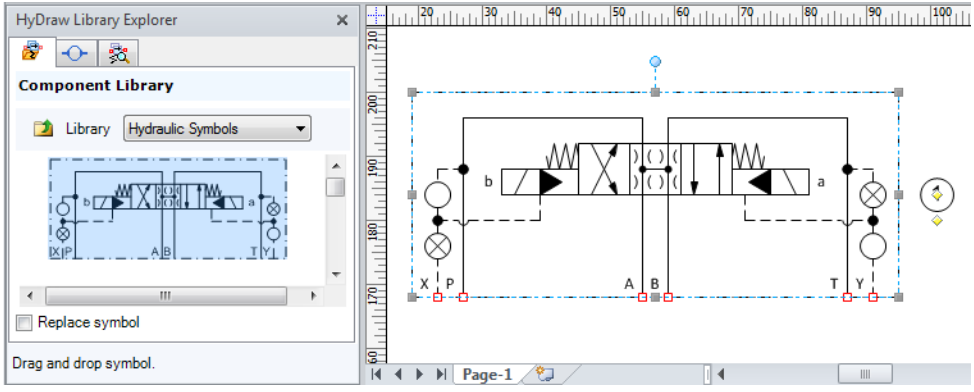
Logically structured Component Library

1 Insert a symbol into the drawing

1. Select the appropriate library and navigate to the required symbol.
2. Drag the symbol from the HyDraw® Library Explorer window into the drawing.

Note:

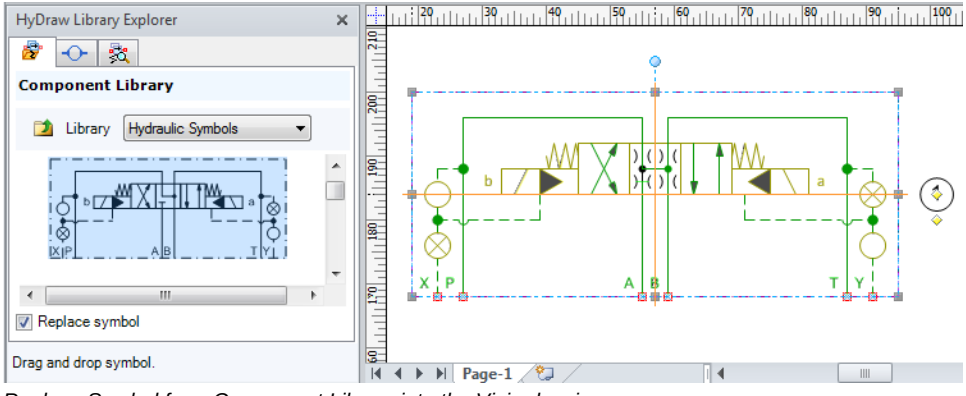
The Mobile Valve symbols are smart symbols and they can be configured from the context menu by right clicking over the symbol.



Drag and drop symbol from Component Libraryinto the Visio drawing

2 Replace Symbol

1. Select the **Replace symbol** checkbox in the HyDraw Library Explorer window to replace the symbol in the drawing, if required.
3. Drag and drop the new symbol over the old symbol in the drawing.



Replace Symbol from Component Library into the Visio drawing

9. Inserting External Port

Insert ports on the envelope line in a circuit drawing.
Configure and edit the ports to suit the circuit requirements.

1. Click tab on the HyDraw® Library Explorer window.
   The External Port Library tab page displays.

2. Click on the Configure External Port caption bar to expand, if the section is not open.

3. Type the **Item ID** in the text box,
   for example, P, T, 1.
   The default Item ID is '?'.

4. Select **Pressure line port** or **Return line port**.

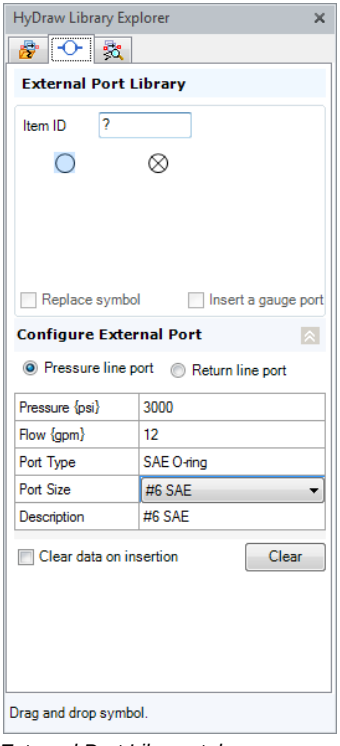
5. Enter parameters for **Pressure** and **Flow**.

6. Select **Port Type** from SAE O-ring, SAE Flange, BSP, NPT, and Metric.
   On selection, different port sizes of the respective port type are displayed automatically.
   Choose the required one.

7. Select and drag the plugged or unplugged port from the preview section into the drawing.
   If the port symbol is placed over the envelope line, it attaches itself to the envelope line.
   When moved, it moves along the envelope line.

   When a connecting line connects to the envelope line, an external port is inserted automatically at the point on the envelope.

   The port displays a red square with white background.
   When a proper connection is made, the red square disappears.



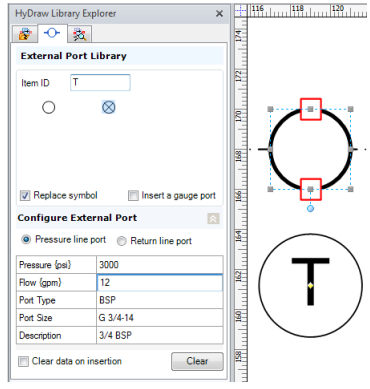
External Port Library tab page

1 Replace External Port

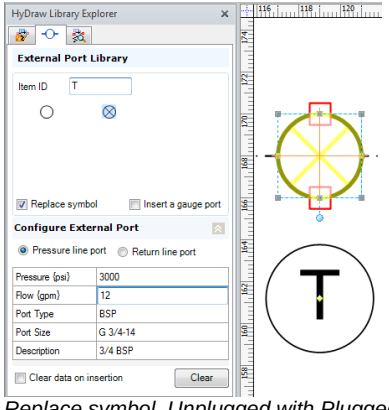
1. Replace the port in the drawing with another port from the library by selecting the symbol.

2. Select the **Replace symbol** checkbox in the HyDraw® Library Explorer window, if required.

3. Drag and drop the new symbol over the old symbol in the drawing.



External Port inserted into the drawing



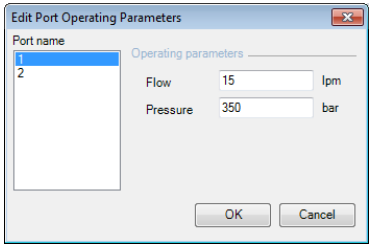
Replace symbol, Unplugged with Plugged External Port

2 Fetch Port from Library

1. Select the external port.

In the HyDraw Property Manager, Selected Item, specify the Design requirements, Pressure, and Flow.

2. Click in the Design requirements section.
4. *The Edit Port Operating Parameters dialog box displays.*



Edit Port Operating Parameters

3. The Flow and Pressure are automatically picked up from the Design requirements. If any changes are required, modify and click **OK**.

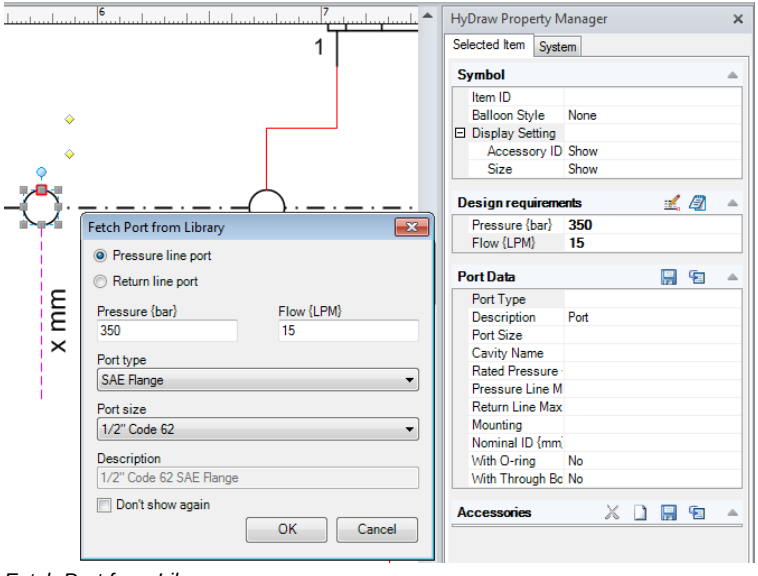
4. Select the **Fetch from Library** icon.
5. *The Fetch Port from Library dialog box displays.*

5. Select **Pressure line port** or **Return line port**.

6. Select **Port type** on the basis of the design requirements.

The port size is automatically selected.

7. Click **OK** to apply and exit.



Fetch Port from Library

Note

The port data can embed **With O-ring** and **With Through Bolt Hole** from HyDraw® to MDTools®.

3 Configure External Port

Configure external ports to different shapes.

1. Select Options from the HyDraw® V700 ribbon menu.

2. Click the **External Port** tab.
   The External Port tab page displays.

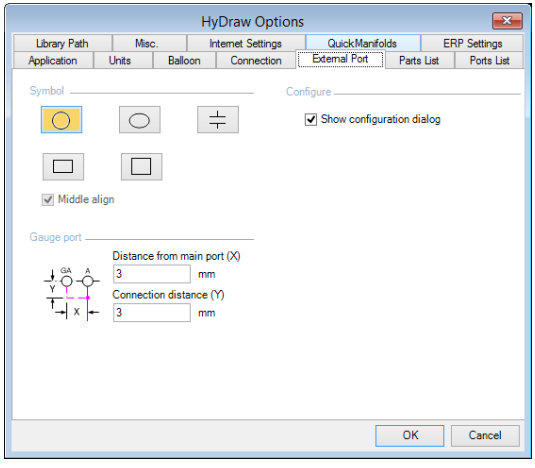
3. Click the appropriate shape to configure the port shape to a circle, oval, line, rectangle, or square.
   The respective shape displays in the Port Preview section of the HyDraw Library Explorer window.

   The external port can be placed on the envelope line of the circuit.

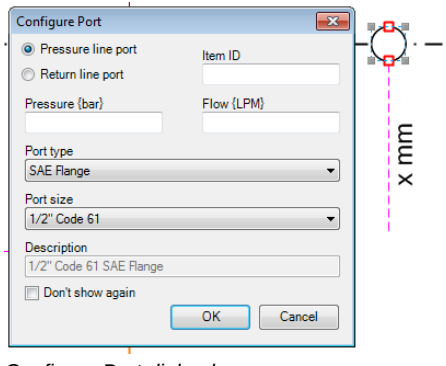
4. Select the **Middle align** checkbox to align the port co-axially with the envelope line.
   This option is applicable only for rectangular and square ports.

5. Select the **Show configuration dialog** checkbox to display the Configure Port dialog box, when the ports are automatically inserted on the envelope line by drawing a connection line.
   Alternatively, the Configure Port dialog box appears on clicking the Fetch from Library Icon from the HyDraw Property Manager.

6. Click **OK** to apply and exit.



External Port tab

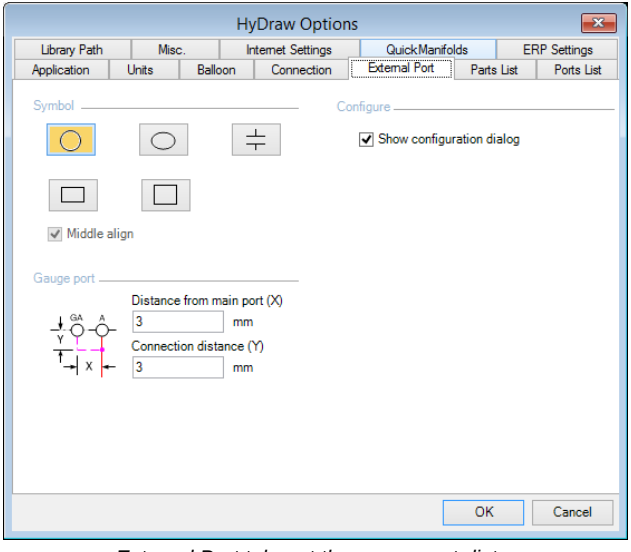


Configure Port dialog box

10. Inserting Gauge Port

Automatically add a gauge port in parallel to an existing external port.

1. Set the **Gauge port insertion distance** default values in the External Port tab of the HyDraw® Options dialog box.
2. Select the external port in the circuit drawing, where you want to add the gauge port in parallel.

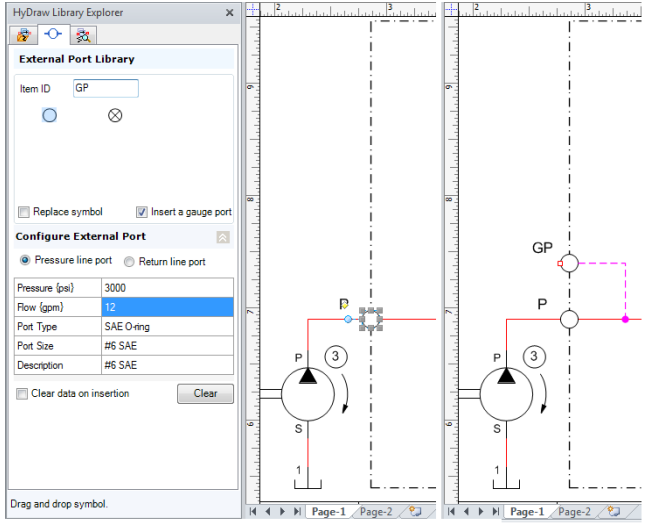


External Port tab, set the gauge port distances

Configure the External Port

1. Select the **Insert a gauge port** check box in the External Port Library tab.
2. Drag and drop the gauge port symbol on the side of the selected external port, where you want it to be inserted.

   The gauge port is inserted and connected in parallel to the selected external port.



Gauge port G1 is inserted in parallel to the existing selected external port

11. Searching Components

The Search From Library feature is used to search a component or sub-system from the library.
Search the Model Family or Model Code of a component type or category of a particular manufacturer or different manufacturers.

1 Search Components

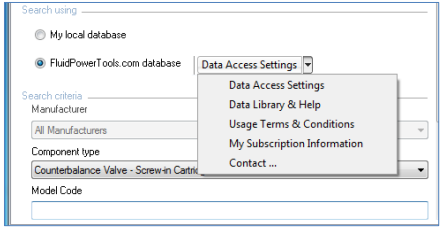
1. Click tab on the HyDraw® Library Explorer window.
   The Search From Library tab page displays.
2. Select **Components**.
3. Select the appropriate application.
4. Select appropriate search database, My local database or FluidPowerTools.com database.

   If the My local database option is selected, the program searches components in the user's local database.

   If the FluidPowerTools.com database option is selected,

   The split button on the right is enabled, use the data access settings.

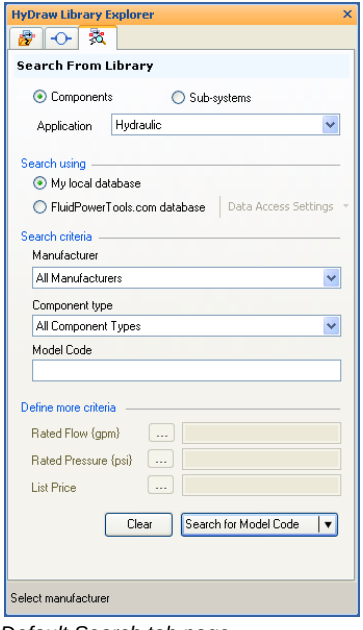
   In Data Access Settings, select the manufacturer database to search components.



Data Access Settings

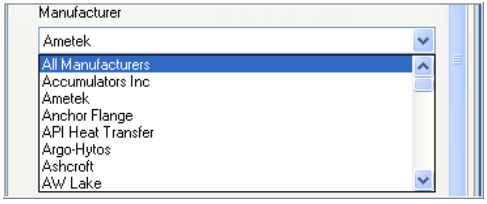
The Data Access Settings drop down provides other controls, which includes:

- Data Access Settings
- Data Library &Help
- Usage terms and conditions
- My Subscription information
- Contacts…



Default Search tab page

5. Select the manufacturer from drop-down list, if *My local database* is selected.

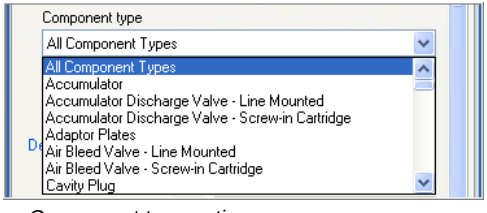


Manufacturer options

6. Manufacturer options
   Enter the Model Code to search the particular component
   For precise search, define custom search parameters in the Define more criteria section.
   Click to view the Select Property box, which displays all possible properties
   Select the property you want to assign.

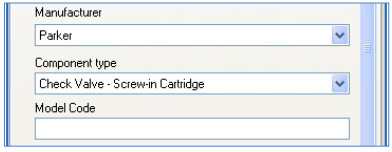
Enter the property value, for example 10,
or range, for example 10-20.
Property range must be separated by a hyphen (-).n

7. Select the appropriate component type.



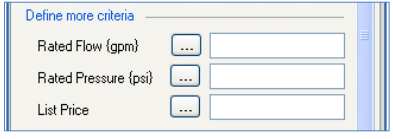
Component type options

8. Enter Model Code.



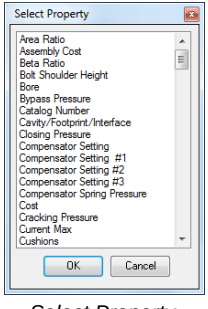
Enter Model Code

9. Define more criteria.



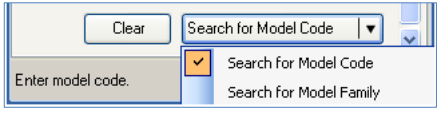
Define More Criteria options

10. Select Property



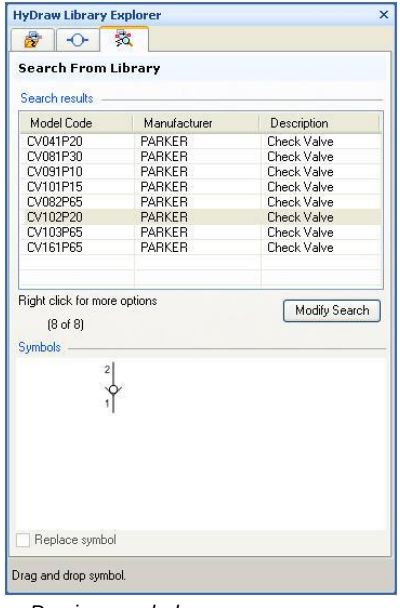
Select Property

11. Click the **Search for Model Code** button.
    All model codes with the assigned custom properties are displayed in the Search results pane.



Searching model code with precise criteria

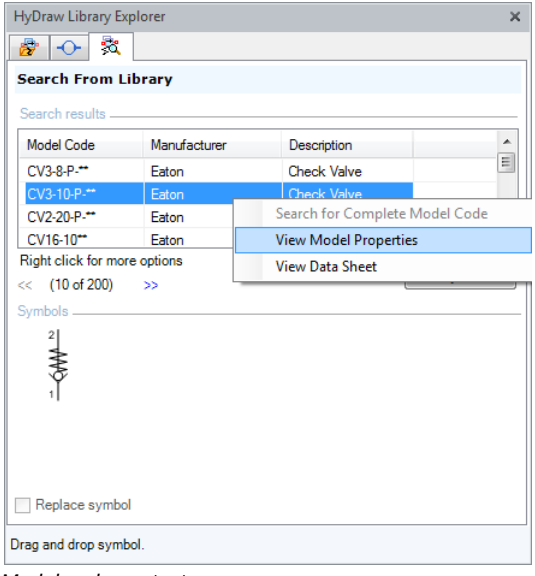
12. Select the appropriate model code in the preview pane.
    The Search results are displayed in the pane.



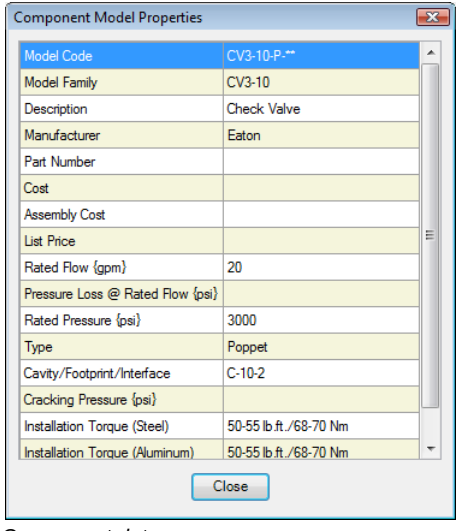
Preview symbols

13. **Right** click and select **View Model Properties** from the context menu to display the component data window.

    *The **Component Model Properties** window displays details about the component.*



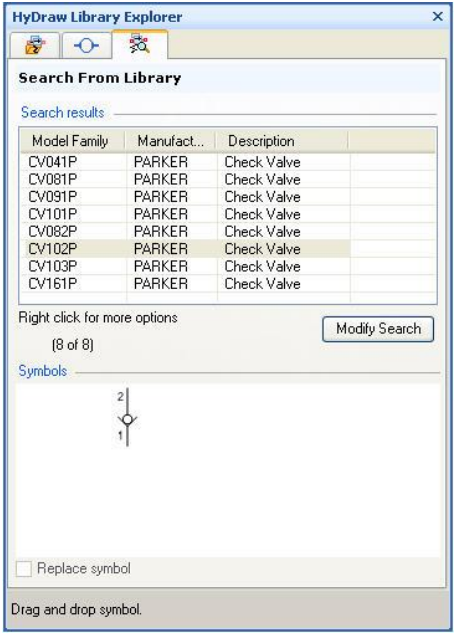
Model code context menu



Component data

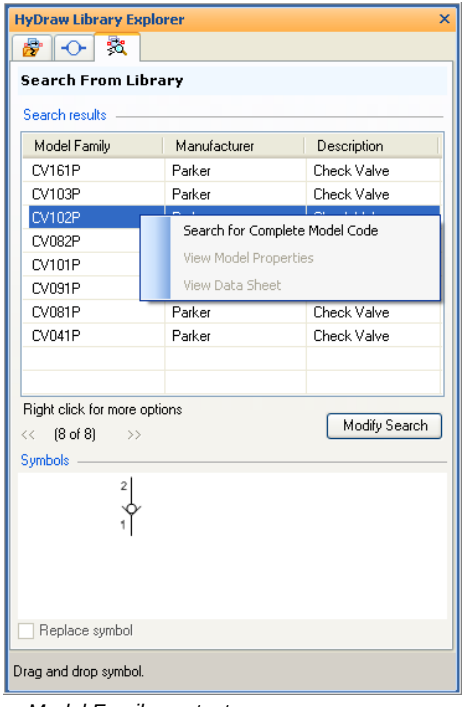
14. **Click** search for **Model Family.**

All model families with assigned custom properties are displayed in the Search results pane.



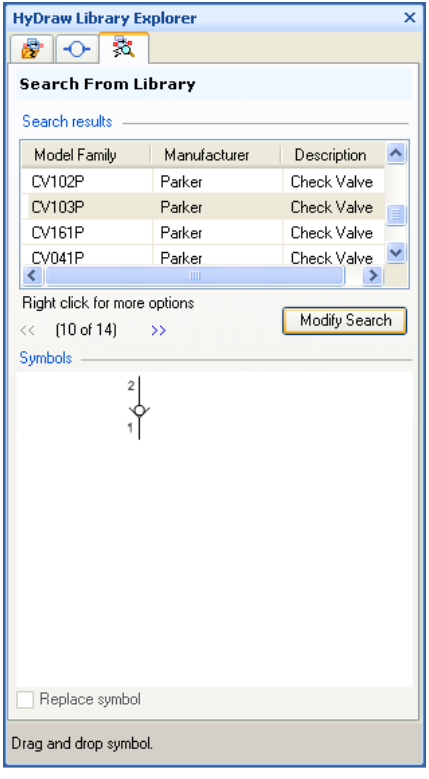
Model Family search results

15. **Right** click and select **Search for Complete Model Code** from the context menu to display all model codes in the model family.



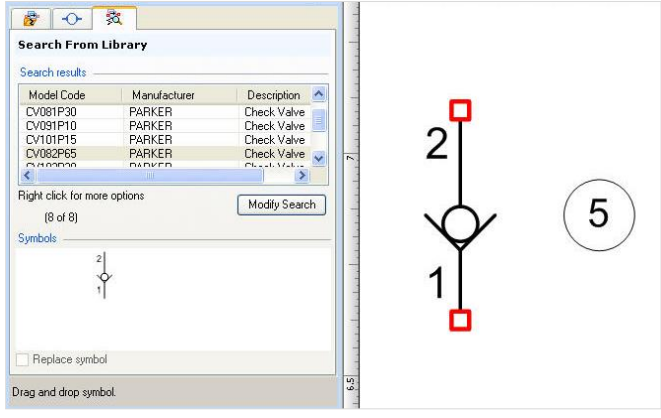
Model Family context menu

16. **Click Modify Search** to return to the main search window and search with different inputs, if required.



Modify Search

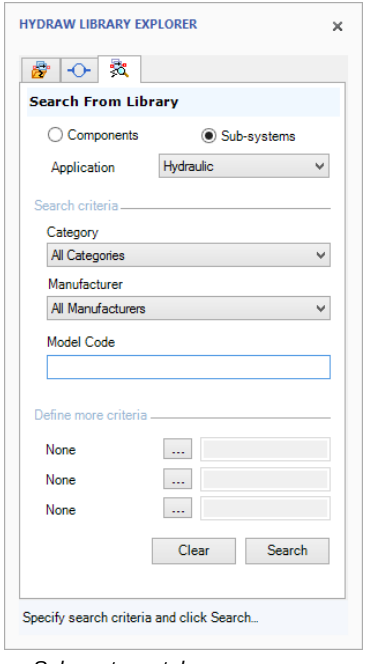
17. **Select** the symbol in the preview pane; drag and drop it into the drawing.
18. **Replace** the symbol in the drawing with another one from the library by selecting the **Replace symbol** checkbox in the HyDraw® Library Explorer window, if required.
19. **Drag** and drop the new symbol over the old symbol in the drawing.



Symbol dragged and dropped into the drawing

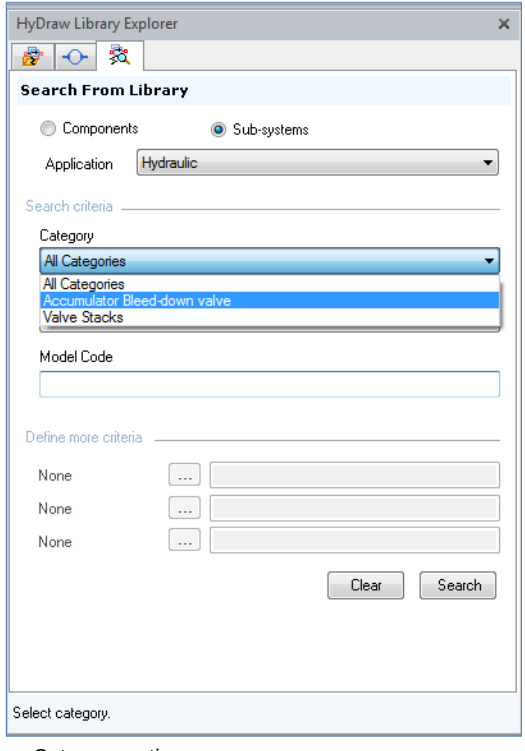
12. Searching Sub-systems

1. Click tab on the HyDraw® Library Explorer window.
   The Search From Library tab page displays.
2. Select **Sub-systems**.
3. Select the appropriate application.



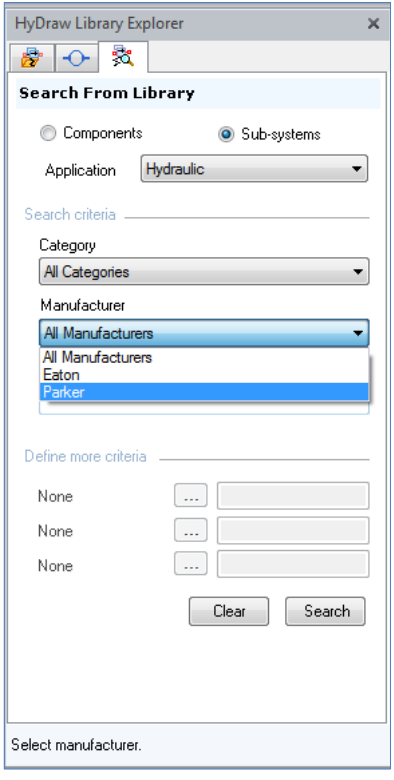
Sub-systems tab page

4. Select the appropriate category.



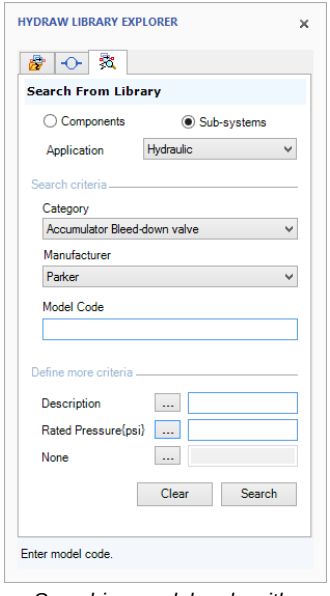
Category options

5. Select the appropriate manufacturer.

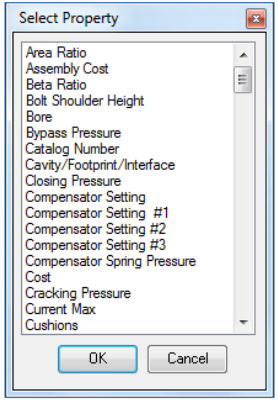


Manufacturer options

6. Enter the Model Code to search the particular component
   a. For precise search, define custom search parameters in the Define more criteria section.
   b. Click ... to view the Select Property box, which displays all possible properties.
   c. Select the property you want to assign.
   d. Click OK.



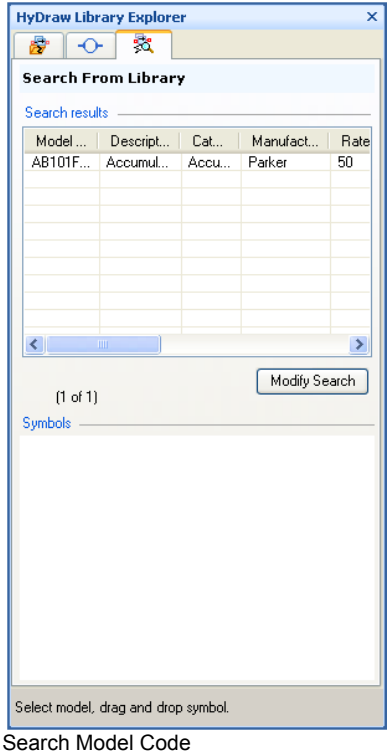
Searching model code with precise criteria



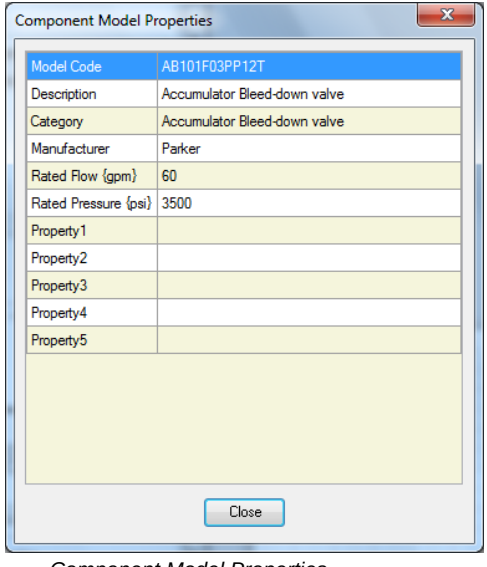
Select Property

7. Click the **Search** button.
   All sub-systems with assigned custom properties display in the Search results pane.

8. Click on the search results to display the selected sub-system in the preview pane.
   The Component Model Properties window displays details about the sub-system.

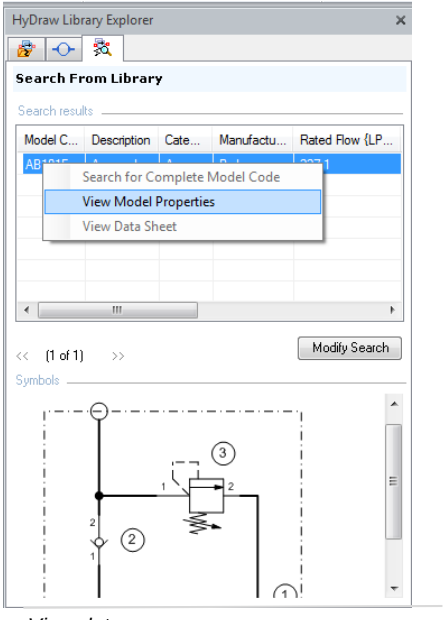


Search Model Code



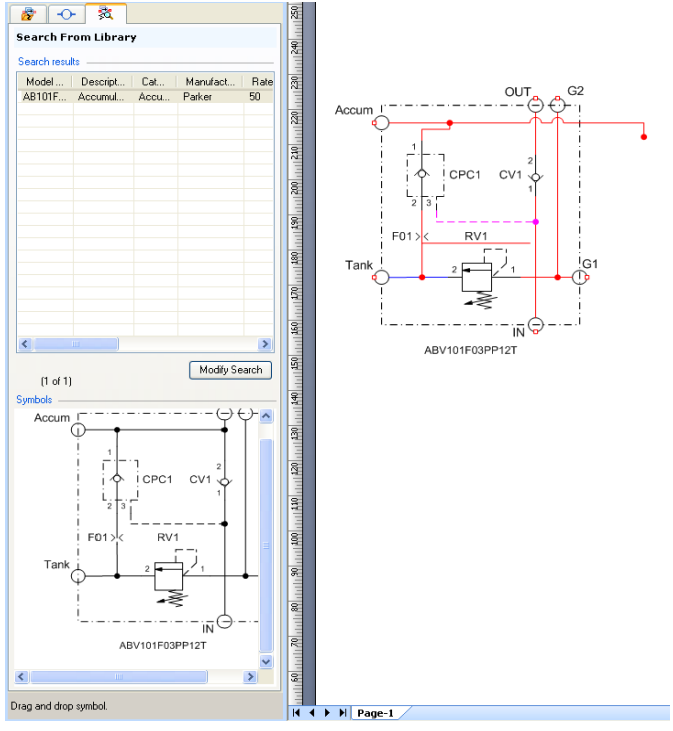
Component Model Properties

9. Right click and select **View Model Properties** from the context menu to display the component data window.



View data

10. Select the sub system in the preview pane; drag and drop it into the drawing.



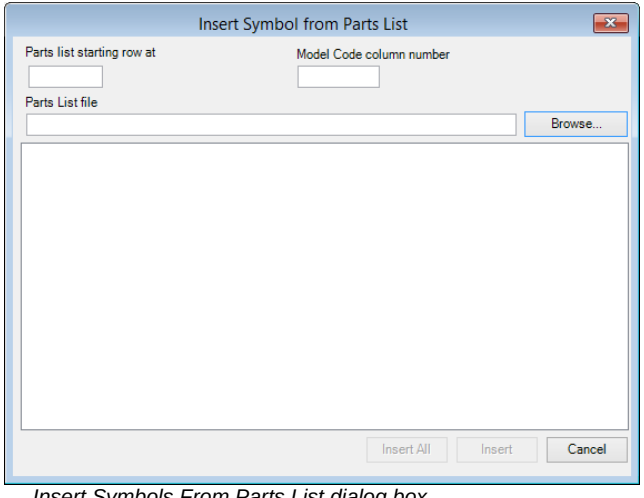
Sub-system dragged and dropped into the drawing

13. Inserting from Parts List

Insert symbols from Parts List in the Excel sheet. Each part in the Parts List is identified by its unique model code. Therefore, the parts list must contain a model code for each part in the list.

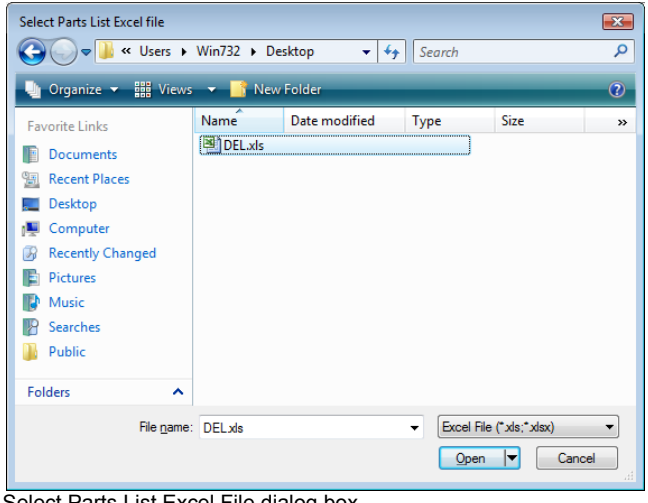
Insert Symbols from Parts List

1. Select **From Parts List** from the Insert Symbol option on the HyDraw® V700 ribbon menu.
   The Insert Symbol from Parts List dialog box displays.



Insert Symbols From Parts List dialog box

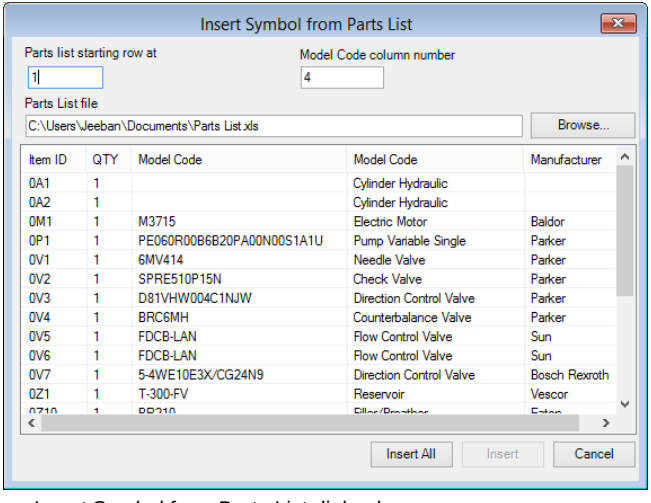
2. HyDraw sets **Part list starting rows at** from the HyDraw Options – Part List or you can enter the value.
3. Enter **Model Code column number** in the textbox, if you know.



Select Parts List Excel File dialog box

4. Click **Browse**...
   The Select Parts List Excel file dialog box displays.
5. Select the required file.

6. Click **Open**.
7. The complete Parts List displays in the Excel sheet.
8. Select the part or component symbol you require.
9. Click **Insert** to insert it into the drawing.
   A message box displays and notifies to select a point on the drawing, where you want to insert the symbol.
10. Click **Cancel,** if you want to abort the command.
11. Select the point on the drawing, where you want to insert the symbol.
    The symbol displays on the drawing.



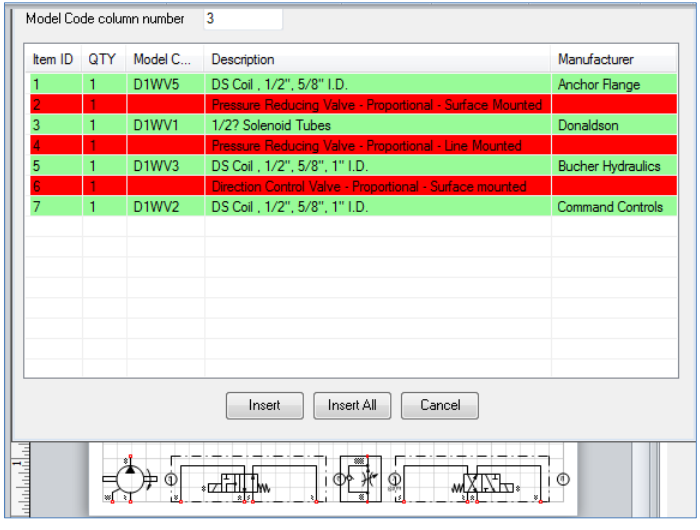
Insert Symbol from Parts List dialog box

12. Click **Insert All** to insert all symbols from the list into the drawing.

Note

- Envelopes and accessories are not inserted.
- Components without Model Code are not inserted.

The components (rows), which are not inserted, are highlighted in red.



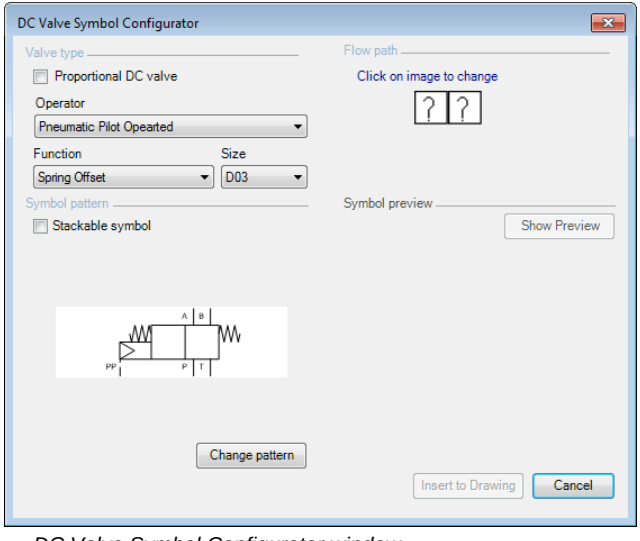
Symbol inserted into the drawing

14. Inserting from DC Valve Configurator

Configure dynamically both proportional and non-proportional stackable and non-stackable Direction Control (DC) valves with customized flow paths. Insert the configured valve into the drawing.

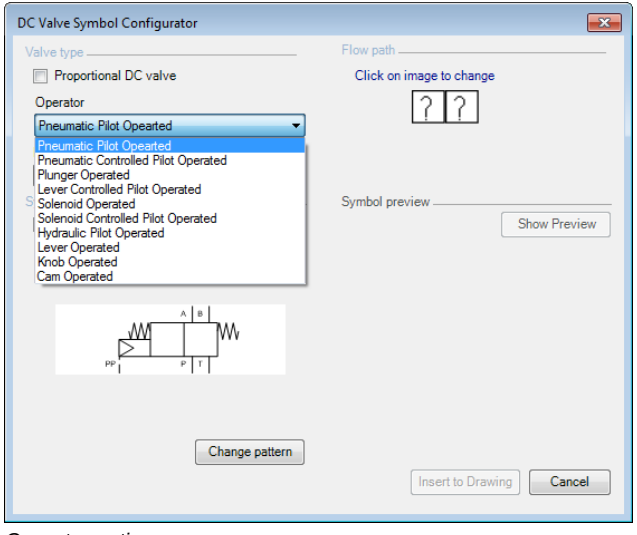
1. Select **From Configure DC Valve** from the Insert Symbol option on the HyDraw® V700 ribbon menu.
   The DC Valve Symbol Configurator dialog box displays.

2. Select the **Proportional DC valve** checkbox, if you want to configure the proportional DC valve from the Valve type group box.



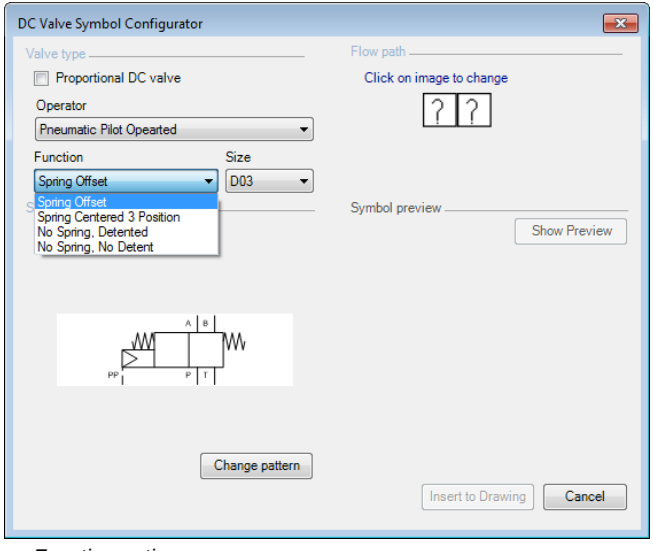
DC Valve Symbol Configurator window

3. Select the appropriate **operator**.



Operator options

4. Select the appropriate **function**.

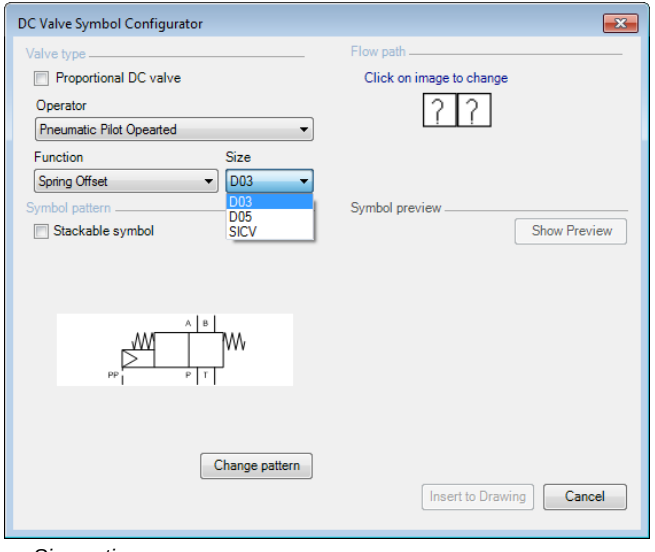


Function options

5. Select the appropriate **size**.

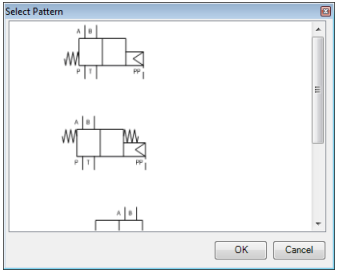
6. Select **Stackable symbol,** if you want to configure a stackable valve.

7. Click **Change pattern**, if you want to make any changes.
   The Select Pattern dialog box displays and shows the available patterns.



Size options

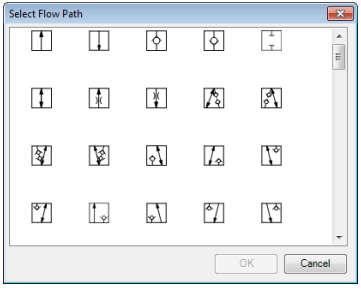
8. Select the appropriate pattern and click **OK.**
   The Directional Control valve symbol displays in the pane.



Different Patterns

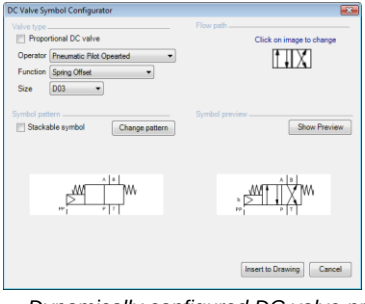
9. Click each "?" box in the Flow Path section to select the appropriate flow path.
   The Select Flow Path window displays.

10. Select the required flow path and click **OK**.



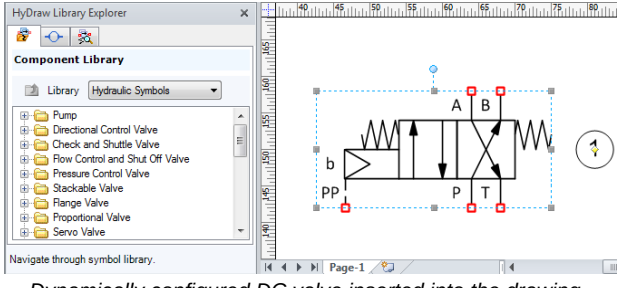
Select Flow Path window

11. Click **Show Preview** to view the selected DC valve in the preview pane.



Dynamically configured DC valve preview window

12. Click **Insert to Drawing** to insert the symbol into the drawing.
    The symbol is inserted into the drawing.



Dynamically configured DC valve inserted into the drawing

15. Inserting Envelope

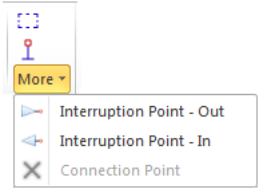
Insert an envelope to define a boundary for a manifold or a system.

1. Click Envelope from the HyDraw® V700 ribbon menu.

   The Visio cursor changes into a small square box.

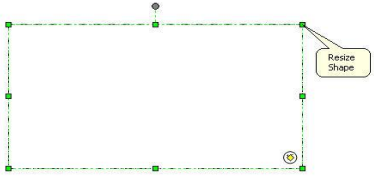
2. Select a point on the drawing, click and drag to create an envelope.
   The selection point and endpoint mark the diagonal corner points of the envelope.

3. To resize the envelope, select the envelope and drag it by the mid-selection point or the corner selection point.



Ribbon menu for Envelope, Terminator, Interruption Points, and Connection Points

Envelope defining the boundary of a symbol

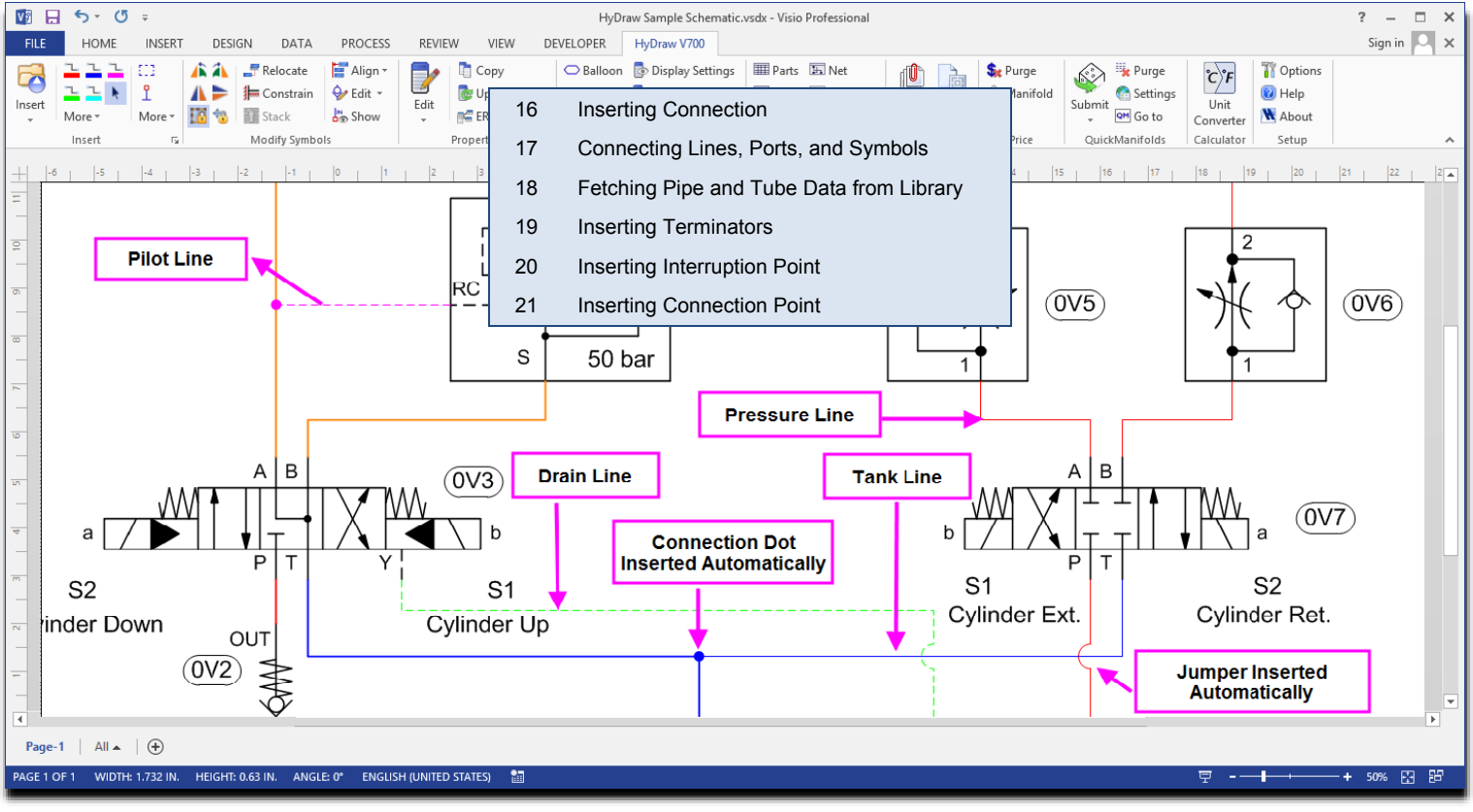


Resizing the envelope

Note

- By default, the size of the envelope is unlocked.
- It must be unlocked using the (Un)Lock Size command, before resizing it.

Making Connections



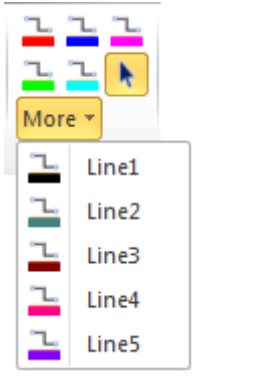
16. Inserting Connection

Interconnect symbols and create a circuit. Jumpers and line connections or connection dots are inserted dynamically, where connecting lines cross each other or where one connection line terminates on the other.

1. Click **Insert Connection** on the HyDraw® V700 ribbon menu.

2. Select the Connection type from Pressure, Tank, Pilot, Drain, Suction, or, Custom from Line1, Line2, Line3, Line4, and Line5.
   Connection lines are assigned with default ISO color and line weight.

   You can customize the connection lines.



Insert Connection submenus

Line Connection and Line Jumper

Line connection or Connection dot is inserted, where one line terminates on the other.

When the connection is not intended, lines are shown crossing each other or jumping over the other.

- Select the appropriate size of the connection dot and jumper from the Options menu.

Connection dot and jumpers are inserted dynamically.

Note

The connection line properties cannot be applied to multiple selections.

17. Connecting Lines, Ports, and Symbols

1. Select the Connection type from Pressure, Tank, Pilot, Drain, Suction, or Custom from Line1, Line2, Line3, Line4, and Line5 from the HyDraw® V700 ribbon menu.

   Connection lines are assigned with default ISO color and line weight. You can customize the connection lines.

2. Select any point on the drawing, where you want to start or end the connection.
3. Specify the start point of the connection and drag to the endpoint, where you want the connection to terminate.
4. To connect two ports of different symbols, click one port of a symbol and drag to the other port.

   The connection line snaps to end points and becomes straight dynamically, if drawn with kinks.

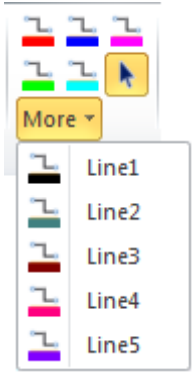
5. To connect one port of a symbol with the envelope line, click the port of the symbol and drag on to the envelope line or vice versa.

   External port is inserted dynamically on the envelope line, when a line connects the envelope line.

   When two lines cross each other, a jumper is inserted over one line dynamically. This indicates the connection is not intended.

   When one line terminates on another, a connection dot is inserted dynamically on the connection point.

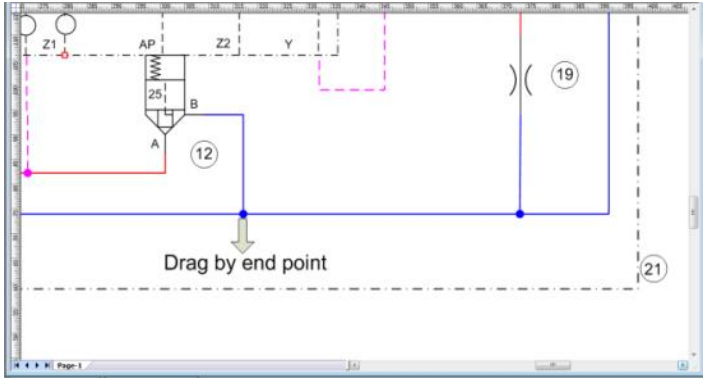
6. To move the connection line, select and drag the connection line by the mid point to the desired position.
7. To stretch the connection line, select and drag the connection line by the endpoint to the desired position.
8. .To deletes a connection line, select the connection line and press the Delete key.



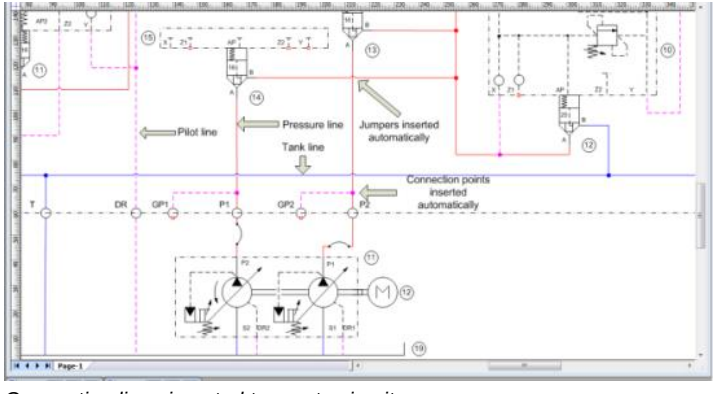
Insert Connection submenus

Note

- When you connect a connection line to a symbol port, the red square at the port connection point disappears. This indicates that the connection line is connected to the symbol properly.
- To insert Jumpers automatically for non-intersecting connection lines, set this option in the Misc. tab of the HyDraw® Options ribbon menu.
- Connection dots are inserted automatically when one connection line terminates on the other.
- When you delete the connection line, the red square at the port connection point to which the connection line is attached, becomes visible again. This indicates that the port connection point is unattached.



Stretch connection by endpoint



Connection lines inserted to create circuit

18. Fetching Pipe and Tube Data from Library

Connection lines can be assigned with the Tube and Pipe data from the Library based on the design requirements.

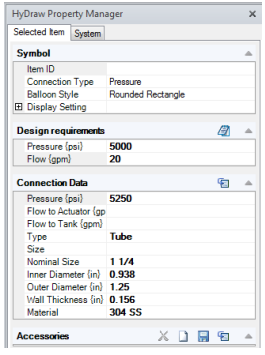
1. Select the **connection line**.
2. Specify the Design requirements, Pressure and Flow for the selected connection line in the **HyDraw Property Manager.**
3. Click the **Fetch from Library** icon.

6. *The Fetch Pipe/Tube from Library dialog box displays.*

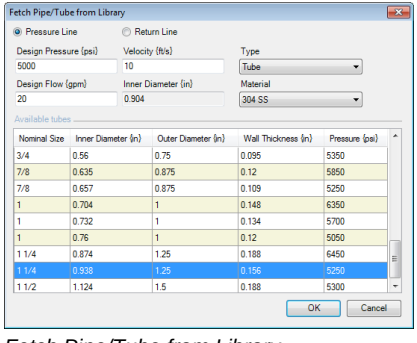
4. Select either the **Pressure Line** or the **Return Line**.
5. Select the **Type**, i.e. Tube/Pipe.
6. Select the **Material**.

   The available Tubes and Pipes are displayed based on the design requirements and velocity.

7. Select the pipe or tube.
8. Click **OK** to select and exit.



HyDraw Property Manager – Connection Data



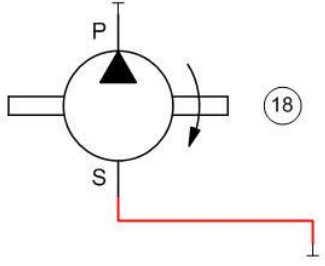
Fetch Pipe/Tube from Library

19. Inserting Terminators

Insert terminators dynamically at the unused component ports and unconnected connection lines.

1. Select the symbols or the circuit lines for the terminator insertion.
2. Click **Terminator** from the HyDraw® V700 ribbon menu.

Terminators are inserted automatically at all the unused ports of all selected symbols and unused connection lines.



Inserting dynamic terminators

Note

- The terminator indicates the unused component port.
- Terminator is essential in the Net List creation.
  A net remains incomplete, if a port is left unconnected.
- The Net List can indicate unconnected circuit lines and ports.

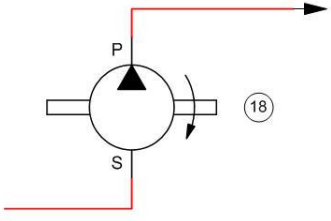
20. Inserting Interruption Point

Insert interruption points to correlate connection lines, parts of which lie on different pages in the Visio drawing file. This is applicable for larger schematics that spread into multiple pages.
The Interruption Point –Outgoing notifies the outgoing connection on the connection line on the page.
The Interruption Point –Incoming notifies the corresponding connection on the connection line on a different page.

Insert Interruption Point – Outgoing

- Select **Interruption Point – Outgoing** from the HyDraw® V700 ribbon menu.

An Interruption Point is inserted automatically at the outgoing connection line.

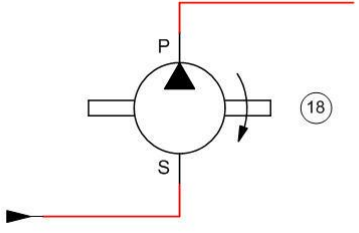


Interruption Point –Outgoing

Insert Interruption Point – Incoming

- Select **Interruption Point – Incoming** from the HyDraw V700 ribbon menu.

An Interruption Point is inserted automatically at the incoming connection line.

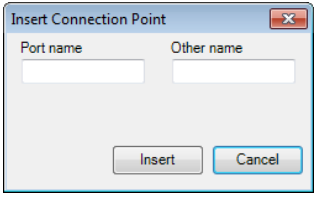


Interruption Point – Incoming

21. Inserting Connection Point

Insert connection points on the ports of a symbol.

1. Select the symbol.
2. Click **Connection Point** on the HyDraw® V700 ribbon menu.
   The Insert Connection Point dialog box displays.



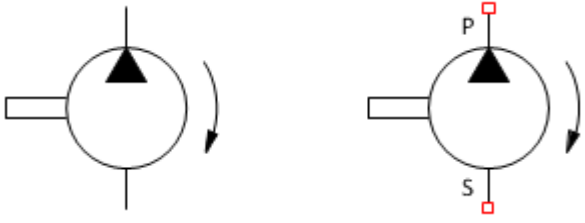
Assigning port name

3. Type the **Port name** and the optional **Other name** in the text box.
   The name should be the same as that of the port on which you want to insert the connection point, for example, P.
   Do not enter any other character other than the port name.

Note

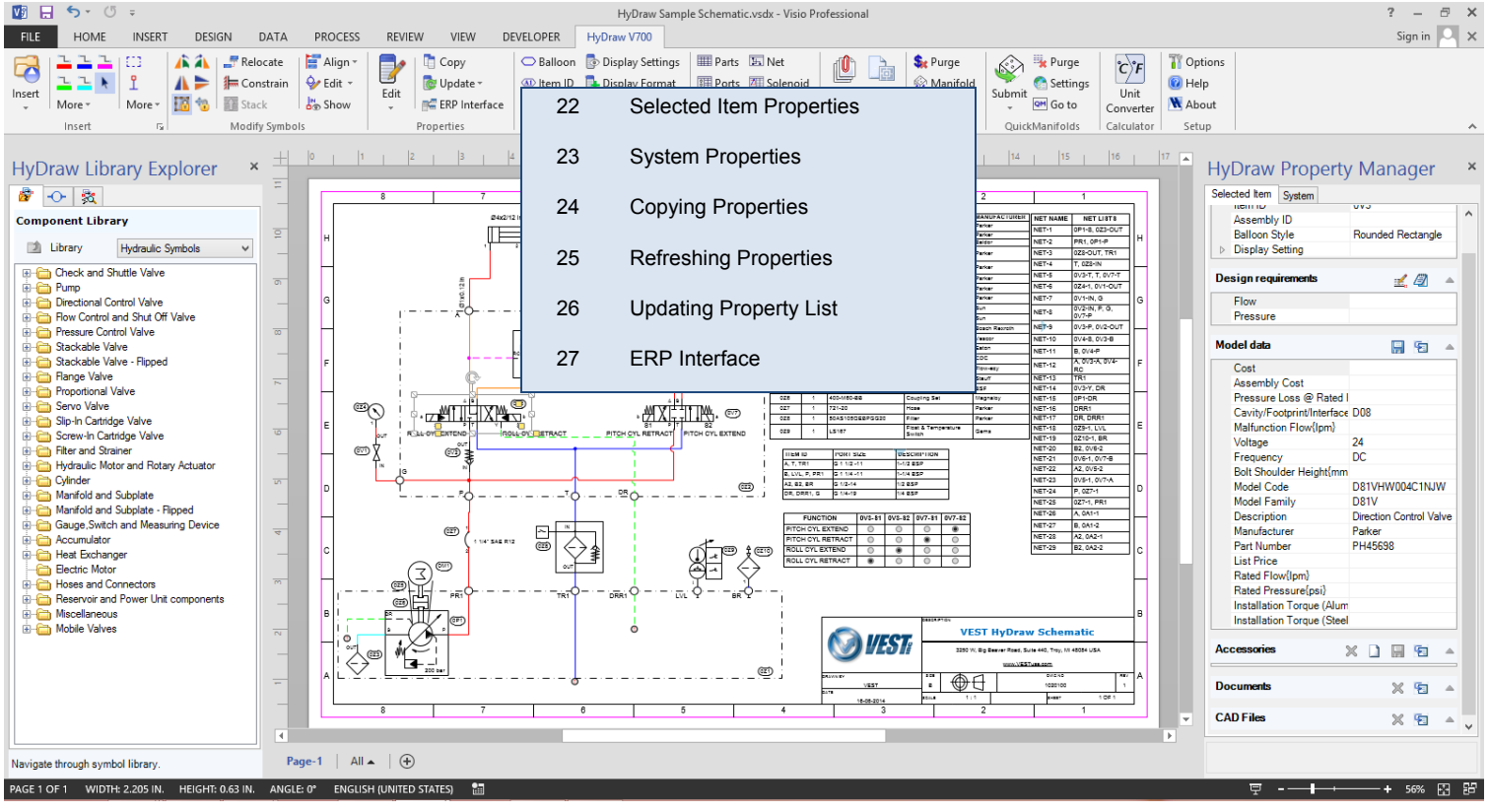
The connection points inserted using the Visio commands will not function correctly in HyDraw®.

4. Click **Insert**.
   The message, Press 'Ctrl' and Click to add connection point, displays in the Insert Connection Point window.
   Simultaneously, the cursor changes to a small cross in the drawing.
5. Move the pointer at the point on the symbol, with the Ctrl key pressed, to the place where you want to insert the connection point. Then, click to add the connection point.



Inserting connection point

Specifying Properties



22. Selected Item Properties

Display the assigned properties of the selected symbol in the drawing. Add new accessories to the symbol and save in the library.

Select the symbol on the drawing.

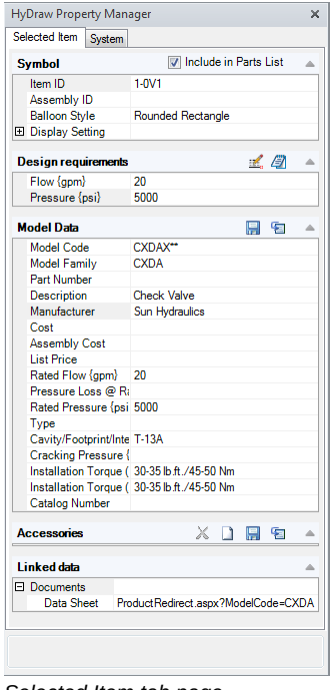
The Selected Item tab page displays the following sections

1 Symbol

The Symbol section displays the ID, balloon style, and various settings of the symbol.

- Customize the balloon style to circle, oval, rectangle, rounded rectangle, or none of these.
- Show or Hide various settings with the symbol on the drawing.

  Click ⊞ to expand and then select **Hide/Show** to hide or show the respective parameter.
- Select the checkbox on the caption bar to include the Selected Item properties in the respective component Parts List of the circuit.

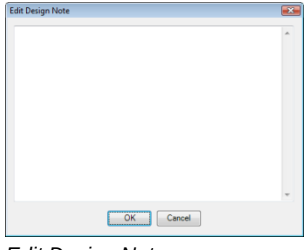


Selected Item tab page

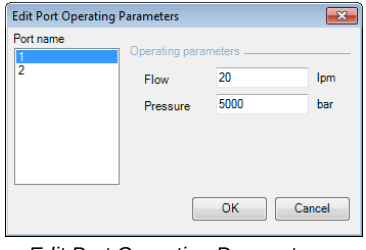
2 Design Requirements

The Design Requirements section enables you to search the required components with a specific parameter and value, for your design, from the library.

- Type the value in the text box of the respective parameter.
- Click on the **Design requirements** caption bar to open the **Edit Design Note** page to make relevant entries for future reference.
- Click on the **Design requirements** caption bar to open the **Edit Port Operating Parameters** dialog box.
- The flow and pressure are automatically selected from the Design requirements. If any changes are required, then modify and click **OK**.



Edit Design Note



Edit Port Operating Parameters

3 Model Data

The Model Data section displays the details of the component selected.

Fetch from Library

➢ Fetch model data for a component using either the
Local database installed on the system
OR
Online database of FuidPowerTools.com

- Enter the required criteria in the Model Data section.
- Click on the Model Data caption bar to fetch the component from the library.

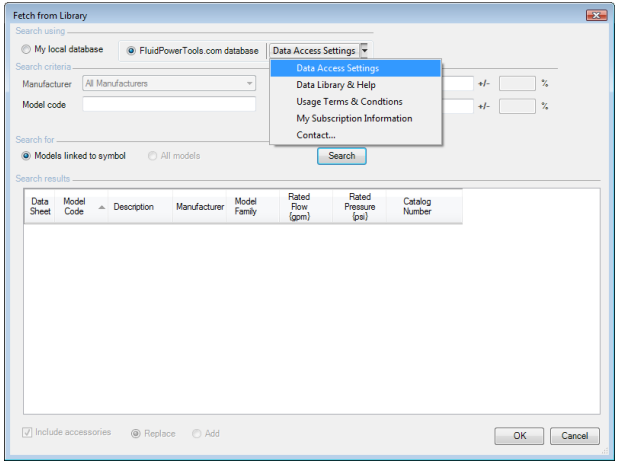
The Fetch from Library dialog box displays with the input data.

➢ Select the database to search, i.e.,
My local database or Fluidpower.com

If the My local database option is selected,
the program searches the component in the local database of the user.

If the FluidPowerTools.com database option is selected,
the split button on the right is enabled,
use data access settings.

- In the Data Access Settings, select **manufacturer database** to search components.



Fetch from Library - Data Access Settings

The Data Access Settings drop down provides other controls, which includes:
Data Access Settings, Data library& Help topic, Usage terms and conditions, My Subscriptions information, and Contacts.

- Click **Models linked to symbol** to display the component models linked to this symbol.
- Click **All models** to display all component models available to the component type of the symbol.
- Click the **Search** button to search for the component.

The search results display in the Search results pane.

- Click **OK.**

Add Accessories

You can add or replace accessories of the model code to the symbol by selecting an appropriate button.

- Select the **Include accessories** check box, and then select **Add.**
  The linked accessories of the component model will be added to the selected model.

Replace Accessories

- Select the **Include accessories** check box, and then select **Replace.**
  The linked accessories of the component model will be added to the selected model and all accessories linked previously will be delinked.

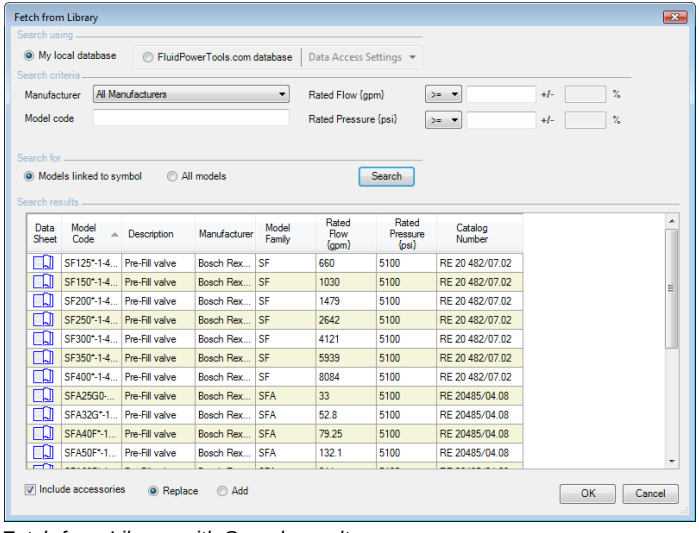
Saving Model Data into Library

You can save the designed component with customized data in the library.

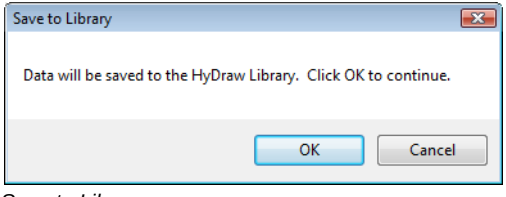
- Click on the Model Data caption bar to save custom details in the library.

Note:

To undo the changes, use the **Undo** function in Visio.



Fetch from Library with Search results



Save to Library

4 Accessories

The Accessories section displays the details of accessories assigned with the item.
This section also displays all documents and CAD files linked with the accessory.

Select from Library

You can fetch required accessories to your component from the library.

1. Click on the Accessories caption bar.

   The Select Accessories from Library dialog box displays.

2. Select the required manufacturer and component type.
3. To refine the search, type the Model Code, and then click **Search**.

   All available accessories of the selected component type display in the Available accessories pane.

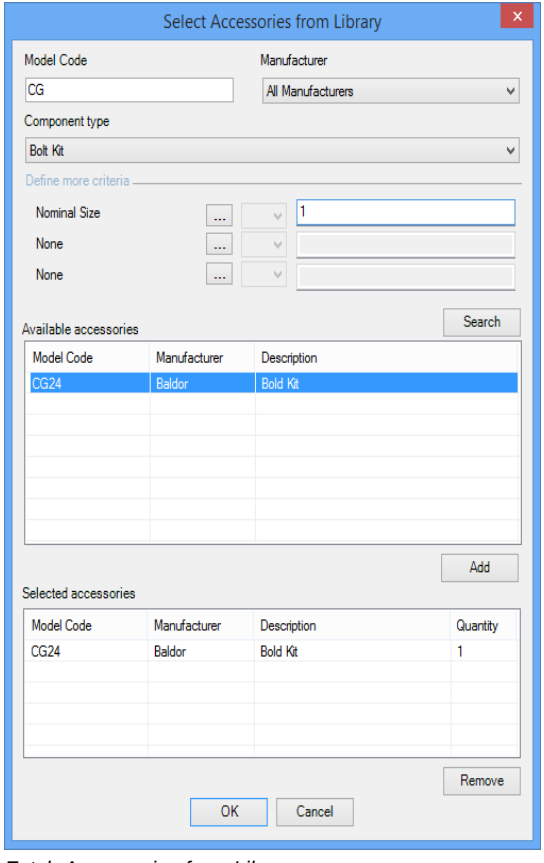
4. Define more criteria,

   For precise search, define custom search parameters.

   - Click [...] to view the Select Property box, which displays common properties of the selected Model.
   - Select the property you want to assign.
   - Click **OK**.

5. Click Search.

   All available accessories of the selected component type display in the Available



Fetch Accessories from Library

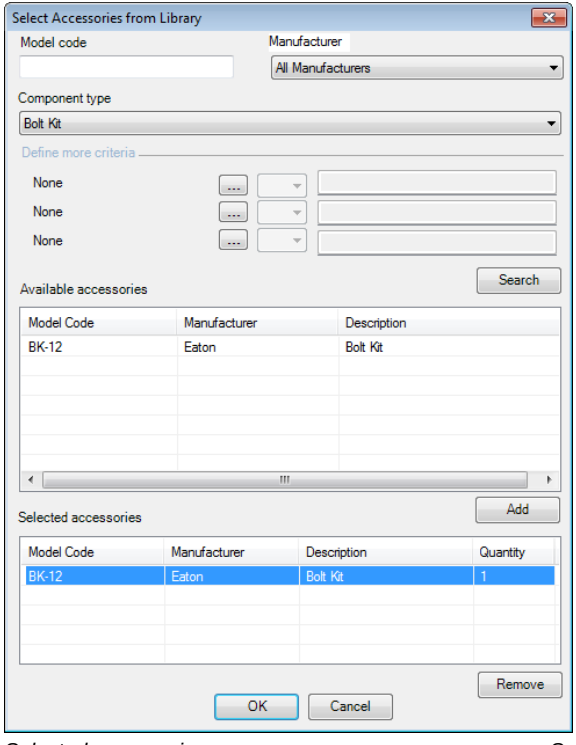
accessories pane.

6. Select the model code you want to add to your circuit.
7. Click **Add**.

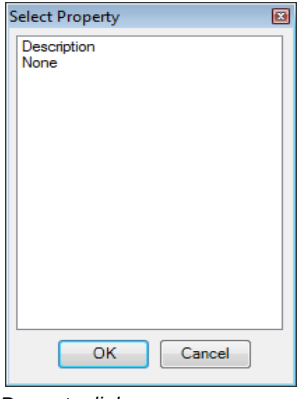
   The added model codes display in the Selected accessories pane.

8. Select the model code and click **Remove** to remove the selected model code from the selected accessories pane.
9. Click **OK**.

   All the selected accessories are added to the component and displayed in the Accessories pane on the Selected Item tab page.



Selected accessories



Select Property dialog

Add New Accessories

You can add new accessories to the selected item and save in the library.

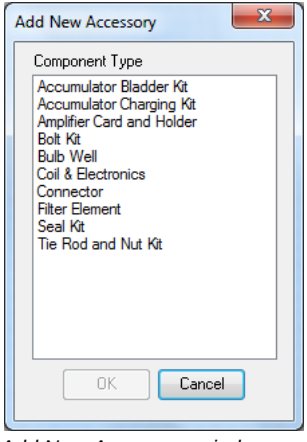
- Click on the Accessories caption bar.

  The Add New Accessory dialog box displays.

- Select the appropriate component type you want to add.
- Click **OK.**

  The accessories are assigned to the component and displayed in the Accessories pane.

- Click to expand the newly added accessories menu.
- Fill in the required data in the appropriate text box.



Add New Accessory window

Save Accessories

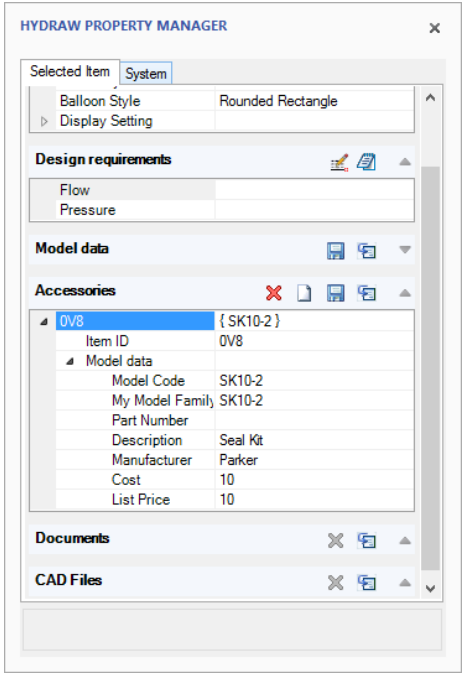
You can save the newly added accessories to the component.

- Click on the Accessories caption bar.

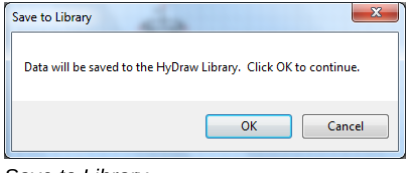
  The Save to Library dialog box displays.

- Click **OK**

  The new accessories are saved.



Accessories section

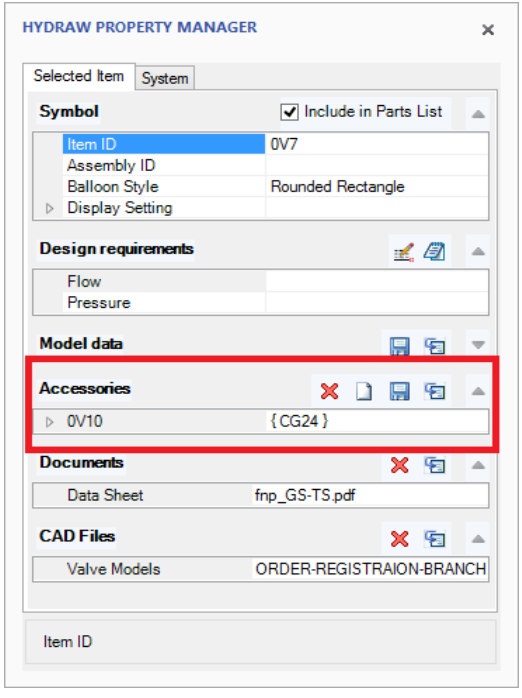


Save to Library

Delete Accessories

- Select the accessory you want to remove.
- Click on the Accessories caption bar to delete the accessory.

  The accessory is deleted from the component.



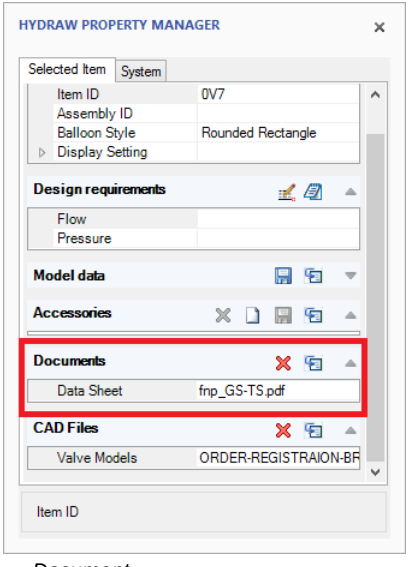
Accessories deleted from library

5 Document

The documents linked with the selected component model are displayed. You can delete and link documents from the library.

Click on the **Documents** caption bar to delete the linked document.

Click **Select from library** to link new documents to the selected component model.



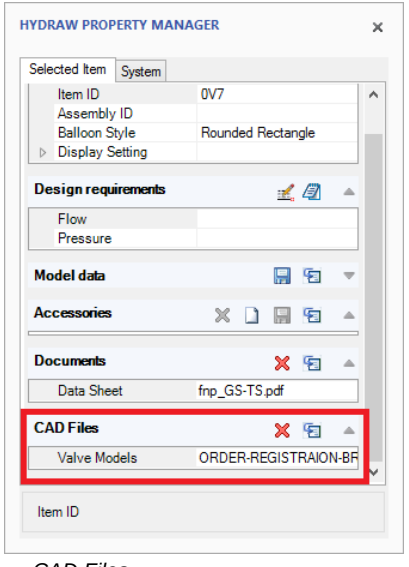
Document

6 CAD Files

The CAD files linked with the selected component model are displayed. You can delete and link CAD files from the library.

Click on the **CAD Files** caption bar to delete the linked CAD files.

Click **Select from library** to link new CAD files to the selected component model.



CAD Files

23. System Properties

When you open a schematic in the Visio drawing, the System tab page displays the assigned properties of the selected system in the drawing. Add new accessories to the system and save in the library.

1. **Components**

   The Components section displays the model codes of all the components in the circuit.

   - Select the Item ID to highlight the corresponding component in the drawing.

2. **External Ports**

   The External Ports section displays the ID and the size of all external ports in the circuit.

   - Select the Item ID to highlight the corresponding external port in the drawing.

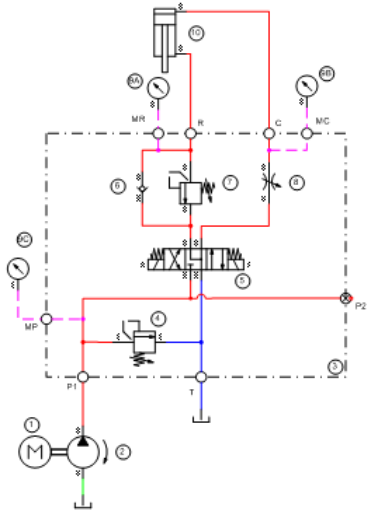
3. **Envelopes**

   The Envelopes section displays the ID of the envelopes.

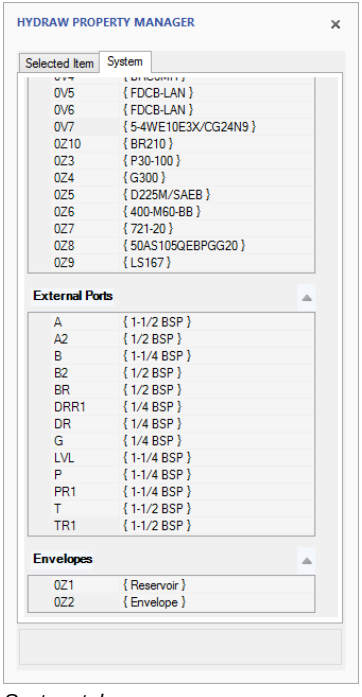
   - Select the Item ID to highlight the corresponding envelope in the drawing.

4. **Accessories**

   The Accessories section displays the details of accessories assigned with the circuit.



Schematic



System tab page

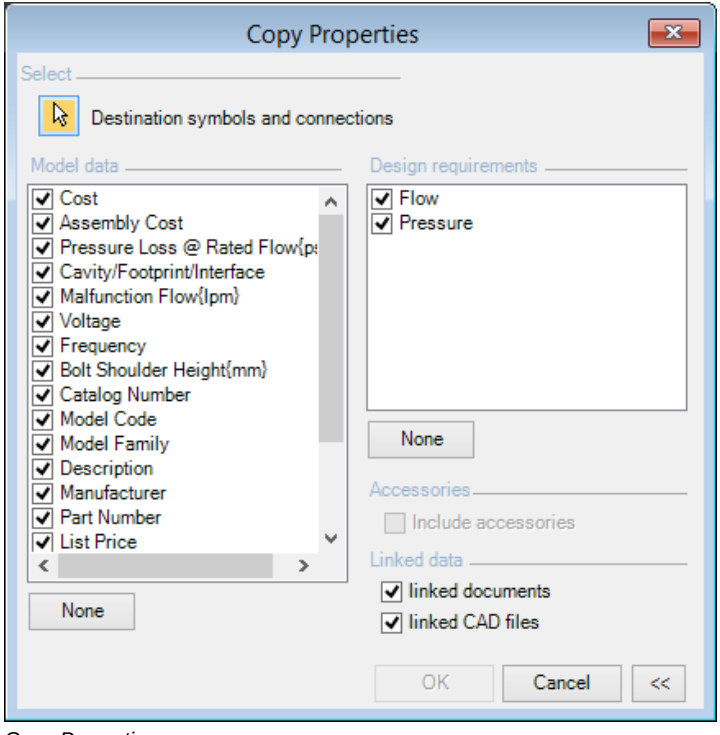
24. Copying Properties

Copy component data, design requirements, and accessories, if any, of one component symbol with another component symbol of the same category.

1. Select the source component symbol in the HyDraw® drawing.
   The data of the component can be viewed from the Selected Items properties tab page in the HyDraw Property Manager.
2. Click **Copy Properties** Copy on the HyDraw V700 ribbon menu.
   The Copy Properties dialog box displays.

Note

3. The command becomes available only when the source symbol is selected.
4. Select the required properties you want to copy from the Model data checklist box.
5. Select the required design requirements, if you want to copy from the **Design requirements** checklist box.
6. Select the **Include accessories** checkbox, if you want to copy the accessories to the destination symbol.
7. Select **linked documents** and **linked CAD files** checkboxes, if you want to copy the linked documents and CAD files to the destination symbol(s).
8. Select the destination symbol(s), for the properties of the source symbol to be copied to.
   The properties are copied to the destination symbol(s).



Copy Properties

25. Refreshing Properties

Update property values of symbols or the system from HyDraw® Library.

1. Click **Refresh properties**

on the HyDraw V700 ribbon menu.
The Refresh Properties dialog box displays.

2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

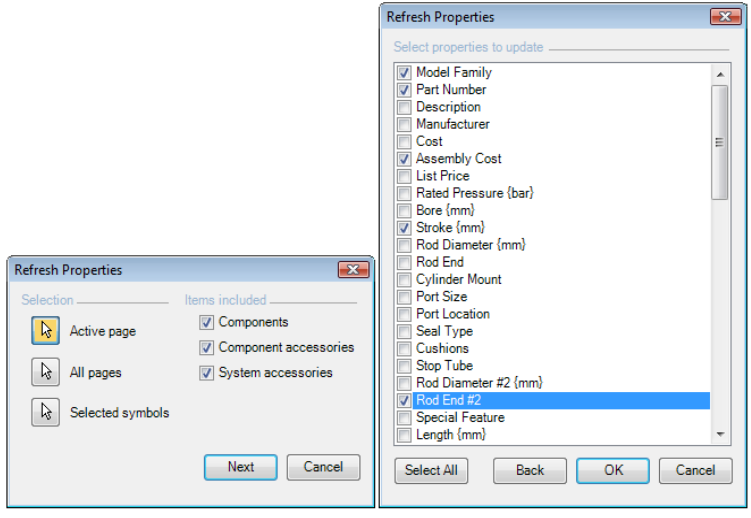
3. Select the items to be included,
   - Select the **Components** checkbox to include all components in the Refresh properties.
   - Select the **Component accessories** checkbox to include all component accessories in the Refresh properties.
   - Select the **System accessories** checkbox to include all system accessories in the Refresh properties.

4. Click **Next**.
   The Refresh Properties value dialog box displays.

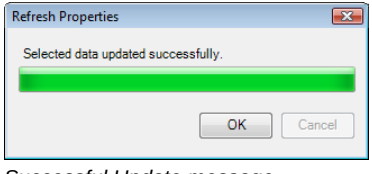
5. Select individual properties to Refresh or **Select All**.

6. Click **OK**.
   The Update message box displays.

7. Click **OK** to apply and exit.



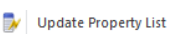
Refresh properties

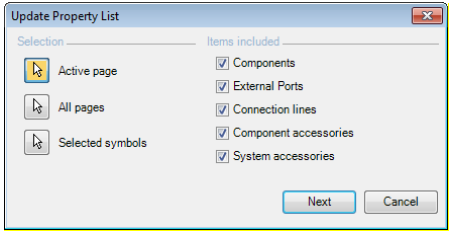


Successful Update message

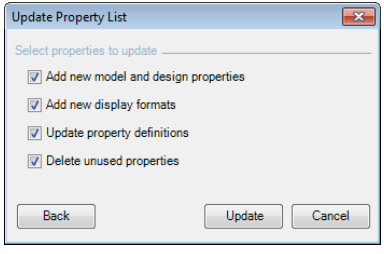
26. Updating Property List

Update the properties of symbols or system from the HyDraw® Library. Display properties with the alternate units.

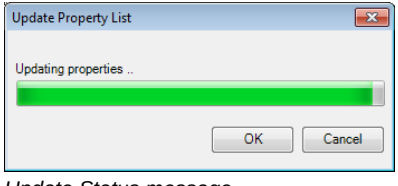
1. Click **Update Property List**  on the HyDraw V700 ribbon menu.
   The Update Property List dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the **Components**, **External Ports**, **Connection Lines**, **Component accessories** and **System accessories** checkbox to include in the Update Properties List.
4. Click **Next**.
5. Select the items to be included,
   - Add new model and design properties
   - Add new display formats
   - Update property definitions
   - Delete unused properties
6. Click **Back** to change the selection.
7. Click **Update**.
   The Update Property List message box displays the status.
8. Click **OK** to apply and exit.



Update Properties List



Selected properties to update

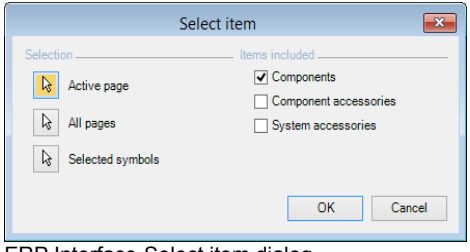


Update Status message

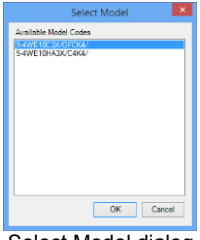
27. ERP Interface

Fetch the data from the ERP data file in the Excel format.

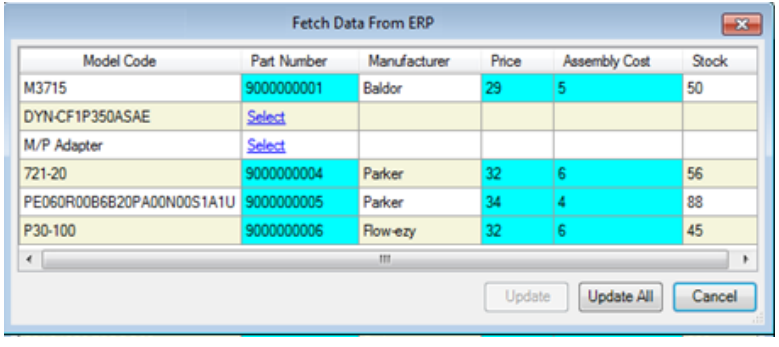
1. Click ERP Interface on the HyDraw V700 ribbon.
   The Select item dialog box displays.
2. Select any one of the three options:
   Click the **Active** page button to select the drawing in the Active page.
   Click the **All pages** button to select the whole document in the file.
   Click the **Selected symbols** button to select the specified component symbols.
3. Select the **Components**, **Component accessories** and **System accessories,** as required.
4. Click **OK**.
   The Fetch Data From ERP dialog displays.
   The columns get populated with the matching Model codes values
   Partially matching Model Codes are displayed with the Select link.
   a. Click the Select link.
   7. *The Select Model dialog box displays.*
   b. Select the Model Code, as required.
   c. Click **OK**.
   The highlighted cells indicate the matching values with the selected components & accessories.
5. Click **Update** to update the selected row.
6. Click **Update All**, to update all the rows in the drawing.
7. Click **Cancel** to exit.



ERP Interface-Select item dialog

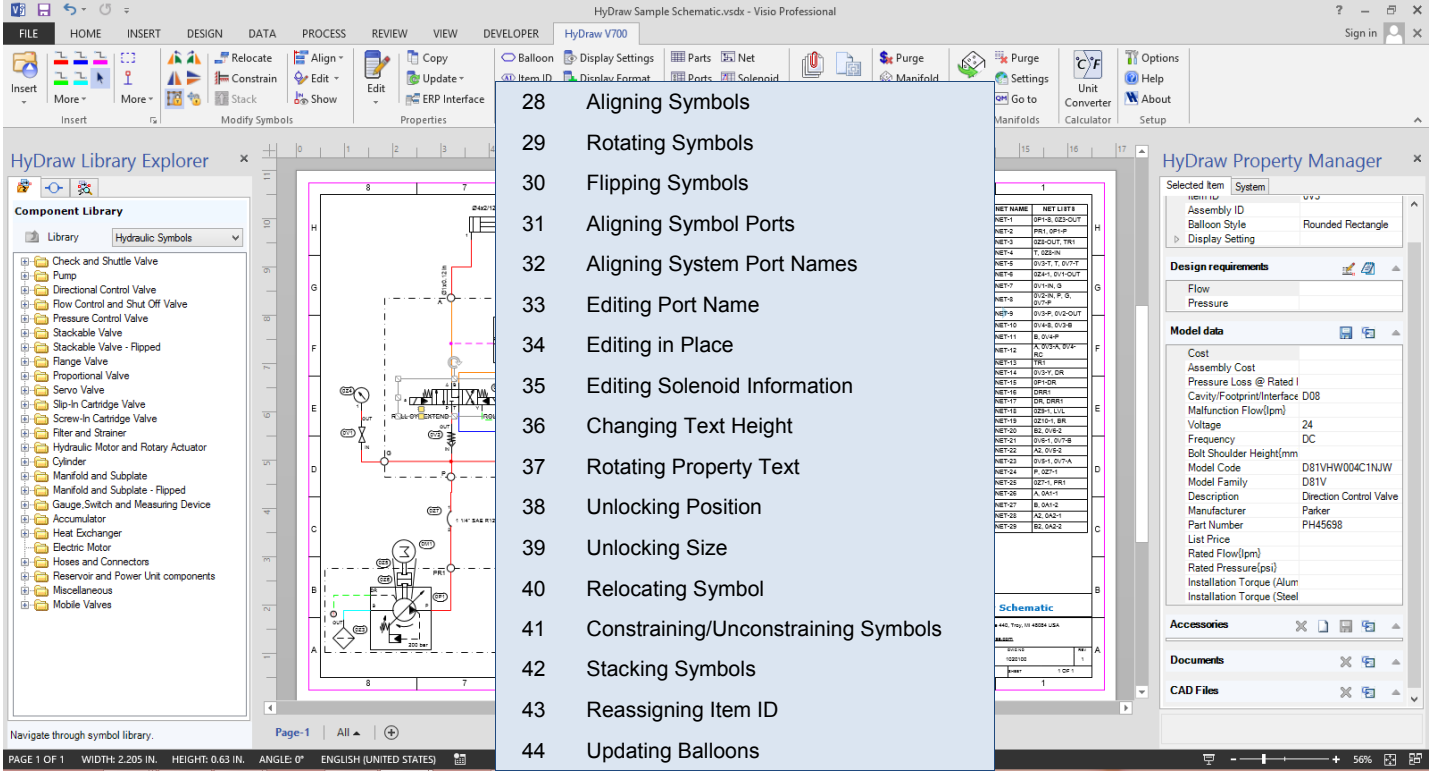


Select Model dialog



Fetch Data From ERP

Modifying Symbols



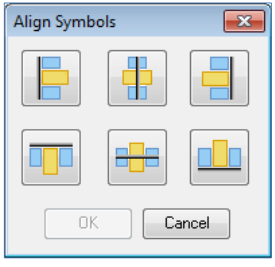
28 Aligning Symbols
29 Rotating Symbols
30 Flipping Symbols
31 Aligning Symbol Ports
32 Aligning System Port Names
33 Editing Port Name
34 Editing in Place
35 Editing Solenoid Information
36 Changing Text Height
37 Rotating Property Text
38 Unlocking Position
39 Unlocking Size
40 Relocating Symbol
41 Constraining/Unconstraining Symbols
42 Stacking Symbols
43 Reassigning Item ID
44 Updating Balloons

28. Aligning Symbols

Align one symbol with another symbol, horizontally or vertically, from left, right, or middle.

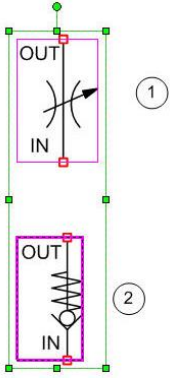
1. Select the symbols you need to align.
2. Click **Align Symbols** on the HyDraw® V700 ribbon menu.

   The Align Symbols dialog box displays.

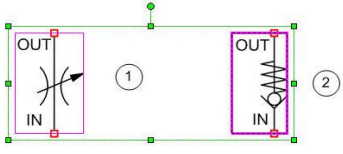


Align Symbols dialog box

3. Click , , or on the Horizontal pane to align symbols horizontally from left, middle, or right.
   Or,
   Click , , or on the Vertical pane to align symbols vertically from top, middle, or bottom.
4. Click **OK** to align the symbol.



Symbols aligned horizontally from left



Symbols aligned vertically from top left

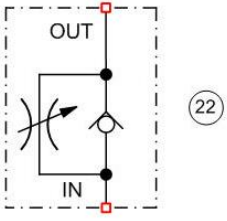
29. Rotating Symbols

Rotate a symbol, 90 degrees to its left or right. The associated text is constrained to remain horizontal.

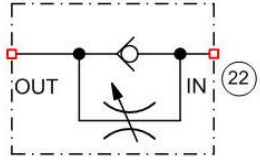
Rotate Left

1. Select the symbol you want to rotate.
2. Click **Rotate Left** on the HyDraw® V700 ribbon menu.
   or
   Select **Rotate** > **Left** from the context menu.

   The symbol rotates 90 degrees to its left.



Select a symbol

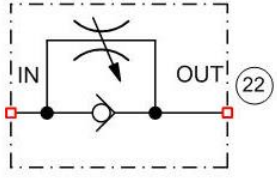


Rotate symbol to the left

Rotate Right

1. Select the symbol you want to rotate.
2. Click **Rotate Right** on the HyDraw® V700 ribbon menu.
   or
   Select **Rotate** > **Right** from the context menu.

   The symbol rotates 90 degrees to its right.



Rotate symbol to the right

30. Flipping Symbols

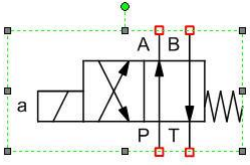
Flip a symbol horizontally or vertically. The associated text is constrained to remain horizontal.

Flip Horizontal

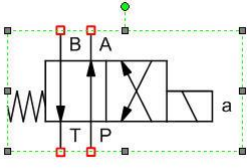
1. Select the symbol you want to flip.
2. Click **Flip Horizontal** from the Modify Symbol option on the HyDraw® V700 ribbon menu.

   or
3. Select **Flip** > **Horizontal** from the context menu.

   The symbol flips horizontally.



Symbol inserted in the drawing horizontal



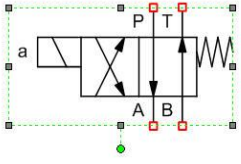
Flipping the symbol

Flip Vertical

1. Select the symbol you want to flip.
2. Click **Flip Vertical** from the Modify Symbol option on the HyDraw® V700 ribbon menu.

   or

1. Select **Flip** > **Vertical** from the context menu.
2. The symbol flips vertically.



Flipping the symbol vertical

31. Aligning Symbol Ports

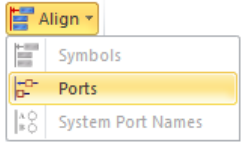
Align ports of different symbols horizontally or vertically.

1. Click **Align Symbol Ports** on the HyDraw® V700 ribbon menu.
3. Click the **Symbol to move** button in the Select pane to select the symbol you need to align.
   A red dot appears along the port to be aligned.
4. Click **Next Port**, if you don't want to align this port and another port.
5. Click the **Symbol to align with** button in the Select pane to select the other symbol, which you need to align it with.

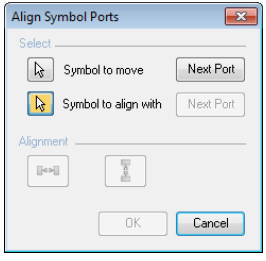
   A red dot appears along the port to be aligned.
6. Click **Next Port**, if you don't want to align this port and another port.
7. Click in the Alignment pane to align ports horizontally, Or
   Click in the Alignment pane to align ports vertically.
8. Click **OK**.
   The symbols are aligned with reference to their ports.

Note

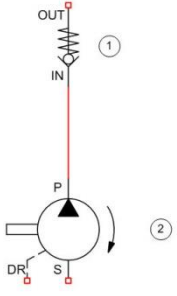
When you align symbols, the first symbol gets constrained to the second symbol and moves with it till you manually relocate the first symbol.



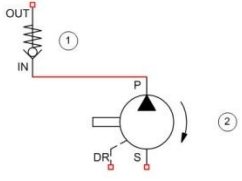
Align symbol ports menu



Align Symbol Ports dialog box



Symbol ports aligned vertically



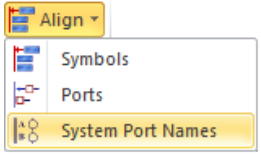
Symbol ports aligned horizontally

32. Aligning System Port Names

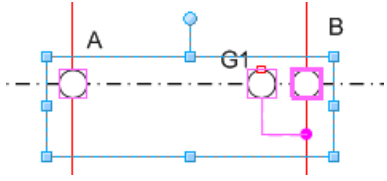
Align port names of all the selected ports horizontally or vertically.

1. Select the system ports, which names you need to align.
2. Click **Align System Port Names** on the HyDraw® V700 ribbon menu.

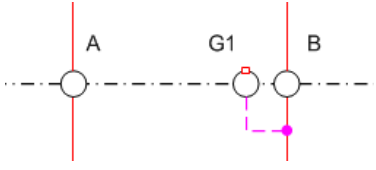
In the given selection, the left and bottom port name is taken as reference and all other system port names are aligned in a single line parallel to the envelope.



Align submenu



Selected system ports



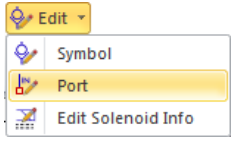
System port names aligned

33. Editing Port Name

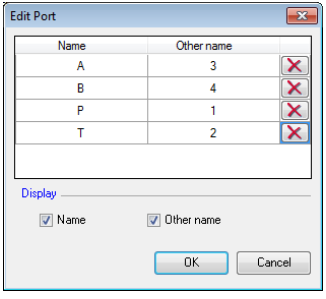
Edit the port name or the other name of the selected symbol in the drawing. This does not affect the master symbol in the HyDraw® library.

1. Select the symbol to edit its port name.
2. Click **Edit > Port** on the HyDraw V700 ribbon menu.
   The Edit Port dialog box displays.
3. Type the new name in the **Name** column and the optional **Other name**.
3. To delete the port, click ✕.
4. Select **Name**/**Other name** in the Display option. .
5. Click **OK.**
   The Name/Other name of the port displays with the symbol.

   If both the names are selected, then dual port names are displayed.



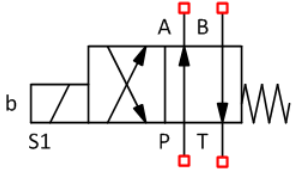
Edit submenu



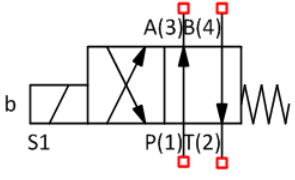
Edit Port dialog box

Note

Changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.



Symbol with unedited ports

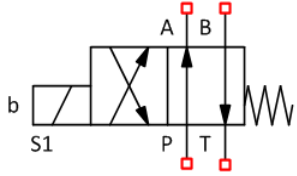


Symbol with Name and Other name

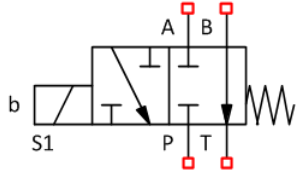
34. Editing in Place

Edit the selected symbol in the drawing. It does not affect the master symbol in the HyDraw® library.

1. Select a valid HyDraw symbol.
2. Click **Edit symbol** on the HyDraw V700 ribbon menu
   The Symbol stencil opens for edit.
3. Use Visio > Home > **Tools**
   or
   The drawing commands to draw and edit the symbol.
4. Close the window after you make the changes.



Opened symbol stencil for edit



Symbol after edit

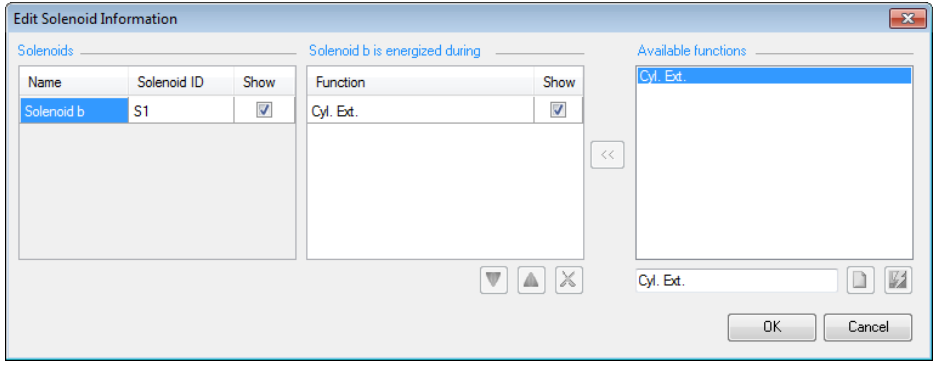
Note

Changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.

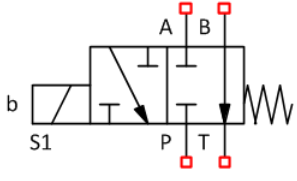
35. Editing Solenoid Information

Edit the Solenoid ID of the selected symbol and Function in the drawing. It does not affect the master symbol in the HyDraw® library.

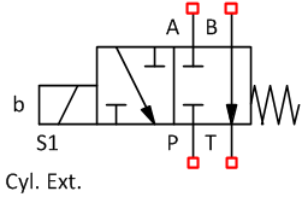
1. Select a valid HyDraw symbol.
2. Click **Edit Solenoid Info** Edit Solenoid Info on the HyDraw V700 ribbon menu
   The Symbol stencil opens for Edit Solenoid Information.
3. In the Solenoid ID column, edit the ID, if already available, or enter a new ID.
   The Show check box changes the visibility of the ID and Function for the selected symbol.
4. In the Available Functions section, enter the Function name and click the **Add** button.
   *The **Update** button allows editing the existing function.*
5. Select the **solenoid name**.
6. Select the **function**.
7. Click the **Add selected function** button.
   The selected function is added to the selected solenoid name.
8. Click **OK** to close the window and to make changes.



Opened symbol stencil for edit



Symbol before edit



Symbol after edit

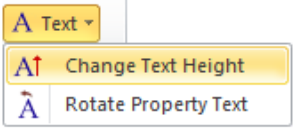
Note

Changes affect only the symbol in the drawing and not the master symbol in the HyDraw Library.

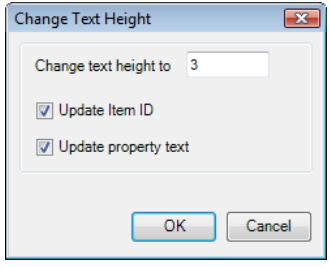
36. Changing Text Height

Change the text height of the displayed Item ID and other parameters of the selected symbols.

1. Select the symbol to change its text height.
2. Click **Change Text Height** on the HyDraw® V700 ribbon menu.

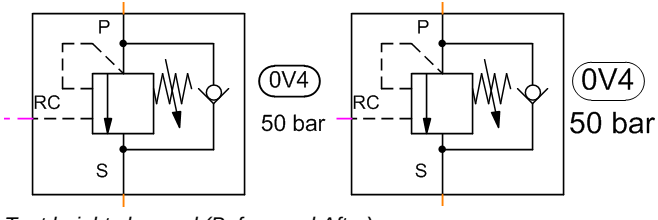


The Change Text Height dialog box displays.



Change text height dialog box

3. Enter the new text height.
4. Select **Update Item ID** to change the item ID text height.
5. Select **Update property text** to change the text height of the displayed parameters.
6. Click **OK**.
   The height of the text is changed.

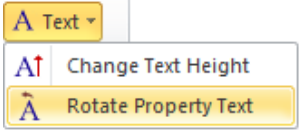


Text height changed (Before and After)

37. Rotating Property Text

Rotate the text properties of the selected symbol, external port, and connection line.

1. Select the symbol/external port/connection line to rotate its property text.
   Click **Rotate Property Text** on the HyDraw® V700 ribbon menu.



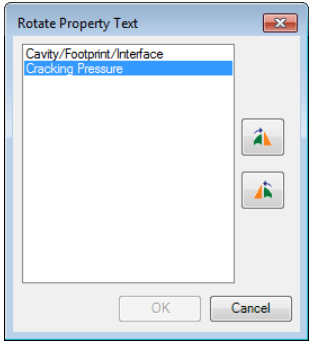
The Rotate Property Text dialog box displays.

2. Select the property you want to rotate.

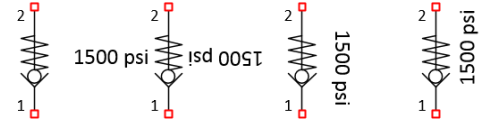
3. Click **Rotate Left**
   The Property Text rotates 90 degrees to its left.

4. Click **Rotate Right**
   The Property Text rotates 90 degrees to its right.

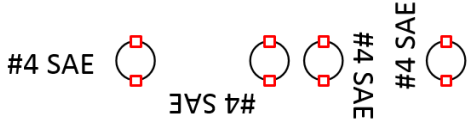
5. Click **OK**.
   The property of the text is rotated.



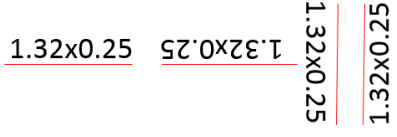
Rotate Property Text dialog box



Symbol – Property text rotated



External Port - Property text rotated



Connection Lines – Property text rotated

38. Unlocking Position

Lock the position of a symbol to prevent its inadvertent movement. Move the symbol to a different position after unlocking it.

Lock Position

1. Select the symbol to lock its position.
2. Click **Position** from the (Un)Lock option on the HyDraw® V700 ribbon menu.
   The symbol gets locked at its current position.
   A lock image displays at the left bottom corner of the symbol.

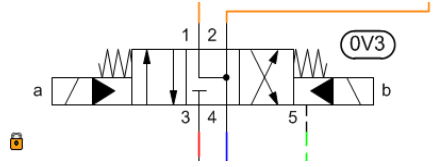
Unlock Position

1. Select the symbol that is locked or the symbol you want to unlock.
2. Click **Position** from the (Un) Lock option on the HyDrawV700 ribbon menu.
   Alternatively, click on the HyDraw V700 ribbon menu.
   The lock image disappears.

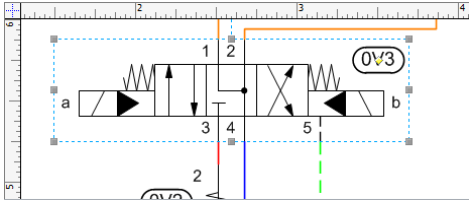
Move Symbol

You can move a symbol in the schematic from one location to another, while retaining its connections.

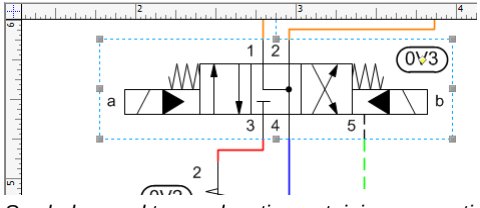
1. Select the symbol (position unlocked) you want to move.
2. Drag it to the desired location.
   Alternatively,
   Use arrow keys on the keyboard to move it left, right, up, or down.
   The symbol is moved to the new location, while retaining its connections.



Symbol in locked position



Symbol selected for repositioning



Symbol moved to new location: retaining connections

39. Unlocking Size

Prevent inadvertent increase or decrease of the original size of the symbol by locking it. All symbols are locked when inserted into the drawing. Use the (Un)Lock command to unlock and then change the symbol size.

Lock Size

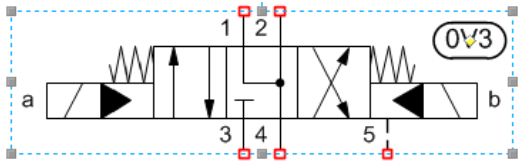
1. Select the symbol to lock its size.
2. Click **Size** from the (Un)Lock option on the HyDraw® V700 ribbon menu.
   The size of the symbol gets locked. Small black color filled squares appear at the corners and middle of the boundary box of the symbol.

Unlock Size

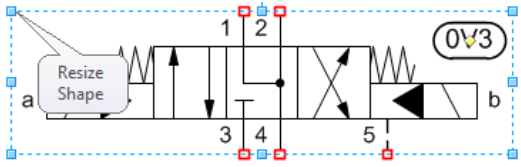
1. Select the symbol to unlock its size.
2. Click **Size** from the (Un)Lock option on the HyDraw V700 ribbon menu.
   Alternatively,
   Click on the HyDraw V700 ribbon menu.
   The small black color filled squares change to blue.

Resize Symbol

1. Select the symbol (size unlocked) in the drawing to resize it.
   The resize shape option appears automatically, when the cursor is close to the boundary box corner points.
2. Drag it to the required size.



Symbol size locked



Resizing the symbol

Note

- The symbol size gets automatically locked when you drag and drop a symbol from the library to the drawing.
- Always resize the symbol from the corner point of the boundary box and do not resize from the middle point.

40. Relocating Symbol

Position a symbol relative to another symbol in the drawing by taking the port as reference.

1. Select the symbol to relocate.
2. Click **Relocate** Relocate on the HyDraw® V700 ribbon menu.
   or
   Alternatively select **Relocate** from the context menu.

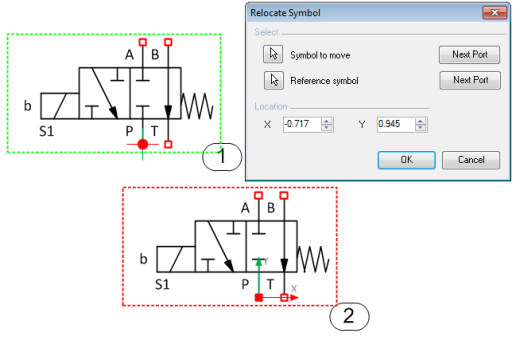
   The Relocate Symbol dialog box displays.

   The selected symbol is encircled with a green envelope and a red dot on the first inserted port.

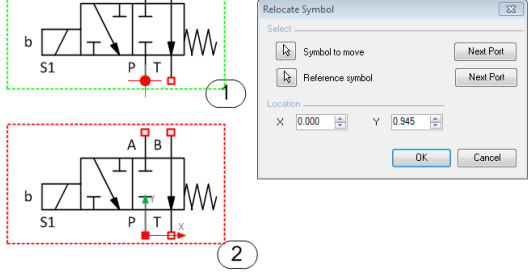
   *This port reference can be changed by clicking the **Next Port**.*
3. Select **Reference symbol**.
   The selected symbol is encircled with the red envelope and displays X, Y co-ordinates with the red dot on the first inserted port.

   *This port reference can be changed by clicking the **Next Port**.*

   The coordinates in the dialog box display the location of the symbol to be moved (green envelope) with respect to the selected reference port.
4. Specify the new **X** and **Y** location.
5. Click **OK**.
   The green envelope symbol moves to the specified X and Y location with reference to the red enveloped symbol.



Relocate Symbol



Relocate Symbol with X at Zero

41. Constraining/UnConstraining Symbols

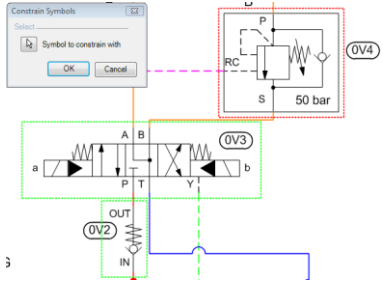
The Constrain command enables you to constrain symbols to another symbol of the selected symbols in the drawing.
The UnConstrain command enables you to remove constrains of the selected symbols.

Constrain

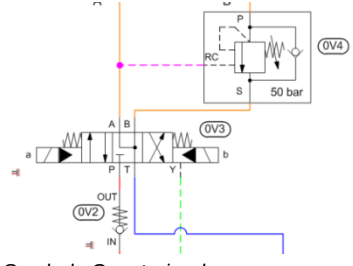
1. Select the symbols to constrain.
2. Click **Constrain** Constrain on the HyDraw® V700 ribbon menu.
   The Constrain symbols dialog box displays.

   All the selected symbols are encircled with a green envelope.
3. Select **Symbol to constrain with**.
   The selected symbol is encircled with a red envelope.
4. Click **OK** to constrain the symbols to another symbol.

   All the constrained symbols show the constrained sign .



Constrain Symbols



Symbols Constrained

UnConstrain

1. Select the constrained symbols in the drawing.
2. Click **UnConstrain** UnConstrain on the HyDraw V700 ribbon menu.
   All the constrained symbols are unconstrained.

Note

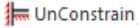
Constrained symbols cannot be moved or relocated independently. When the "symbol to constrain with" is moved, the constrained symbols move with it.

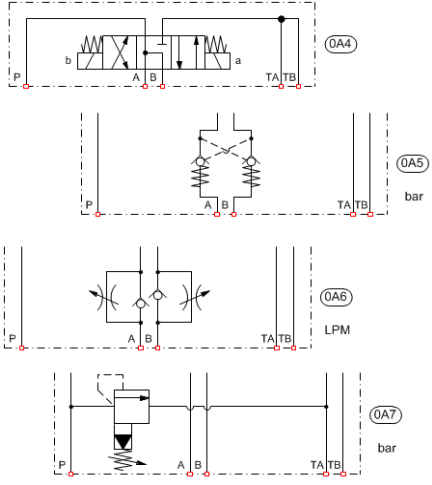
42. Stacking Symbols

Stack the symbols horizontally or vertically.

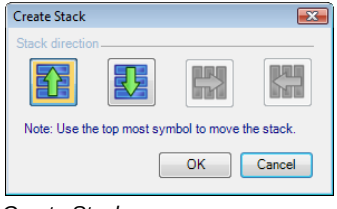
1. Select the symbols to stack.
2. Click **Stack** on the HyDraw® V700 ribbon menu.
   The Create Stack dialog box displays.
3. Click or top or bottom symbol to move the stack.
4. Click or left or right symbol to move the stack.
5. Click **OK** to stack the symbols.

Note

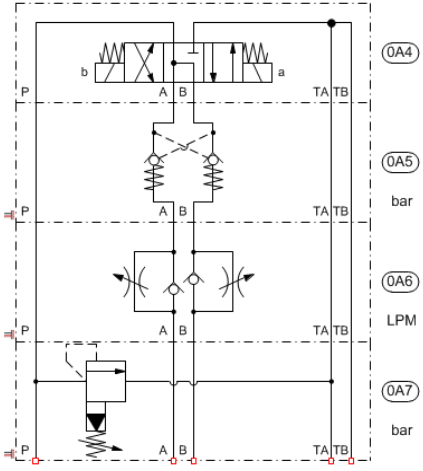
- Port ‘P’ is the default alignment guide.
- If there is no ‘P’ port, then port ‘X’ is used (e.g. Slip-in cover).
  In all other cases, Symbol Alignment box center is used to align the symbols.
- Move the stack by holding the symbol without the constrain image.
- Selecting the symbol and clicking the  sign, removes the constrains.



Symbols to Stack



Create Stack



Symbols stacked and constrained

43. Reassigning Item ID

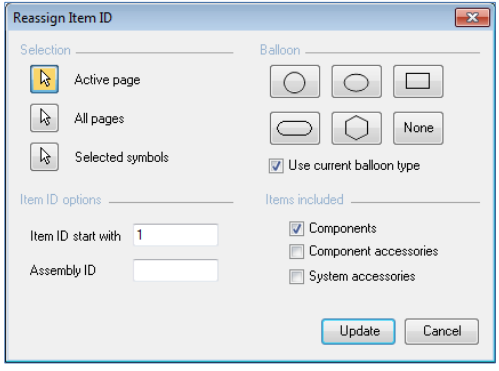
Reassign the Item IDs of all symbols in the circuit after modification.

1. Click **Reassign Item ID** on the HyDraw® V700 ribbon menu.
3. Alternatively,

   Click Item ID on the HyDraw V700 ribbon menu.

   The Reassign Item ID dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Enter the starting value of the item ID.
4. Enter the **Assembly ID**.
5. Choose the **Balloon** shape.

   Select the checkbox, if you want to use the current balloon type.
6. Select the appropriate option for **Items included**.
   - Select the **Components** checkbox to include all components.
   - Select the **Component accessories** checkbox to include all component accessories.
   - Select the **System accessories** checkbox to include all system accessories.
7. Click **Update**.



Reassign Item ID

44. Updating Balloons

Update balloons of selected symbols or schematic. The update affects both numbering scheme and type of balloons.

1. Click **Update Balloon** on the HyDraw® V700 ribbon menu.
   Alternatively,
   Click on the HyDraw V700 toolbar.

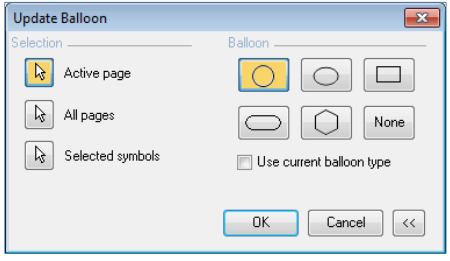
   The Update Balloon dialog box displays.

2. Select any one of the three options,

   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

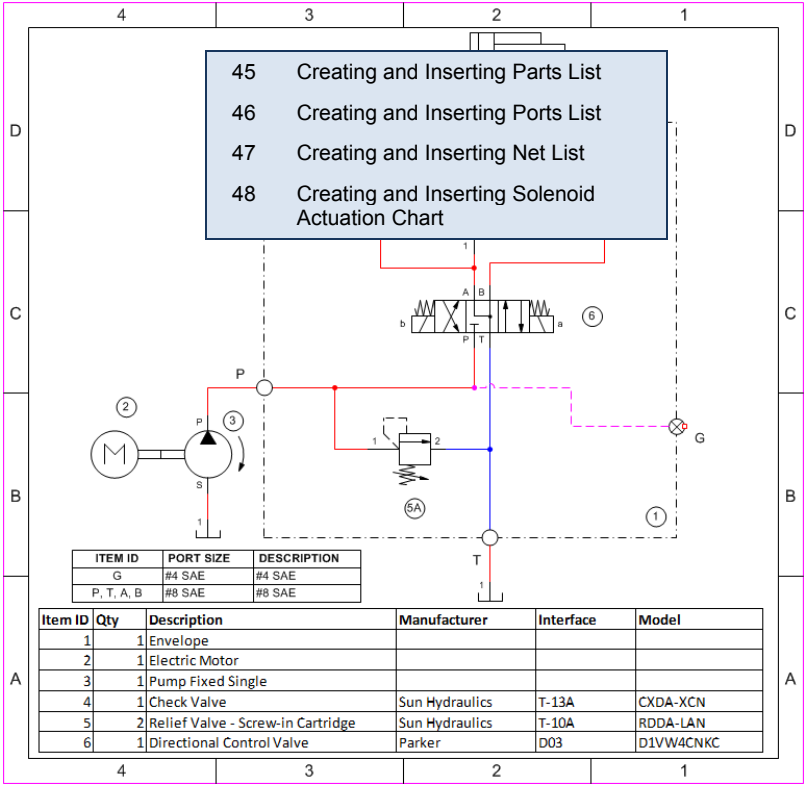
3. Select the required balloon style or select the current balloon type.

4. Click **OK**.



Update Balloon dialog box

Parts List and more



ITEM ID	PORT SIZE	DESCRIPTION
G	#4 SAE	#4 SAE
P, T, A, B	#8 SAE	#8 SAE

Item ID	Qty	Description	Manufacturer	Interface	Model
1	1	Envelope			
2	1	Electric Motor			
3	1	Pump Fixed Single			
4	1	Check Valve	Sun Hydraulics	T-13A	CXDA-XCN
5	2	Relief Valve - Screw-in Cartridge	Sun Hydraulics	T-10A	RDDA-LAN
6	1	Directional Control Valve	Parker	D03	D1VW4CNKC

45. Creating and Inserting Parts List

Create a list of components and accessories for a schematic.

Insert Parts List

1. Click **Parts** on the HyDraw® V700 ribbon menu.
   The Create Parts List dialog box displays.

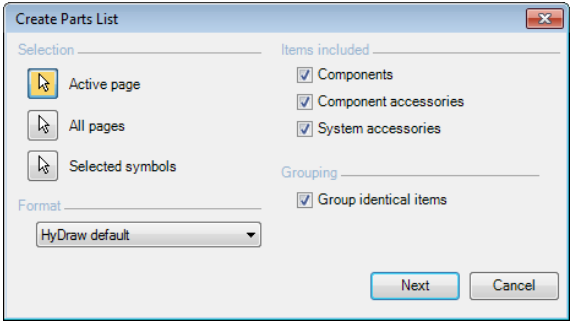
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

3. Select the items to be included,
   - Select the **Components** checkbox to include all components in the Parts list.
   - Select the **Component accessories** checkbox to include all component accessories in the Parts list.
   - Select the **System accessories** checkbox to include all system accessories in the Parts list.
   - Select the **Group identical items** checkbox to group all the identical items in the Parts list.

   Group identical items *works only for 1A, 1B, 2A, 2B…, 1.1,1.2,2.1,2.2…, and 1-1,1-2,2-1,2-2… numbering scheme.*

4. Select the required **Format.**
   The default format is applied, if nothing is selected.

5. Click **Next** to display the Parts List dialog box.
   The Create Parts List dialog box displays detail of the Parts properties.



Create Parts List dialog box

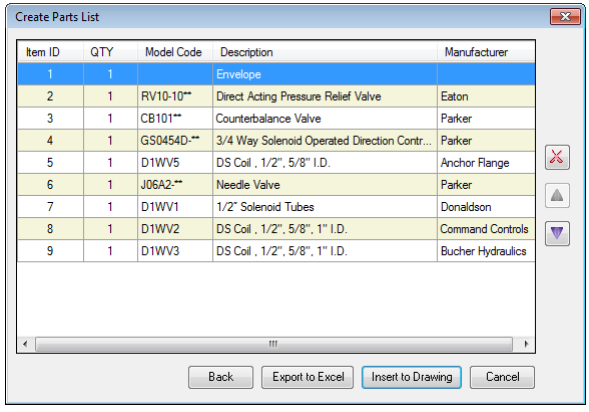
6. Click or to move the selected item one row up or one row down, respectively.

7. Click to delete the selected item from the list.

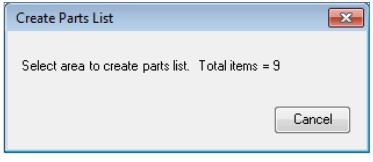
8. Click **Insert to Drawing** to insert the Parts list as a separate list in the drawing.
   A message box displays and notifies to specify a rectangular area to insert the Parts List.

9. Select a rectangular area in the drawing to insert the Parts list.
   The Parts list is inserted into the Visio drawing in a tabular form.

10. To save the Parts list as an Excel sheet, click **Export to Excel**.
    The Parts List is saved in the Excel format.



Create Parts List dialog box



Create Parts List message box

Item ID	QTY	Model Code	Description	Manufacturer
1	1		Envelope	
2	1	RV10-10**	Direct Acting Pressure Relief Valve	Eaton
3	1	CB101**	Counterbalance Valve	Parker
4	1	GS0454D-**	3/4 Way Solenoid Operated Direction Control Valve	Parker
5	1	D1WV5	DS Coil , 1/2", 5/8" I.D.	Anchor Flange
6	1	J06A2-**	Needle Valve	Parker
7	1	D1WV1	1/2? Solenoid Tubes	Donaldson
8	1	D1WV2	DS Coil , 1/2", 5/8", 1" I.D.	Command Controls
9	1	D1WV3	DS Coil , 1/2", 5/8", 1" I.D.	Bucher Hydraulics

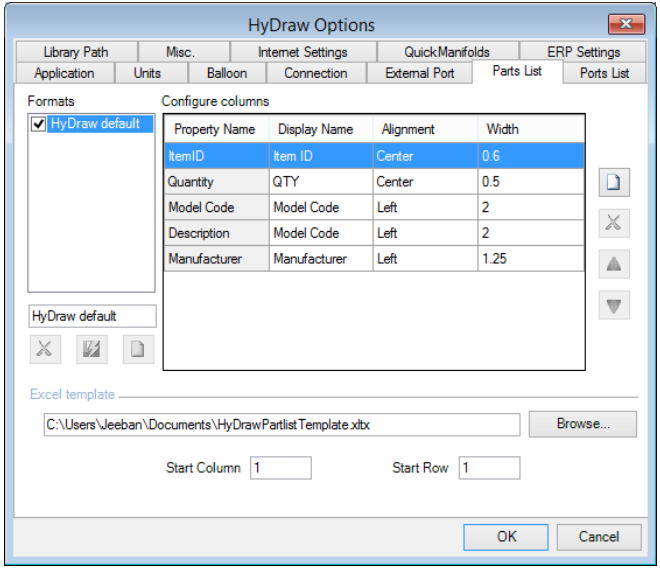
Parts List

Customize Parts List Format

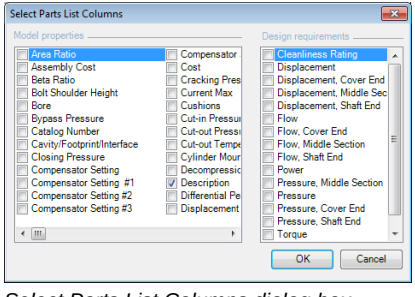
1. Select **Options…** on the HyDraw® V700 ribbon menu.
2. Click the **Parts List** tab.
   The Parts List formatting box displays inside the tab.
3. To rename a selected format,
   type the new name in the text box and click
4. To add a new format,
   type the new name in the text box and click
5. To delete a selected format, click .

   *The **Configure Columns** section enables to edit Display Name, Alignment, and Width of the columns.*
6. Click **Select Columns**.
   The Select Parts List Columns dialog box displays.
7. Select the required Model properties or Design requirements checkbox.
8. Set the Start Column and the Start Row of the Parts List to be inserted into the Excel template.
9. Click **OK**.
   The properties of the selected item are displayed in the Parts List formatting box in the Configure columns section.

   The same properties are displayed in the tabular form Parts list, when creating Parts list in the Visio drawing.



HyDraw Options: Parts List



Select Parts List Columns dialog box

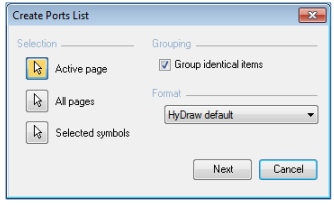
46. Creating and Inserting Ports List

Create a list of external ports used in the circuit and insert this list in the drawing. The tabular list exhibits details about the external ports.

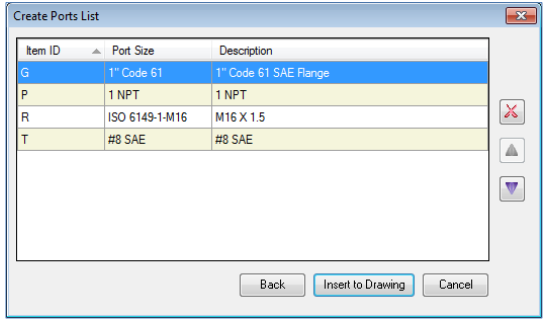
Insert Ports List

1. Click **Ports**

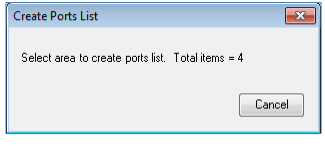
on the HyDraw® V700 ribbon menu.
   The Create Ports List dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the **Group identical items** checkbox to group all identical items in the Ports list.
   Group identical items *works only for 1A, 1B, 2A, 2B…, 1.1,1.2,2.1,2.2…, and 1-1,1-2,2-1,2-2… numbering scheme.*
4. Select the required **Format**. If no format is selected, then the default format is applied.
5. Click **Next** to display the Ports List dialog box.
   The Create Ports List dialog box displays the detail of the port properties.
6. Click or to move the selected item one row up or one row down, respectively.
7. Click to delete the selected port from the list.
8. Click **Insert to Drawing** to insert the Ports list as a separate list in the drawing.
   A message box notifies to specify a rectangular area to insert the Ports list.
9. Select a rectangular area in the drawing to insert the Ports list.
   The Ports list is inserted into the Visio drawing in a tabular form.



Create Ports List dialog box



Create Ports List

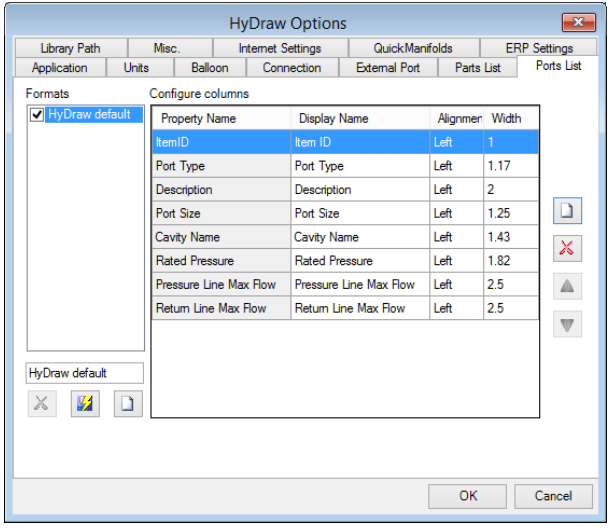


Create Ports List message box

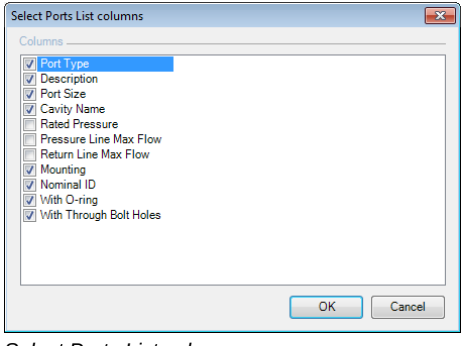
Customize Ports List Format

1. Select **Options…** on the HyDraw® V700 ribbon menu.
2. Click the **Ports List** tab.
   The Ports list formatting box displays inside the tab.
3. To rename a selected format,
   type the new name in the textbox and click .
4. To add a new format,
   type the new name in the textbox and click .
5. To delete a selected format, click .
   *The **Configure Columns** section enables you to edit Display Name, Alignment,*
   and Width of the columns.
6. Click **Select Columns**.
   The Select Ports List columns dialog box displays.
7. Select the required checkboxes.
8. Click **OK**.
   The properties of the selected item are displayed in the Ports List formatting box in the Configure columns section.

   The same properties are displayed in the tabular form Ports list, when creating the Ports list in the Visio drawing.



Ports List tab



Select Ports List columns

47. Creating and Inserting Net List

Create a list of networks (Net List) of components and external ports in the circuit and insert the Net list in the drawing. The tabular list exhibits details about the networks.

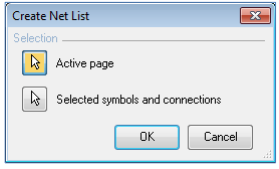
1. Click **Net** on the HyDraw® V700 ribbon menu.
   The Create Net List dialog box displays.
2. Select one of the two options,
   - Click the **Active page** button to select the drawing in the active page.
   - Click the **Selected symbols and connections** button to select specified component symbols.
3. Click **OK**.
   The Create Net List box displays net name with corresponding net items and status.

   The Status column shows the accounted nets with *and amended nets with* *indicating that the nets are amended and require recreation.*

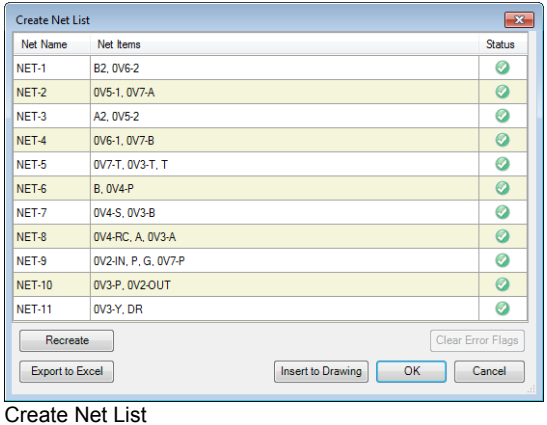
   By selecting a net on the Status column, the respective net is highlighted in the Visio drawing. (If the connection is not correct, red dots appear along the connection points.)
4. Click **Clear Error Flags** to rectify a connection.
5. Click **Recreate** to return to create the Net list.
6. Click **Export to Excel** to save the Net list as an Excel file (.xls/xlsx).
7. Click **Insert to Drawing** to insert the Net list or Click **OK** to save the Net list and exit.

Note:

The individual symbols of Slip-Cartridge valve cover and Insert are combined with “&” and treated as a single entity, when creating the Net list.



Create Net List dialog box



Create Net List

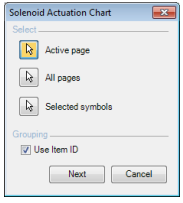
Caution:

- Do not create more than one connection to the connection points. This may result in an incorrect Net list.
- If **OK** is not pressed after net renaming, the corrections will be lost on recreation, with default net naming style.

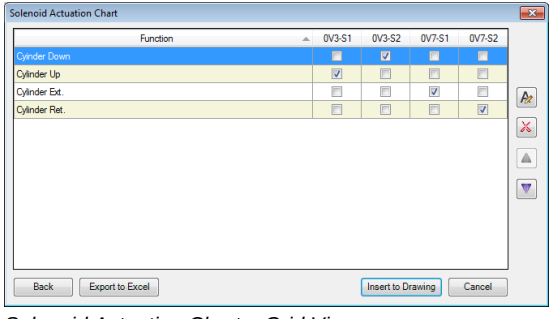
48. Creating and Inserting Solenoid Actuation Chart

Create Solenoid Actuation Chart and insert it in the drawing.

1. Click **Solenoid** Solenoid on the HyDraw® V700 ribbon menu.
   The Solenoid Actuation Chart dialog box displays.
2. Select one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Under grouping select the **Use Item ID** option.
4. Click **Next**.
   The Solenoid Actuation Chart displays Function, Item ID-Solenoid ID, if applicable.
5. Click **Back** to change the selection.
6. Click the **Update** button to update the function name.
7. Click or to move the selected item one row up or one row down, respectively.
8. Click to delete the selected port from the list.
9. Click **Export to Excel** to save the Solenoid Actuation Chart as an Excel file (.xls/xlsx).
10. Click **Insert to Drawing** to insert the Solenoid Actuation Chart into the drawing.



Solenoid Actuation Chart – Selection

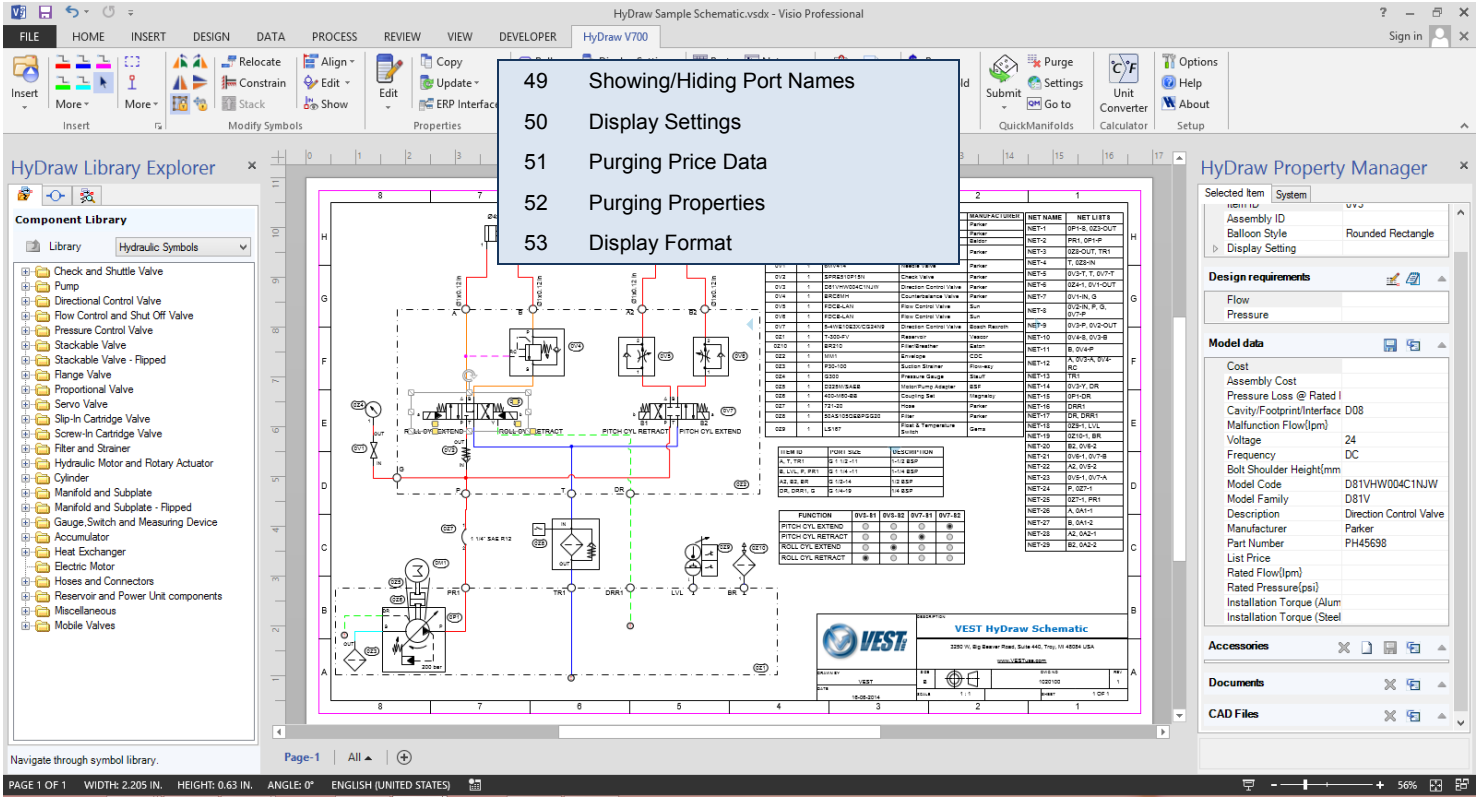


Solenoid Actuation Chart – Grid View

FUNCTION	0V3-S1	0V3-S2	0V7-S1	0V7-S2
Cylinder Up	●	○	○	○
Cyinder Down	○	●	○	○
Cylinder Ext.	○	○	●	○
Cylinder Ret.	○	○	○	●

Solenoid Actuation Chart

Shrink Wrap

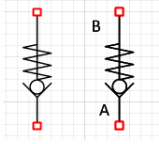

HyDraw Sample Schematic.vsdx - Visio Professional
FILE
HOME
INSERT
DESIGN
DATA
PROCESS
REVIEW
VIEW
DEVELOPER
HyDraw V700
Sign in
Insert
More
Relocate
Constrain
Stack
Align
Edit
Show
Modify Symbols
Copy
Update
ERP Interface
Properties
Purge
Settings
Go to
QuickManifolds
Unit Converter
Calculator
Options
Help
About
Setup
49 Showing/Hiding Port Names
50 Display Settings
51 Purging Price Data
52 Purging Properties
53 Display Format
HyDraw Library Explorer
Component Library
Library
Hydraulic Symbols
Check and Shuttle Valve
Pump
Directional Control Valve
Flow Control and Shut Off Valve
Pressure Control Valve
Stackable Valve
Stackable Valve - Flipped
Flange Valve
Proportional Valve
Servo Valve
Slip-In Cartridge Valve
Screw-In Cartridge Valve
Filter and Strainer
Hydraulic Motor and Rotary Actuator
Cylinder
Manifold and Subplate
Manifold and Subplate - Flipped
Gauge,Switch and Measuring Device
Accumulator
Heat Exchanger
Electric Motor
Hoses and Connectors
Reservoir and Power Unit components
Miscellaneous
Mobile Valves
Navigate through symbol library.
ROLL CYL EXTEND
ROLL CYL RETRACT
PITCH CYL RETRACT
PITCH CYL EXTEND
VEST HyDraw Schematic
Page-1
All
HyDraw Property Manager
Selected Item
System
Assembly ID
Balloon Style
Rounded Rectangle
Display Setting
Design requirements
Flow
Pressure
Model data
Cost
Assembly Cost
Pressure Loss @ Rated I
Cavity/Footprint/Interface D08
Malfunction Flow(lpm)
Voltage
24
Frequency
DC
Bolt Shoulder Height(mm
Model Code
D81VHW004C1NJW
Model Family
D81V
Description
Direction Control Valve
Manufacturer
Parker
Part Number
PH45698
List Price
Rated Flow(lpm)
Rated Pressure(psi)
Installation Torque (Alum
Installation Torque (Steel
Accessories
Documents
CAD Files
PAGE 1 OF 1
WIDTH: 2.205 IN.
HEIGHT: 0.63 IN.
ANGLE: 0°
ENGLISH (UNITED STATES)
56%

49. Showing/Hiding Port Names

Show or hide port names of the selected symbols in the drawing.

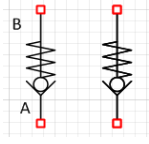
1. Select the symbol to show or hide the port names.

2. Click **Show** Show on the HyDraw® V700 ribbon menu.
   The port names for the selected symbol are displayed.



Port names displayed

3. Click **Hide** Hide on the HyDraw V700 ribbon menu.
   The port names for the selected symbol are hidden.



Port names hidden

50. Display Settings

Display or hide the property values of the components, external ports, and connections, per the Show/Hide property selection in the schematic drawing.

1. Click Display Settings from the Properties group on the HyDraw® V700 ribbon menu.
   The Display Settings – Selection dialog box displays.

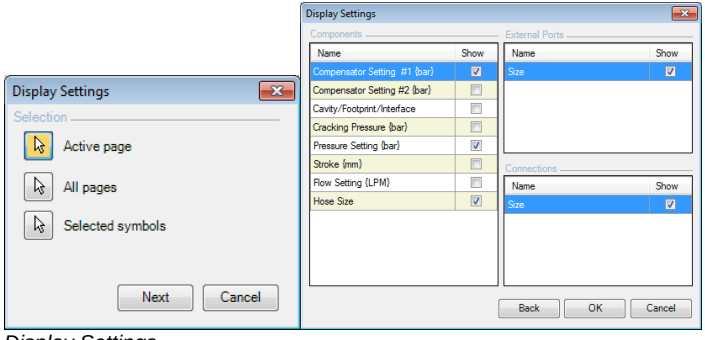
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

   The Display Settings – Property dialog box displays.

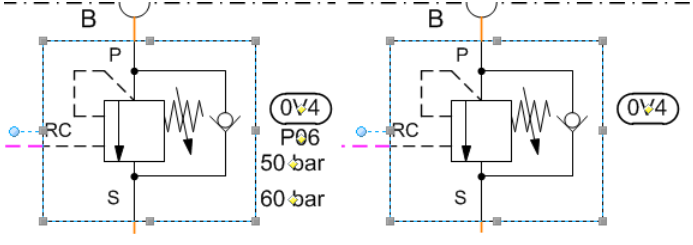
3. Click the appropriate checkbox to select individual properties of components, external ports, or connections.
4. Click **OK**.

Note

The **Back** option takes you to the previous dialog box.



Display Settings



Components with properties shown and hidden

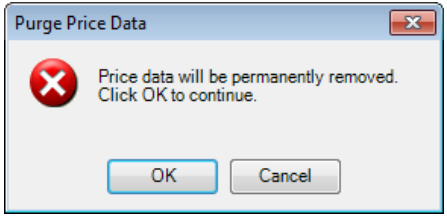
51. Purging Price Data

Remove price information from components in the schematic drawing.

1. Select the components of the schematic for which you want to remove the price information.

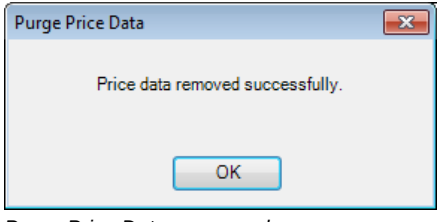
2. Click **Purge Price Data** on the HyDraw® V700 ribbon menu.
   The components in the schematic are selected automatically.

   The Purge Price Data warning message box displays, indicating that the price data will be removed permanently from the selected components on the drawing.



Purge Price Data warning box

3. Click **OK**, if you want to continue.
   On completion, prompts a message - Price data removed successfully.



Purge Price Data message box

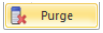
4. Click **OK**.

Note

Save the schematic with a different file name and/or location before removing price information for your convenience and future reference.

52. Purging Properties

Remove the information of the selected properties from the components, component accessories, and system accessories in the schematic drawing.

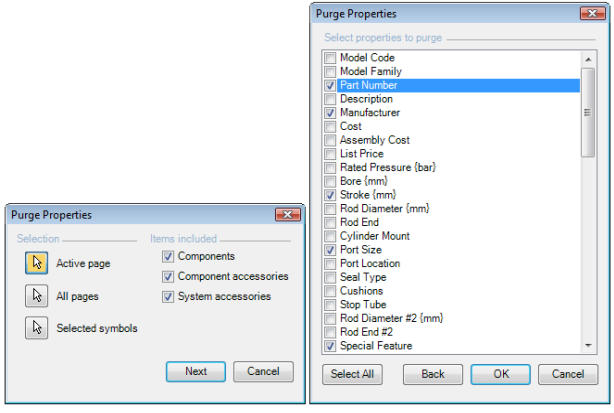
1. Click 

from the Properties group, on the HyDraw® V700 ribbon menu.
   The Purge Properties – Selection dialog box appears.

2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the items to be included,
   - Select the **Components** checkbox to include all components for purge properties.
   - Select the **Component accessories** checkbox to include all component accessories for purge properties.
   - Select the **System accessories** checkbox to include all system accessories for purge properties.
4. Click **Next**.
   The Purge Properties – Property dialog box displays.

5. Click the checkbox to select individual properties or click **Select All** properties to remove the data.
6. Click **OK**.
   The Purge properties progress bar appears and on completion, displays the message, 'Selected data removed successfully'.

7. Click **OK**.



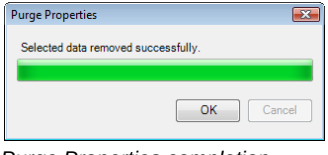
Purge Properties dialog box

Warning:

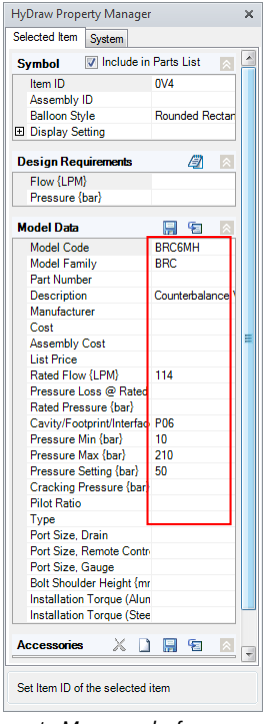
The data once purged is lost forever and cannot be recovered using Visio Undo command.

Note:

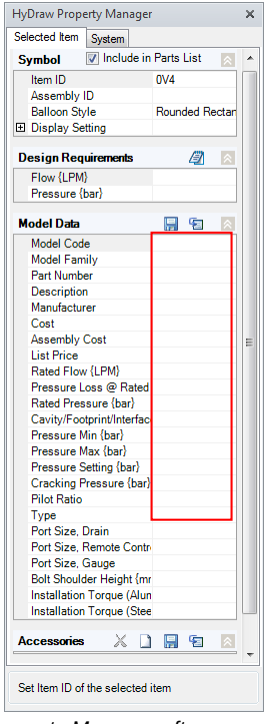
The **Back** button takes to the previous dialog box.



Purge Properties completion



HyDraw Property Manager before purge properties



HyDraw Property Manager after purge properties

53. Display Format

Add new display formats to the symbols.

1. Click Display Format on the HyDraw® V700 ribbon menu.

   The Add New Display Format – selection dialog box displays.

2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Click **OK**.

   The Add New Display Format dialog box displays.

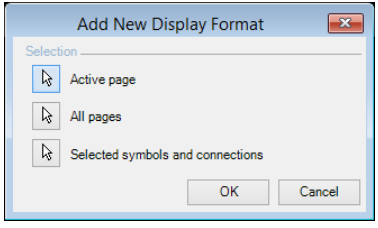
4. Enter the **Name** of the display format.
5. Click ... on Property1 section to select the property to display in required format.

   The Select Property dialog box displays.

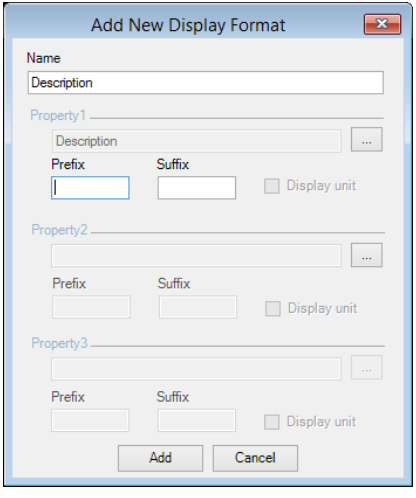
6. Select property and click **OK**.
7. Enter the prefix and suffix values to be displayed.
8. Select the Display unit check box to display the units.

   Repeat steps 5 to 8 to select more than one and up to three properties to be displayed in this display format.

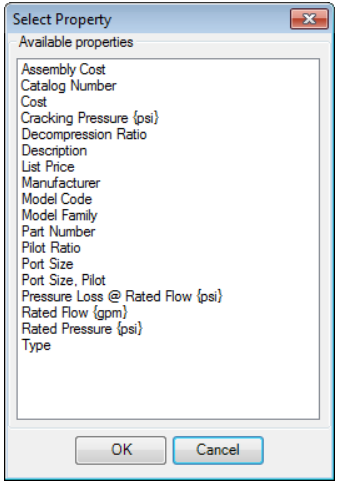
9. Click **Add** *to add a new display format with the selected symbols.*



Add New Display Format – Selection

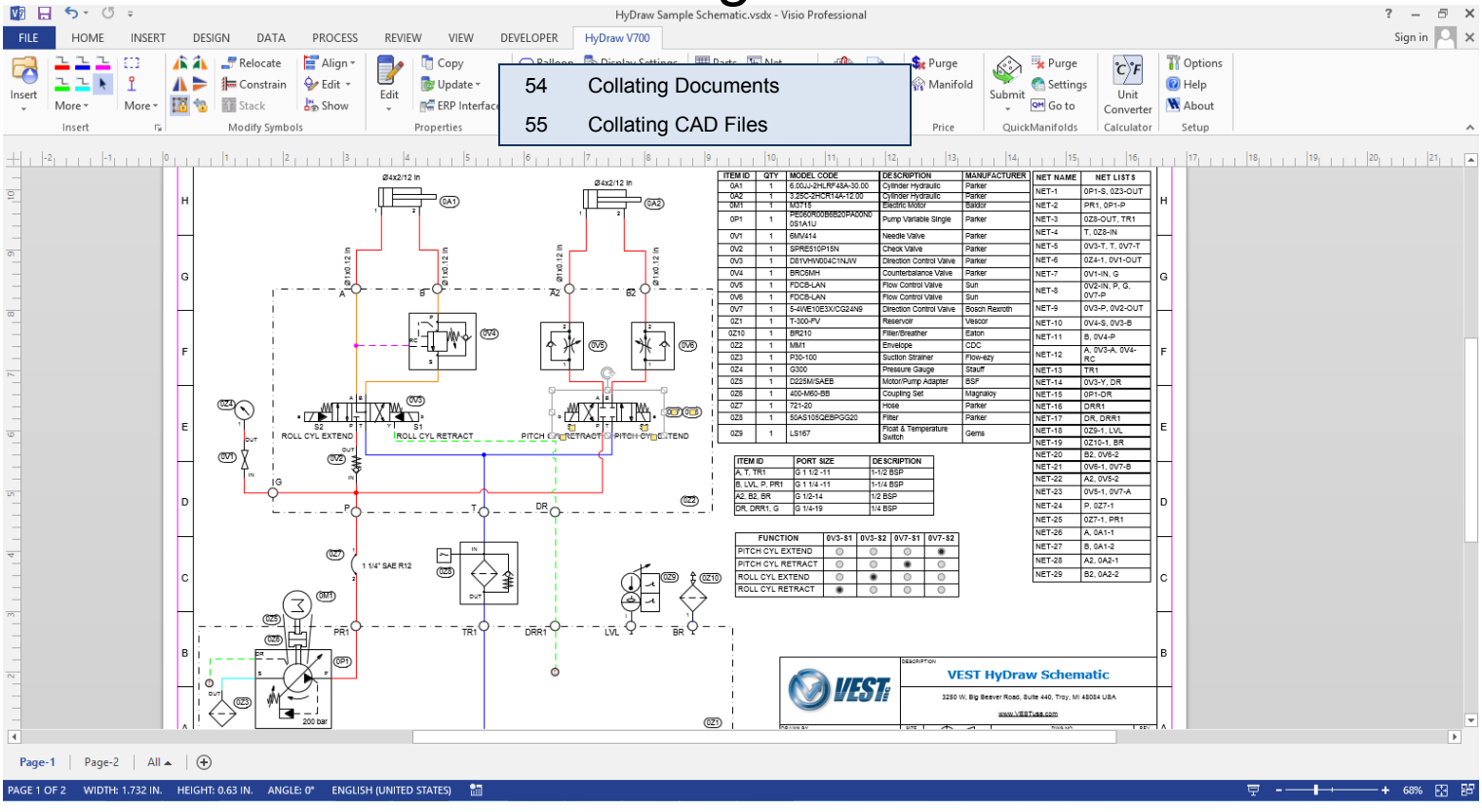


Add New Display Format dialog box



Select Property

Collating Files



54. Collating Documents

Save the documents linked to components, component accessories, and system accessories in the user-specified location.

1. Click **Collate Documents** on the HyDraw® V700 ribbon menu.
   The Collate Documents dialog box displays.

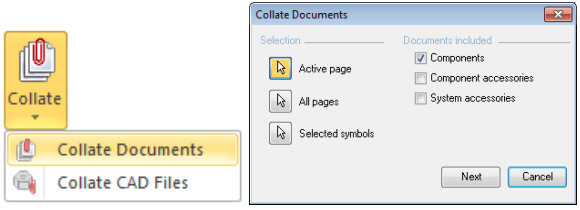
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.

3. Select the items to be included,
   - Select the **Components** checkbox to collate the documents linked with the components.
   - Select the **Component accessories** checkbox to collate the documents linked with the component accessories.
   - Select the **System accessories** checkbox to collate the documents linked with the system accessories.

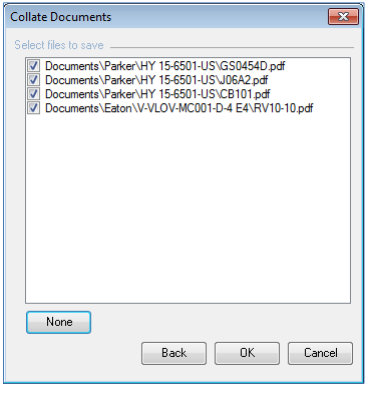
4. Click **Next** to display the Collate Documents dialog box showing linked files.
   The Collate Documents dialog box displays.

5. Select the files and click **OK** to save the documents in the appropriate folder.
   The Browse For Folder dialog box displays.

6. Select the appropriate folder or click **Make New Folder** to create a new folder in the appropriate location to save the documents.



Collate Documents dialog box

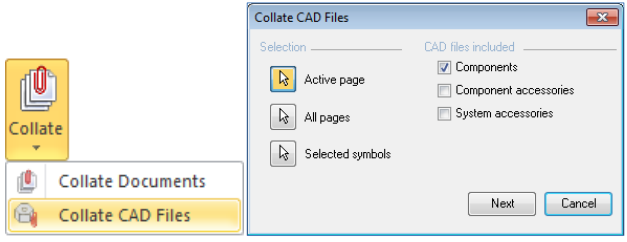


Collate Documents: save files

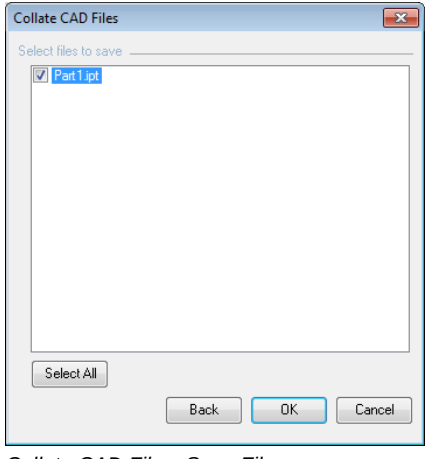
55. Collating CAD Files

Save the CAD files linked to the component, component accessories, and system accessories in the user-specified location.

1. Click **Collate CAD Files** from the Collate option on the HyDraw® V700 ribbon menu.
   The Collate CAD Files dialog box displays.
2. Select any one of the three options,
   - Click the **Active page** button to select the drawing in the Active page.
   - Click the **All pages** button to select the whole document in the file.
   - Click the **Selected symbols** button to select the specified component symbols.
3. Select the items to be included,
   - Select the **Components** checkbox to collate the documents linked with the components.
   - Select the **Component accessories** checkbox to collate the documents linked with the component accessories.
   - Select the **System accessories** checkbox to collate the documents linked with the system accessories.
4. Click **Next** to display the Collate CAD Files dialog box showing linked files.
   The Collate CAD Files dialog box displays.
5. Select the files and click **OK** to save the documents in the appropriate folder.
   The Browse For Folder dialog box displays.
6. Select the appropriate folder or click **Make New Folder** to create a new folder in the appropriate location to save the documents.



Collate CAD Files dialog box



Collate CAD Files: Save Files

Manifold Quote

Demonstration Manifolds Inc.
Demo Street, Suite 440
Troy, MI, United States
Phone: (248) 649-7663
Fax:

Quotation
Quotation No:
Date: June 24, 2012

56 Manifold Quote

Quotation To:
Ian Russel
Price Engg
United States
Ph: 113241234
ian.russel@priceengg.com

Customer Part No: Demo Circuit V600
Prepared By: James Dean
E-Mail: manufacturer@vestusa.com

Quotation Details:

Date of Request:	June 24, 2012	
Quote Valid Upto:	July 13, 2012	

Design		
Design Charges:	338	USD
Taxes on Design Charges:		
Total Design Charges:	**338**	**USD**
Design Delivery Business Days:	12	

Manufacturing		
Quote Quantity:	1	
Price for Manufacturing Quote Quantity:	1296	USD
Plus Taxes:		
Total Manufacturing Charges:	**1296**	**USD**
Delivery Location:	FOB Manufacturer	
Delivery Business Days:	5	

Item Summary:

Block Details		
Block Volume:	8734141.24	Cubic Millimeter
Block Weight:	68.48	kg
Block Material:	Steel (Weldable)	
Plating:	No Plating	

Cavity/Port	Quantity
D08	1
C1025	1
T-5A	2
D05	1
G 1 1/2 -11	2
G 1/2-14	2
G 1 1/4 -11	2
G 1/4-19	2

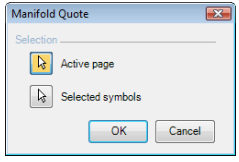
56. Manifold Quote

Request a manifold quotation from a registered manifold manufacturer.

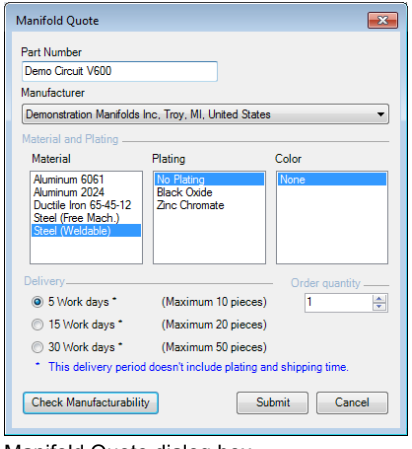
1. Click **Manifold Quote** from the Manifold Quote option on the HyDraw® V700 ribbon menu.
   The Manifold Quote dialog box displays.
2. Click the **Active page** button to select the drawing in the Active Page. (or)
   Click the **Selected symbols** button to select specified component symbols.
3. Click **OK** to continue.
   The Manifold Quote dialog box displays.
4. Select the manufacturer, material and plating, delivery details, and the order quantity.
5. Click **Check Manufacturability**.
   The Check Manufacturability dialog box displays.

   sign in the Manufacturable column shows that the cavity is available and *sign shows the cavity is not available.*
6. Click **Assign Cavity** to *assign the cavity, where the cavity is not available*
   The Assign cavity dialog box displays.
7. Click **Submit**.
   When the manifold quote request is submitted a successful message box displays.

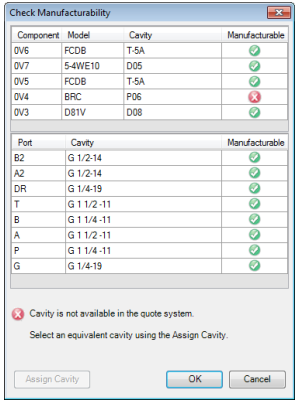
   The quotation will be mailed to the respective user mail ID.



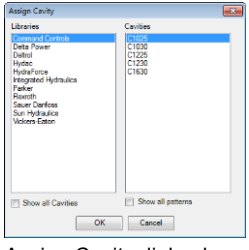
Manifold Quote dialog box



Manifold Quote dialog box

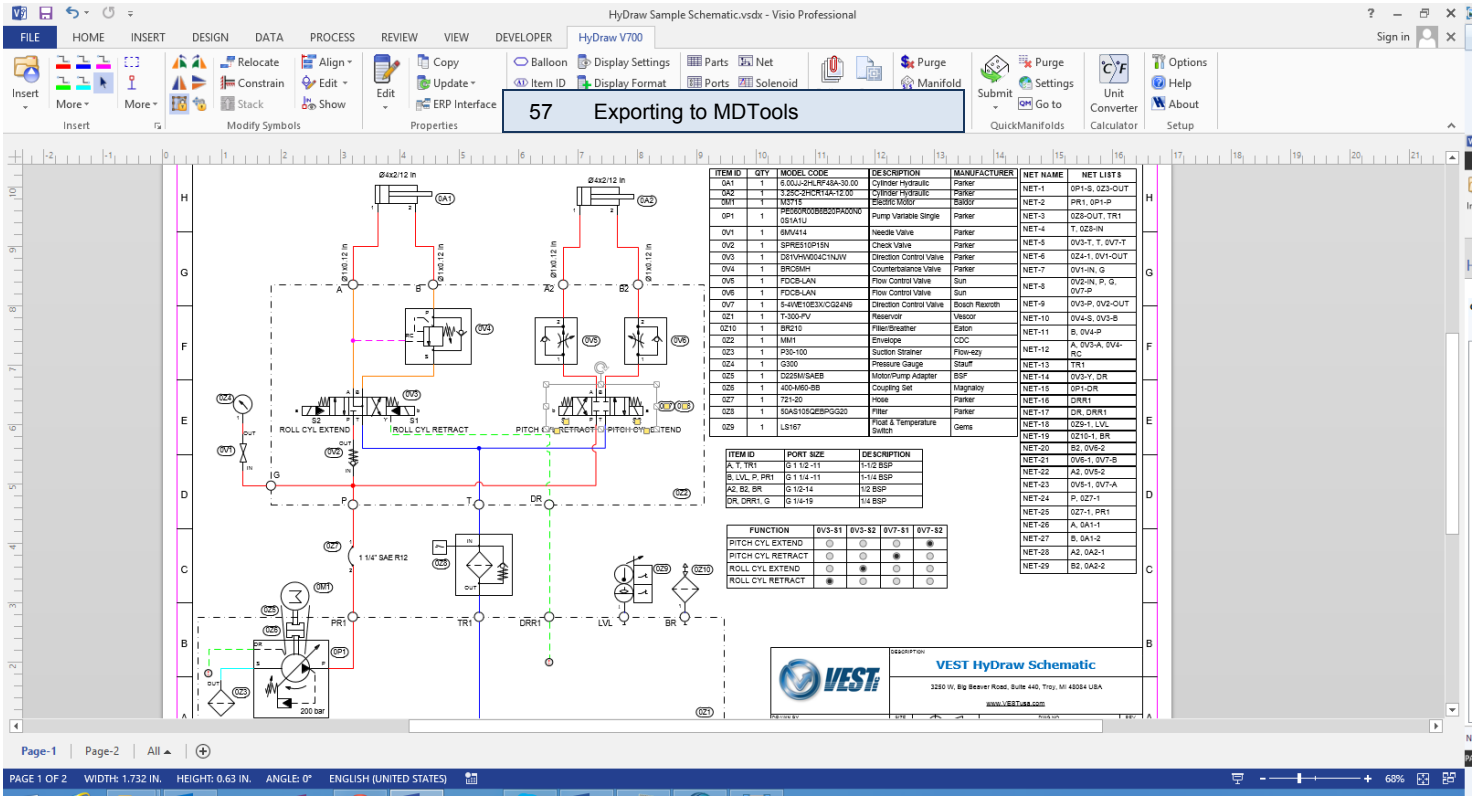


Check Manufacturability dialog box



Assign Cavity dialog box

MDTools Interface



57. Exporting To MDTools

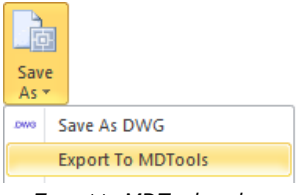
Export a HyDraw® V700 created circuit as an XML, which can be readily opened in MDTools® for designing a manifold.

1. Click **Export To MDTools** on the HyDraw V700 ribbon menu.
   The Export to MDTools dialog box displays.

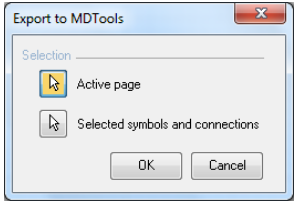
2. Click the **Active page** button to select the drawing in the Active page.
4. Or
5. Click the **Selected symbols and connections** button to select the specified component symbols.

3. Click **OK** to continue.
   The Save As dialog box displays.

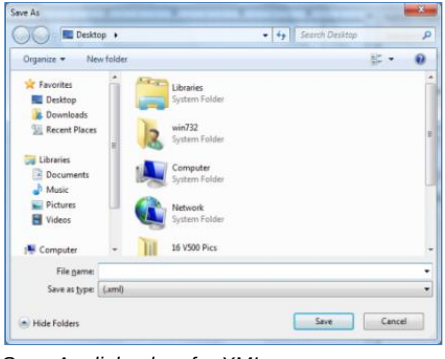
   Save the resulting XML file at the desired location.



Export to MDTools sub-menu

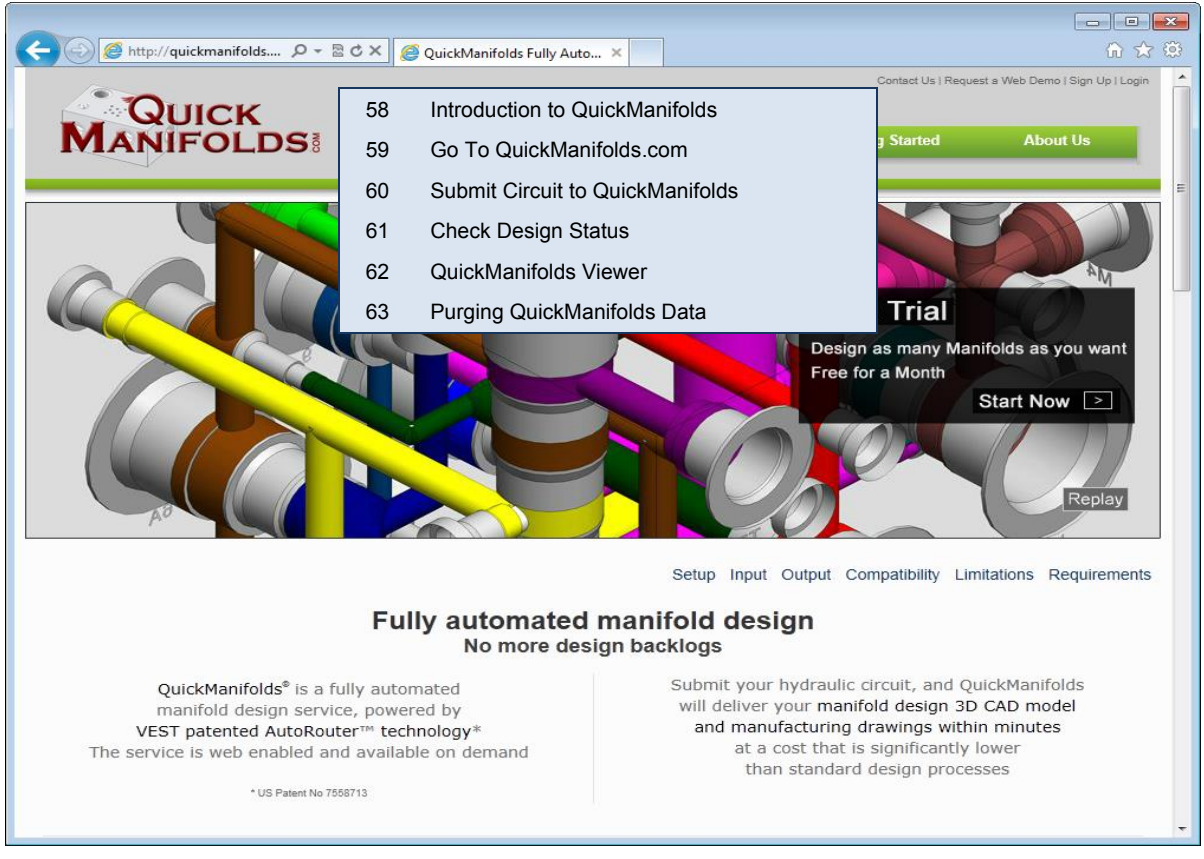


Export to MDTools dialog box



Save As dialog box for XML

Using QuickManifolds.com



58. Introduction to QuickManifolds

The www.QuickManifolds.com is promoted by VEST, Inc. the leader in manifold design software. It can automatically create an error free compact manifold for an input hydraulic schematic drawing.

QuickManifolds® is an online automated manifold design service, powered by VEST patented AutoRouter™ technology*.

The service is available 24x7 at www.QuickManifolds.com

The process starts with a hydraulic circuit and the software generates a complete manifold design.

The AutoRouter™ program automatically places all cavities on the block, creates hydraulic connections between cavities, per the schematic drawing.

The program also does the required design checking.

Each assignment submitted to QuickManifolds® can take a couple of seconds to 3 -4 hours to design the manifold.

The time taken depends on the number of cavities, connection complexity, and the constraints applied.

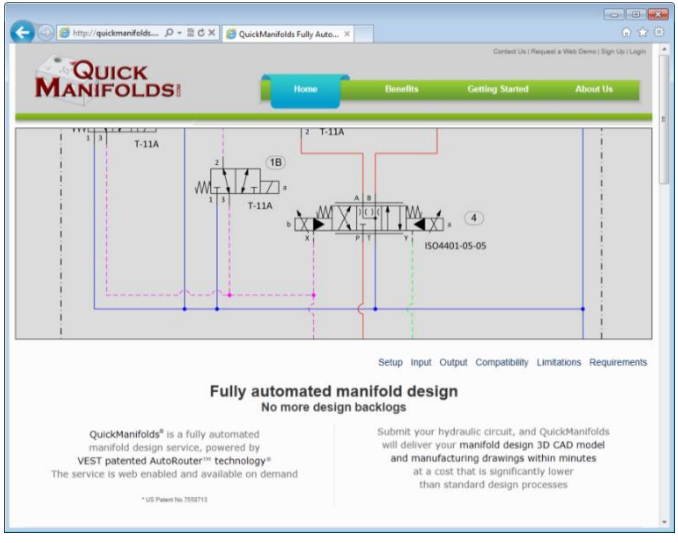
** US Patent No. 7558713*

59. Go To QuickManifolds.com

You *are* directed to the www.QuickManifolds.com website.

Click **Go to** Go to .on the ribbon menu

The QuickManifolds portal opens:
www.QuickManifolds.com

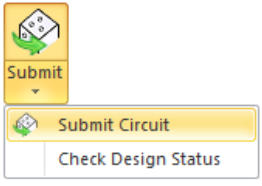


QuickManifolds.com

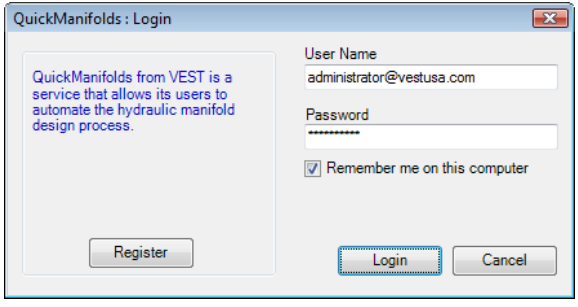
60. Submitting Circuit to QuickManifolds

Submit HyDraw® schematics to QuickManifolds® for automated manifold design.

1. Click **Submit Circuit** from the Submit drop-down menu on the HyDraw V700 ribbon menu.
   The QuickManifolds: Login dialog box displays.



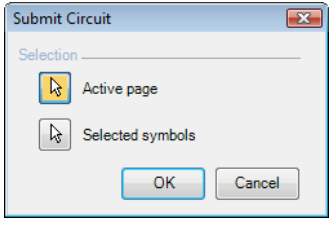
Submit: Submit Circuit



QuickManifolds: Login

2. Enter your user name and password.
   The Submit Circuit dialog box displays.
3. Click the **Active Page** button to select the entire page. (or)

   Click the **Selected symbols** to submit only the selected components and ports.

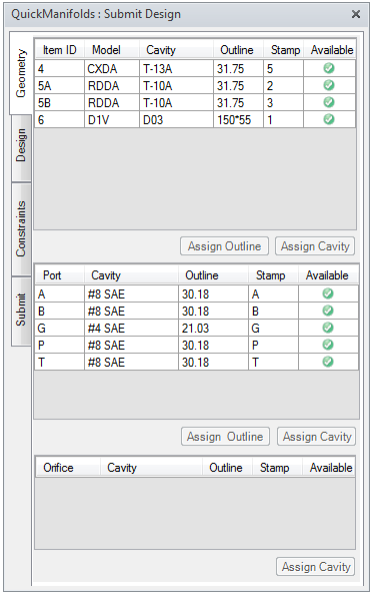


Submit Circuit – Selection dialog box

The QuickManifolds: Submit Design page loads.

The data and the default values entered into HyDraw® are automatically read from the QuickManifolds® Web server and populated into the user interface.

The QuickManifolds: Submit Design page has 4 property tabs: Geometry, Design, Constraints, and Submit.



QuickManifolds: Submit Design- Geometry

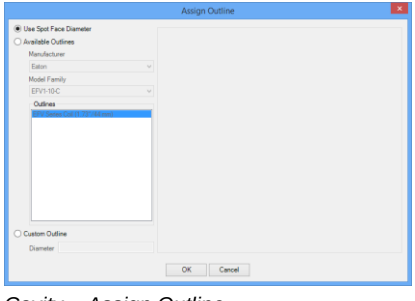
Geometry Tab

- The Geometry tab consists of three sections, Component, External Port, and Orifice.

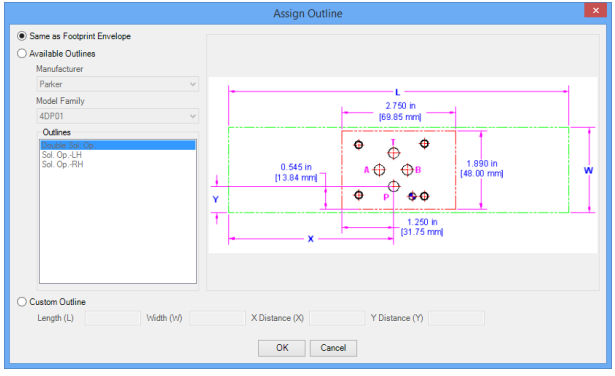
- The **Component** section displays ID, Model, Cavity, Outline, Stamp, and Available status of the cavity.

- Select the Footprint/Cavity and Click **Assign Outline** that enables to redefine the component outline.

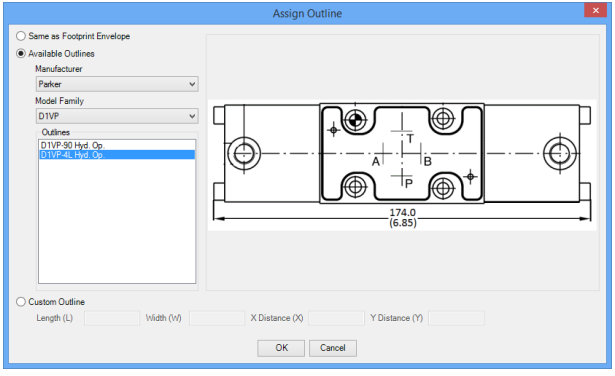
  For Cavities – Select the Use Spot Face Diameter or Custom and define the diameter.



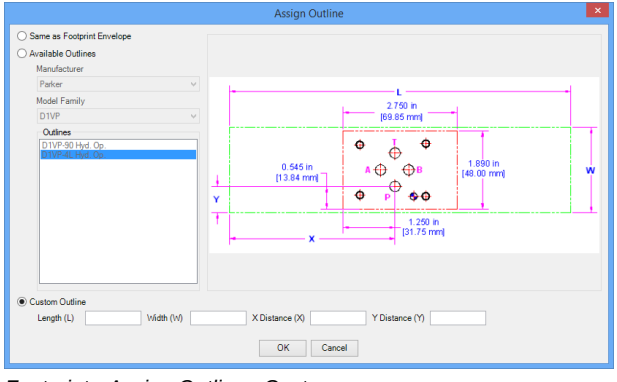
Cavity – Assign Outline



Footprint - Assign Outline : Same as FootprintEnvelope



Footprint - Assign Outline : Available outline



Footprint - Assign Outline : Custom

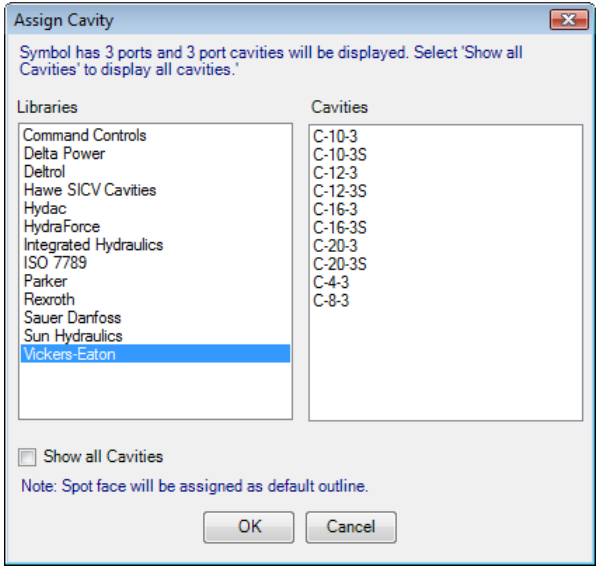
For Footprint - Select Custom Outline and define L, W, X and Y as described in the Preview.

- For Footprint - Select the Same as Footprint Envelope or Custom Outline and define L, W, X and Y as described in the Preview.
- Select the Footprint/Cavity and Click **Assign Cavity** that enables to reassign the cavity.

  By default only the Footprints/cavities with the same number of ports are displayed.
  *To view all cavities irrespective of the number of ports of the Footprints/Cavity, select **Show All Cavities**.*

- The **External Port** section displays ID, Model, Cavity, Outline, Stamp, and Available status of the cavity.
- The Assign Outline option enables to redefine the outline of the ports.
- The Assign Cavity option enables to reassign the cavity for the ports.

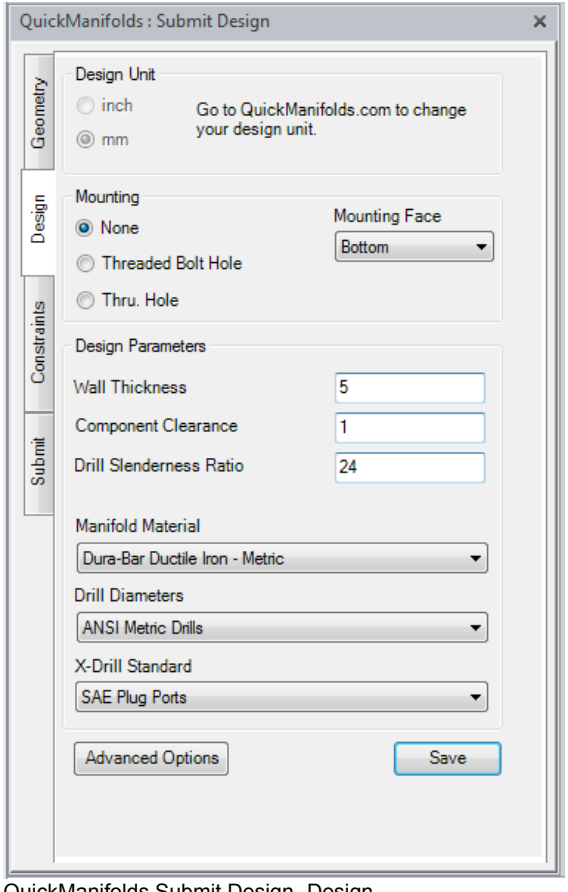
- The **Orifice** section displays Orifice, Cavity, Outline, Stamp, and Available status of the cavity.
- The Assign Cavity option enables to reassign the cavity for the orifices.



Assign Cavity

Design Tab

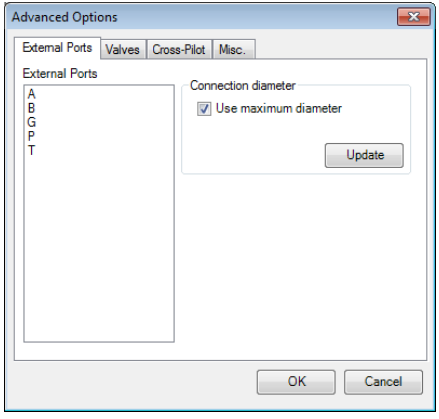
1. Configure following settings,
   - Design Units
   - Mounting Holes
   - Design Parameters, such as wall thickness, component clearance, drill slenderness ratio
   - Manifold Material library
   - Drill Diameters library
   - X-Drill Standard Library
2. Click **Save**.



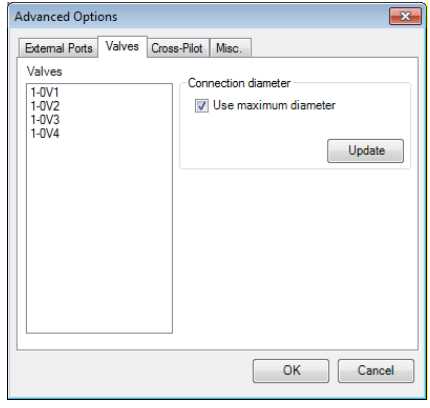
QuickManifolds Submit Design- Design

3. Click **Advanced Options** to set the following:

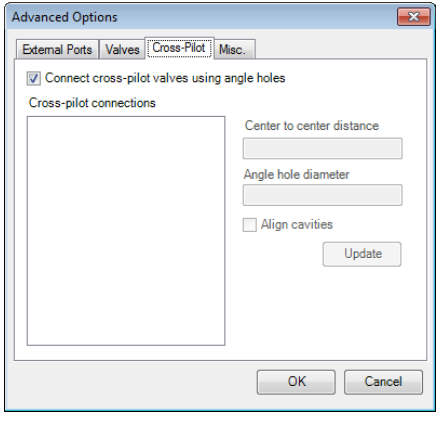
External Ports:



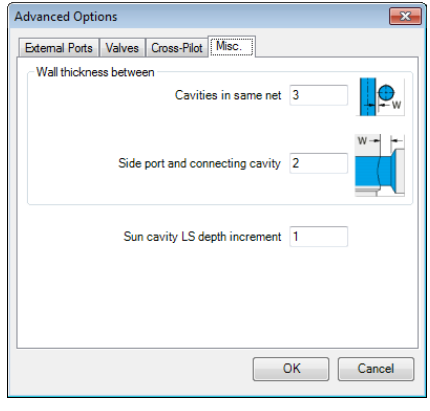
External Valves:



Cross-pilot:



Misc:



Constraints Tab

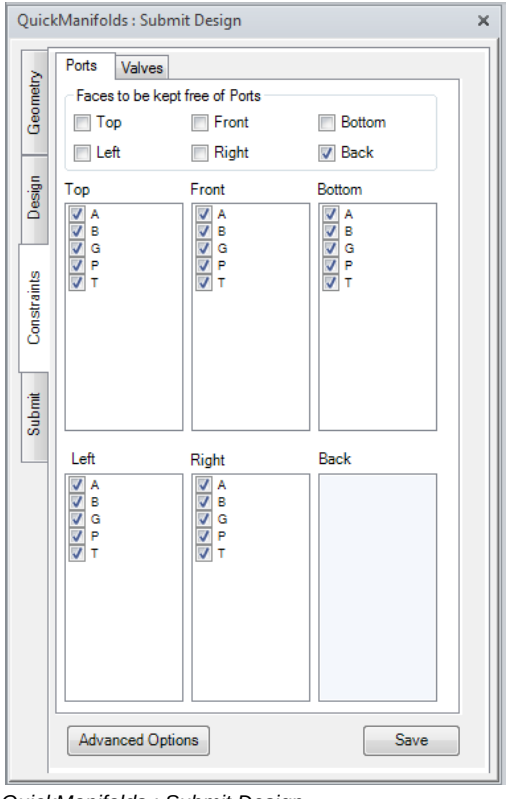
1. Define the Face constraints of the **Ports** and **Valves** in two different sections.

2. Independently set the face constraints for **Cartridge Valves** and **Surface Mounted Valves** in the Valves section.

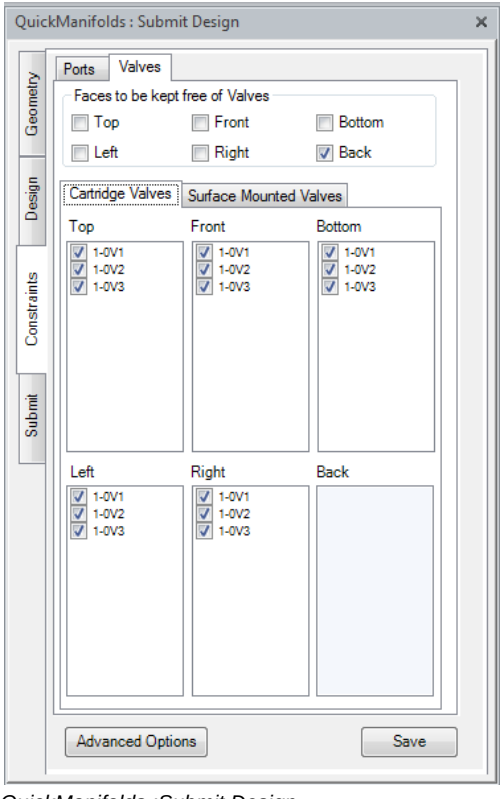
3. Click **Save** button to save the QuickManifolds® data to the schematic.

Note:

To set the Advanced Constraints, click the **Advanced Options** button.



QuickManifolds : Submit Design Constraints (Ports)



QuickManifolds :Submit Design Constraints (Valves)

Advanced Constraints

The Advanced Constraints allow you to set constraints for external ports and valves.

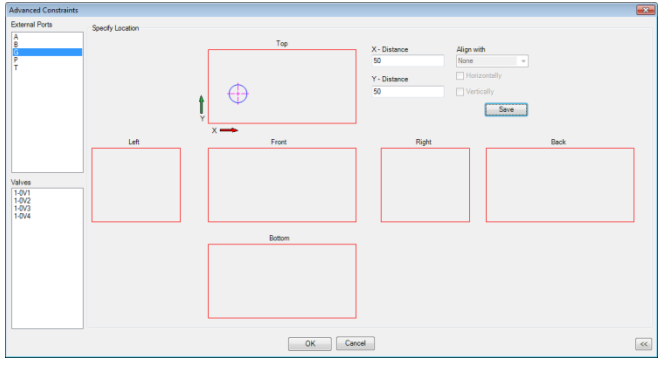
Note

Advanced constraints are available only to External Ports and Valves that are constrained to a single face.

Specify Location

1. Select **External Port/Valves** from the External Port list or the Valves list.
2. Specify the **X-Distance** and **Y-Distance** of the selected port from the origin.

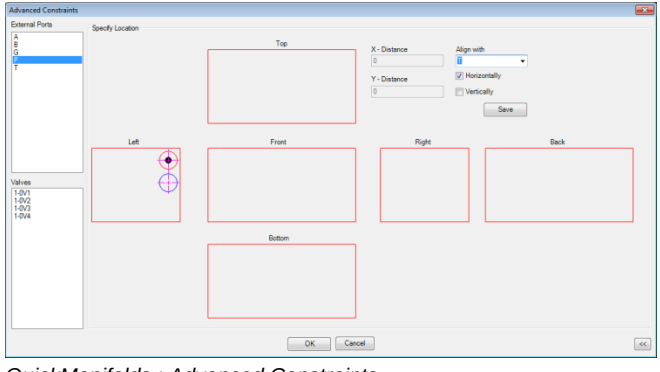
   You can see the preview of the selected cavity and its location.
3. Click **Save**.



QuickManifolds : Advanced Constraints

Aligning

1. Select **External Port/Valves** from the the External Port list or the Valves list.
2. Select the External Port/Valve name from the **Align with** drop down.
3. Select the **Horizontally** or **Vertically** option, per requirement
6. *You can see the preview of the selected cavities and their orientation.*
4. Click **Save**.



QuickManifolds : Advanced Constraints

Submit Tab

1. Define Title Block Information such as, Title, Customer, Part No. Drawn, Checked by, Approved, and Projection Type.

   It also displays the block design cost, account balance, and the available credit.

2. Click **Export** to save the QuickManifolds® Schematic data in the XML format.

3. Click **Save** to save the QuickManifolds® data to the schematic.

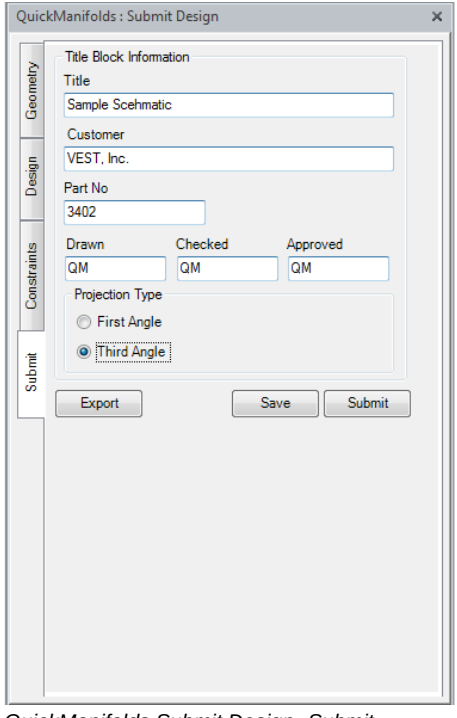
4. Click **Submit** to submit the design to QuickManifolds®.

   A message displays to state the current block design cost.

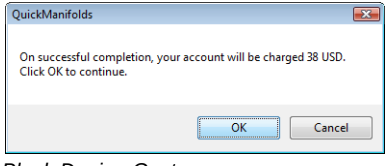
5. Click **OK** to continue.

   When the circuit is successfully submitted to QuickManifolds.com, the Submit Circuit message displays.

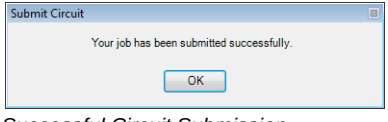
6. Click **OK**.



QuickManifolds Submit Design- Submit



Block Design Cost

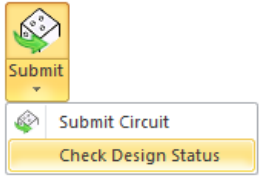


Successful Circuit Submission

61. Checking Design Status

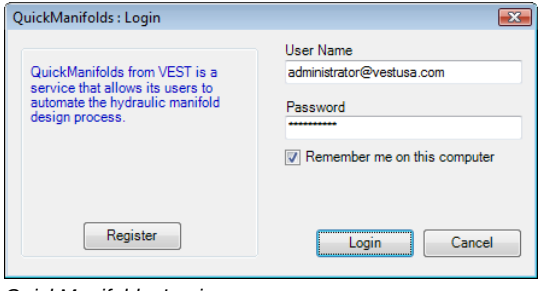
Check the status of the manifold design submitted to QuickManifolds®.

1. Click **Check Design Status** from the Submit option on the HyDraw® V700 ribbon menu.
   The QuickManifolds: Login dialog box displays.



Submit: Check Design Status

2. Enter your user name and password.
   The QuickManifolds: Check Design Status dialog box displays.



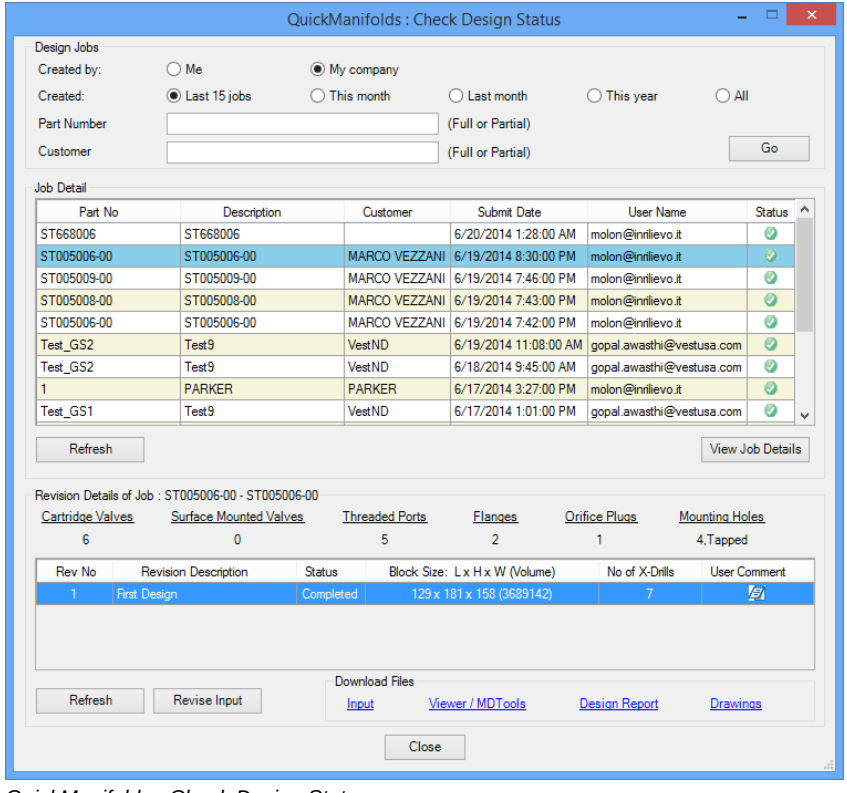
QuickManifolds: Login

3. Provide the Design Jobs detail, such as
   Created by, Created period, Part number, and Customer.
4. Click **GO**.
   The submitted designs are enlisted in the Job Detail grid.
5. Select the design from the **Job Detail** section.
6. Click **View Job Details**.
   *The **Refresh** button repopulates the job detail and status from the QuickManifolds® server.*

   The Revision Details grid displays the design details.

   *The **Revise Input** button enables resubmitting the design with constraints change at a very reduced cost i.e only 20% cost of the initial design.*

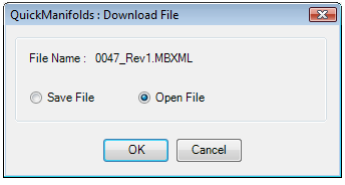
7. The **Download Files** section provides,
   - Input file in the XML format
   - MDTools® Viewer file
   - Design Report in the PDF format
   - Drawings of the design in step format



QuickManifolds : Check Design Status

62. QuickManifolds Viewer

1. Click the **Viewer/MDTools** download link.
   The QuickManifolds: Download File dialog box displays.

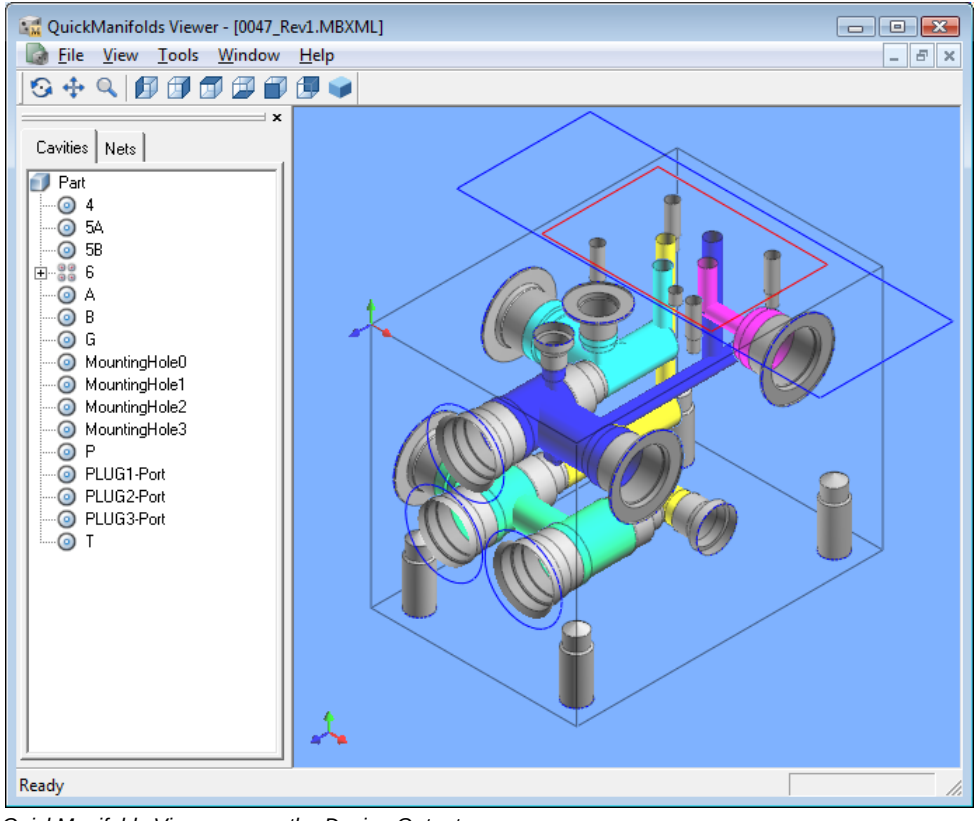


QuickManifolds: Download File

2. Select **Save File** or **Open File**.
3. Select **OK**.

Note

- To view the output files, install QuickManifolds® Viewer available along with the HyDraw® Installation.
- To get further details on working with QuickManifolds and downloading of the QuickManifolds User Manual, please visit www.QuickManifolds.com.

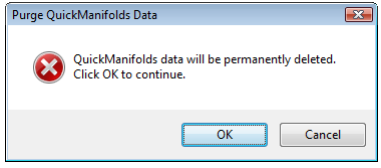


QuickManifolds Viewer opens the Design Output

63. Purging QuickManifolds Data

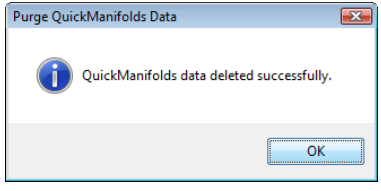
Remove the QuickManifolds® information from components in the schematic drawing.

1. Click **Purge** on the QuickManifolds section of the HyDraw® V700 ribbon menu.
   The Purge QuickManifolds Data warning message box displays and warns that the QuickManifolds data will be removed permanently.



Purge QuickManifolds Data warning message box

2. Click **OK**, if you want to continue.
   On completion, prompts a message – QuickManifolds data removed successfully.



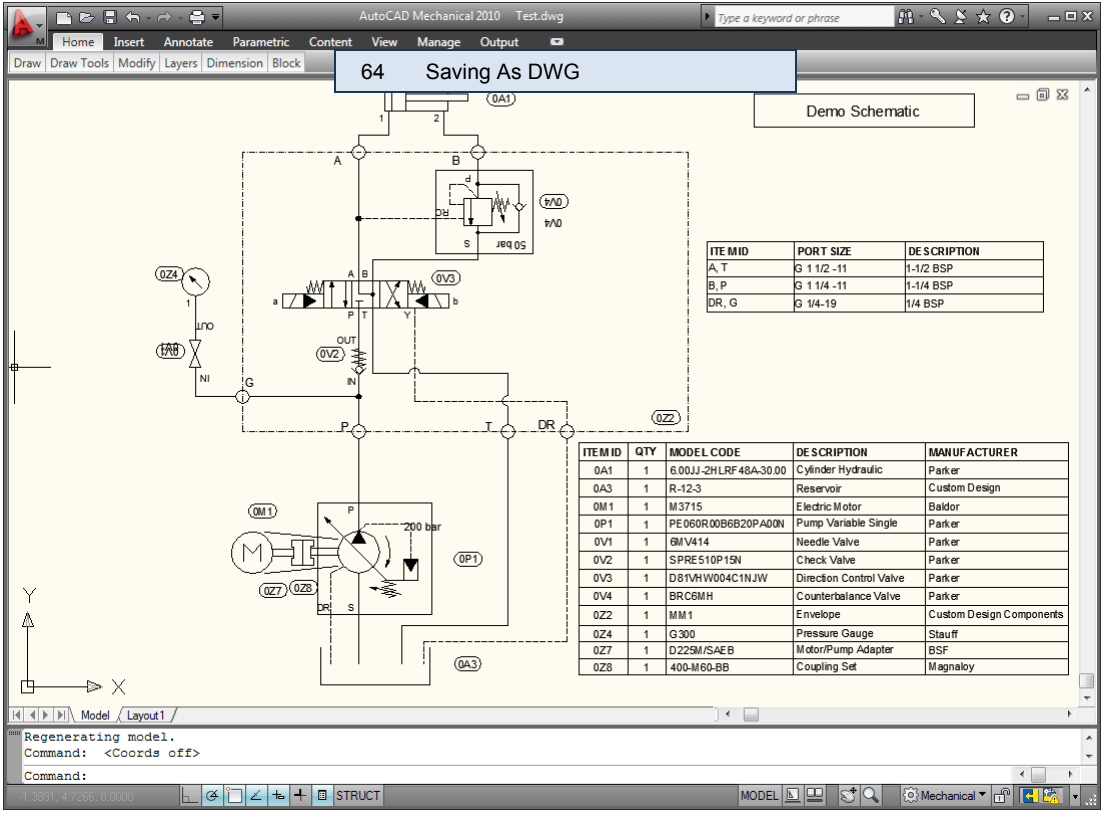
Purge QuickManifolds Data message box

3. Click **OK**.

CAUTION

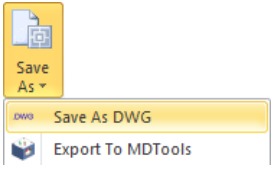
Save the schematic with a different file name and/or location before removing QuickManifolds® information, for your convenience and future reference.

Migrating Drawings



64. Saving As DWG

Convert the HyDraw® drawing in Visio into the AutoCAD compatible DWG format.

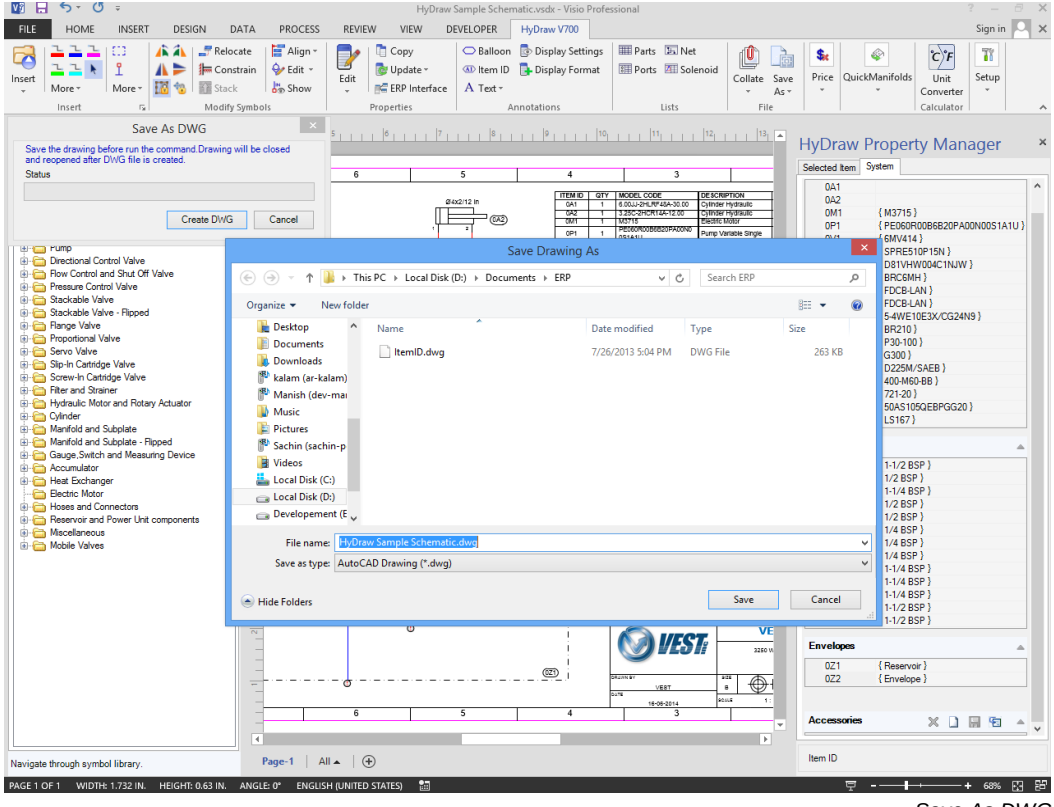


Saves As DWG drop-down menu

1. Click the **Save As DWG** option on the HyDraw extras drop-down menu.
   The Save As DWG dialog box displays.
2. Click **Create DWG** to save the file as an AutoCAD compatible DWG drawing.
3. *The Save Drawing As dialog box displays.*
4. Specify the desired location and file name for the drawing.
5. Click **Save** to save the file.

Note

The drawing closes and reopens into DGW after exporting.
Therefore, you must save the drawing before exporting.

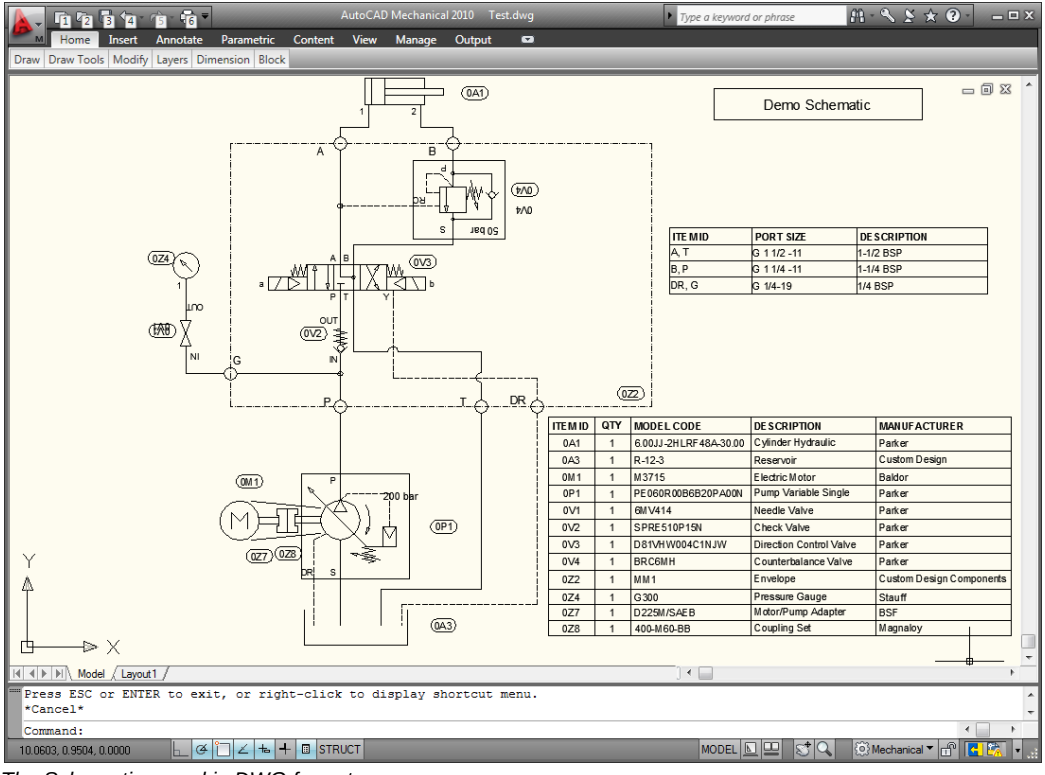


Save As DWG

The Fill option is switched off by default in AutoCAD.

Switch the Fill option to ON in AutoCAD to display the filled regions in the drawing.

1. If AutoCAD is open, then insert the drawing exported from HyDraw®.
2. Enter **FILL** at the AutoCAD command prompt and press **Enter**.
3. Enter **ON** and press **Enter**.



The Schematic saved in DWG format

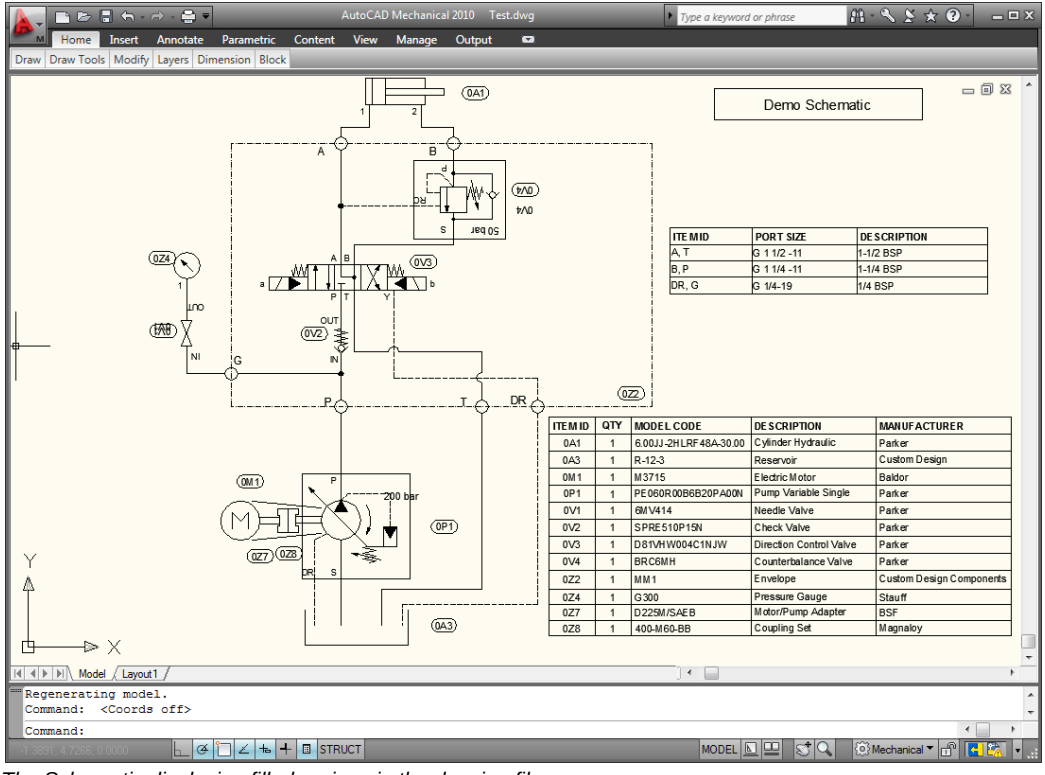
Regenerate the drawing to display filled regions.

1. Enter **REGEN** at the AutoCAD command prompt
   and press **Enter**.

2. **Save** and close the drawing.

Known Limitations:

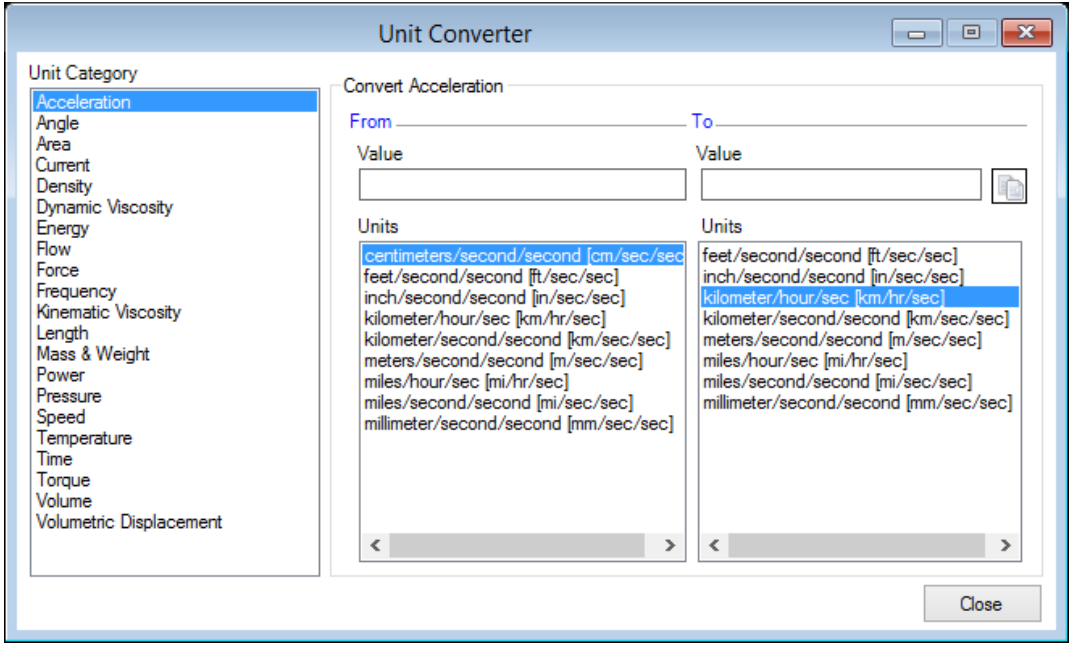
- The exported drawing appears in black.
- Envelope line below an external port symbol is not automatically trimmed.
- If you have created symbols by importing an AutoCAD drawing,
  then the filled regions (e.g arrow heads) created using polyline or solid hatch in AutoCAD will appear unfilled in the exported drawing.
- Text background in the Visio drawing cannot be converted to DWG.



The Schematic displaying filled regions in the drawing file

Calculator

65 Unit Converter



65. Unit Converter

Convert the value of any unit category from one selected unit to another selected unit.

1. Click **Unit Converter** from the Calculator option on the HyDraw® V700 ribbon menu.

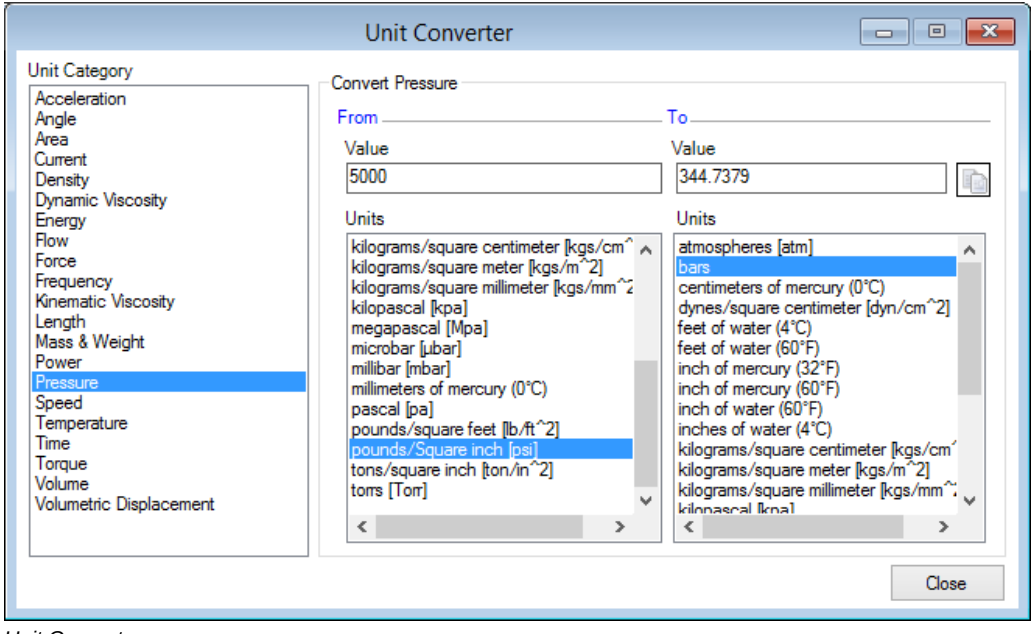
The Unit Converter dialog box displays.

2. Select a unit category.
3. Select the units system in **From** and **To** Unit list box, per requirement.
4. Specify the unit value in **From** Value text box.

*The converted units value appears in the **To** Value text box, in the required unit system.*

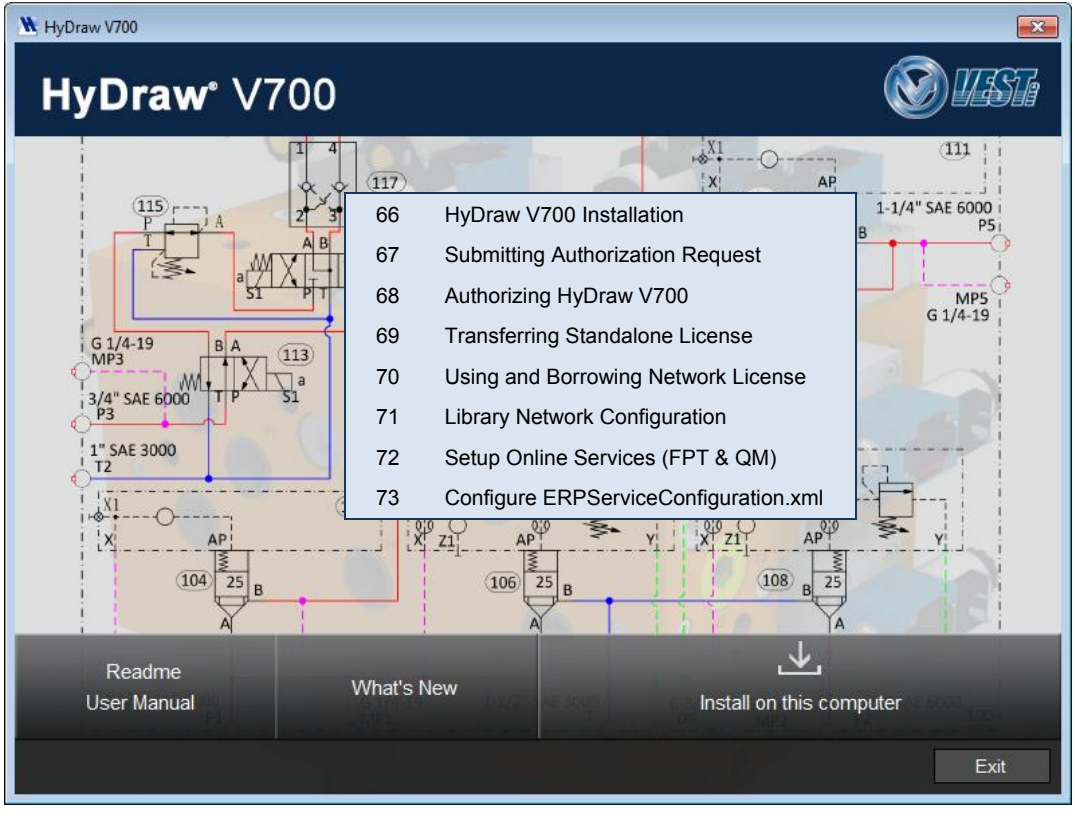
5. Click to copy the **To** value to the clipboard.

HyDraw Unit Converter



Unit Converter

Installation & Setup



66. HyDraw V700 Installation

The HyDraw® installation program installs HyDraw V700 on your computer system.

System Requirements

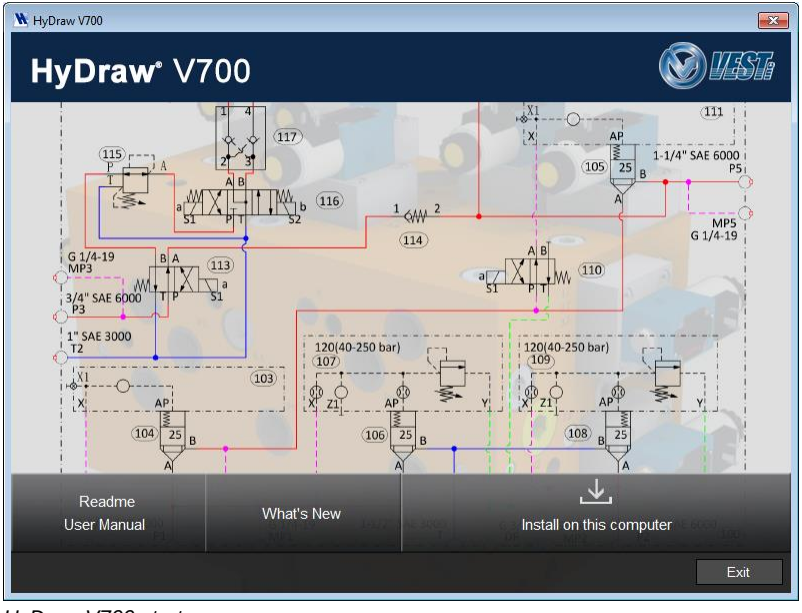
- Windows® 7 / 8 / 8.1
- Microsoft® .NET Framework version 4.0 or higher
- Adobe Reader 6.0 or higher
- Microsoft Visio® 2010 (32/64 bit)/ Microsoft Visio 2013 (32/64 bit) SP1
- Microsoft Excel 2007 or higher*
- Other system requirements, per Visio®

* Required only for exporting HyDraw Data from Visio and importing data into HyDraw Library

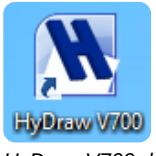
Software Installation

1. Insert the HyDraw® V700 DVD into the DVD drive.
   If Auto Run is not set, then:
   - On the Start menu, click **Run**.
   - Browse to the HyDrawV700Start.exe program on the DVD drive.
   - Select **HyDrawV700Start.exe**, and click **Open**.
   - Click **OK**.
     The HyDraw V700 startup screen displays.
   - Click **Install on this computer**.
     The HyDraw V700 Installshield Wizard dialog displays. The installation program starts and guides you through the installation process.
2. Install **HyDraw Library Manager** to install the Library and its manager.
   The installation program starts and guides you through the installation process.
3. Install latest **QuickManifolds® Viewer** from the following link:-
   http://www.vestusa.com/download/QuickManifoldsViewerSetup.zip
4. View the HyDraw V700 Read Me and User Manual from the provided links, if required.
5. Once complete, click **Exit** in HyDraw V700 dialog box and restart your computer for the changes to take effect.
   HyDraw V700 and HyDraw Library Manager are installed on the system and HyDraw V700 is displayed in the Windows Start > Program menu.

   A HyDraw V700 shortcut icon is created on the desktop.



HyDraw V700 startup screen

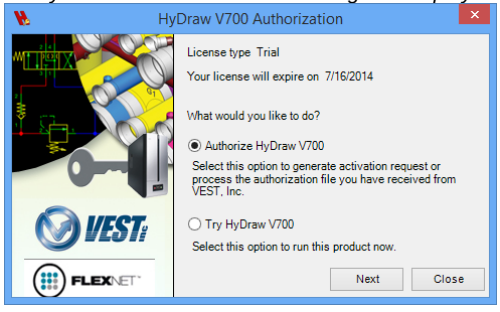


HyDraw V700 desktop icon

67. Submitting Authorization Request

1. Double click the **HyDraw® V700** desktop icon.

   The HyDraw V700 Authorization dialog box displays.

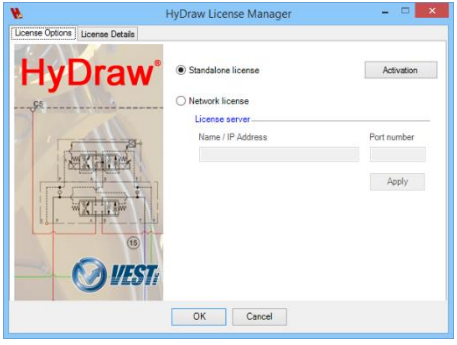


.

4. Select **Authorize HyDraw V700** or **Try HyDraw V700** for 30 days trial period.
5. Click **Next**.

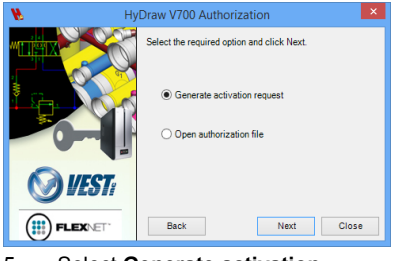
2. Alternatively select,
   Start
   > All Programs
   > VEST
   > HyDraw V700
   > **HyDraw License Manager**

   The HyDraw License Manager dialog box displays.

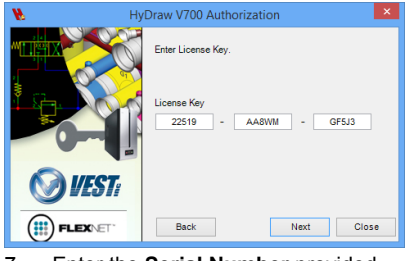


3. *Click the **Activate** button.*

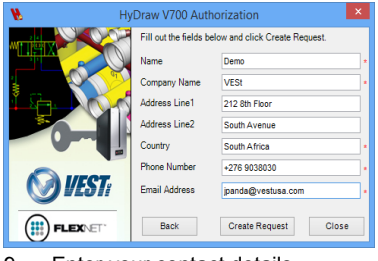
   The HyDraw V700 Authorization dialog box displays.



5. Select **Generate activation request**.
6. Click **Next**.

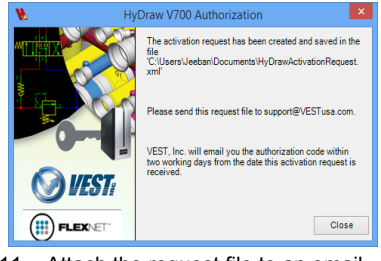


7. Enter the **Serial Number** provided when you purchased the software.
8. Click **Next**.



9. Enter your contact details.
10. Click **Create Request**

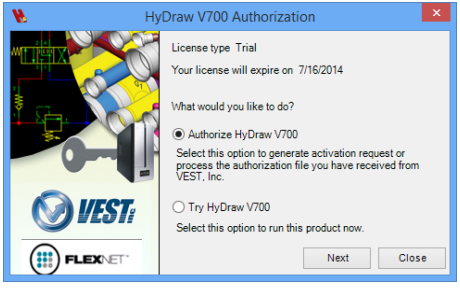
Authorization request is generated and prompts to save in an xml file.



11. Attach the request file to an email and send it to support@VESTusa.com.
12. Click **Close**.

68. Authorizing HyDraw V700

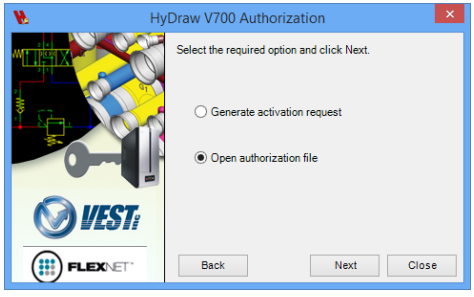
1. Double click the **HyDraw® V700** desktop icon.
   If the program has not yet been authorized, the License Server Product Authorization dialog box displays.



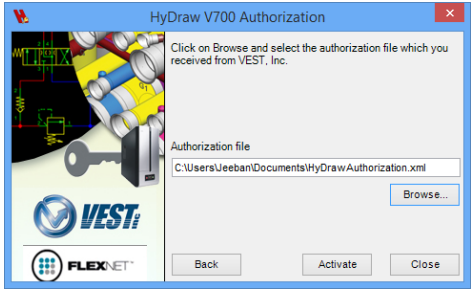
2. Select **Authorize HyDraw V700**.
3. Click **Next**.

Alternatively select,
Start
> All Programs
> VEST
> HyDraw V700
> **HyDraw License Manager**
The HyDraw License Manager dialog box displays.

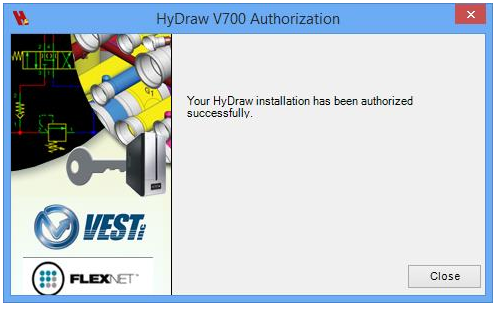
4. Click the **Activate** button.
   The HyDraw V700 Authorization dialog box displays.



5. Select **Open authorization file**.
6. Click **Next**.

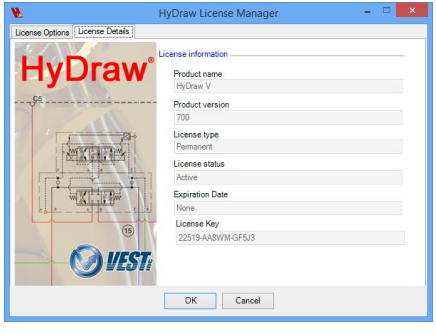


7. Click **Browse** and select the saved Authorization Code xml file.
8. Click **Activate**.



9. Click **Close**.
   The dialog box closes and HyDraw License is successfully activated.

10. *Check the **License Details** from the HyDraw License Manager.*



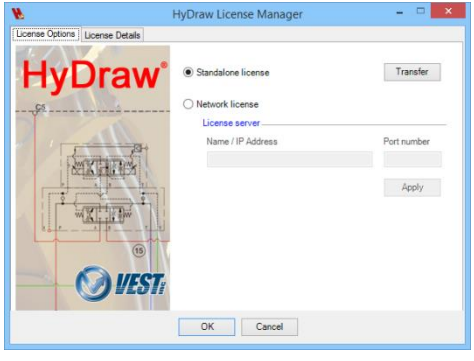
69. Transferring Standalone License

5. *The fully activated Network License has the **Transfer** button available to return the software to VEST for deactivation of the software on the current machine and reactivate it on a different machine.*

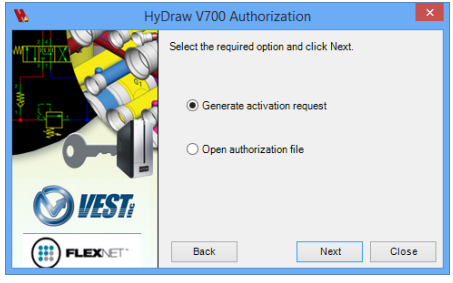
Submit Transfer Request

1. Select,
   Start
   > All Programs
   > VEST
   > HyDraw V700
   > **HyDraw License Manager**

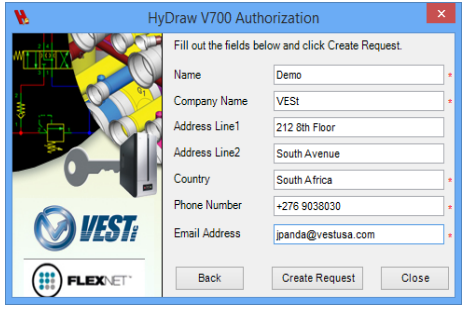
   The HyDraw License Manager dialog box displays.



6. 2. Click the **Transfer** button.
   The HyDraw V700 Authorization dialog box displays.

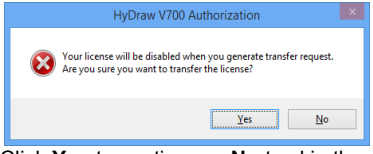


7. 3. Select **Generate transfer request**.
4. Click **Next**.



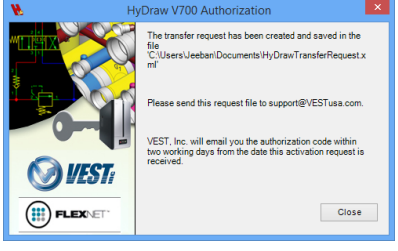
6. Change your contact details, if required.
7. Click **Create Request**.

A warning message appears indicating the license will be disabled.



8. Click **Yes** to continue or **No** to skip the transfer.

   Authorization request is generated and prompts to save the xml file.



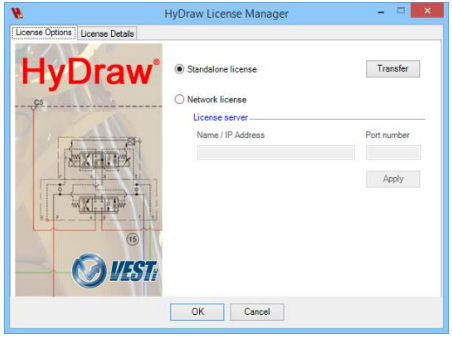
9. Attach the request file to an email and send it to support@VESTusa.com.
10. Click **Close**.

Note: The transfer process will be completed only, when you activate the authorization file received from VEST.

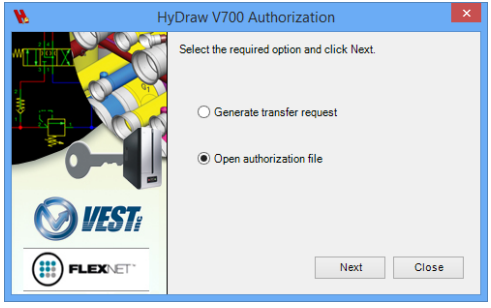
Authorize Transfer Request

1. Select,
   Start
> All Programs
> VEST
> HyDraw V700
> **HyDraw License Manager**

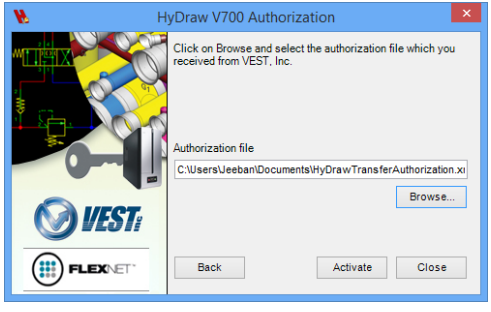
   The HyDraw License Manager dialog box displays.



2. Click the **Transfer** button.
   The HyDraw V700 Authorization dialog box displays.



4. Select **Open authorization file**.
5. Click **Next**.



6. Browse and select the saved Authorization Code .xml file.

7. Click **Activate**.

8. Click **Close.**

   The dialog box closes and HyDraw License is successfully transfered.

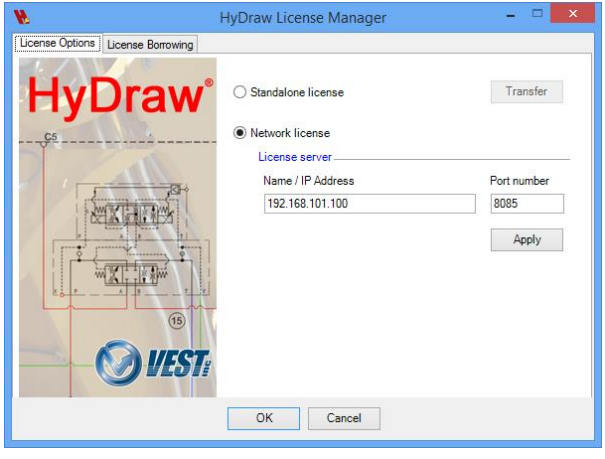
70. Using and Borrowing Network License

The HyDraw client machines can use a network license available from the HyDraw License server Manager.

Using Network License

1. Select,
   Start
> All Programs
> VEST
> HyDraw V700
> **HyDraw License Manager**

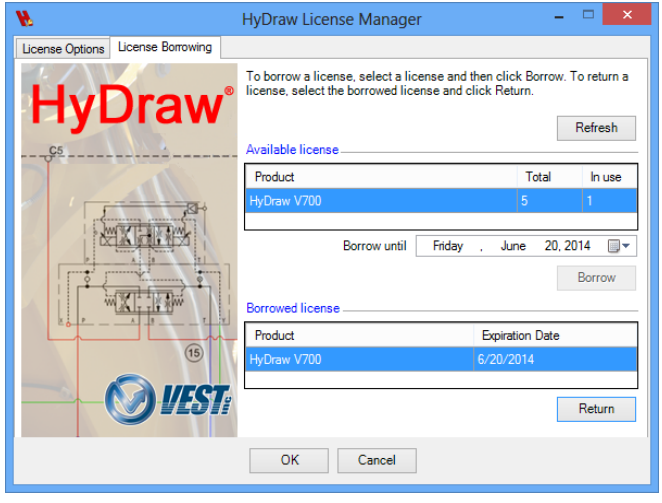
The HyDraw License Manager dialog box displays.



3. 2. Select the **Network license** option.
4. 3. Set the License Server Name/IP Address and Port number.
5. 4. Click **Apply**.

Borrowing Network License

6. 1. Select the **License Borrowing** tab.



7. Select the **Borrow until** date.
8. Click the **Borrow** button.
   The Borrowed license details are displayed in the grid.
9. 4. Click **OK** to exit.

Return Network License

1. The license can be returned by clicking the **Return** button.
2. Click **OK** to exit.

71. Library Network Configuration

HyDraw® V700 can access data from a HyDraw library on a local network by using the Corporate Library option. This enables all designers in an organization to work efficiently by sharing a common data resource. For details on installing the HyDraw Library, refer the Library Manager User Manual.

1. Click the **Library Path** tab.

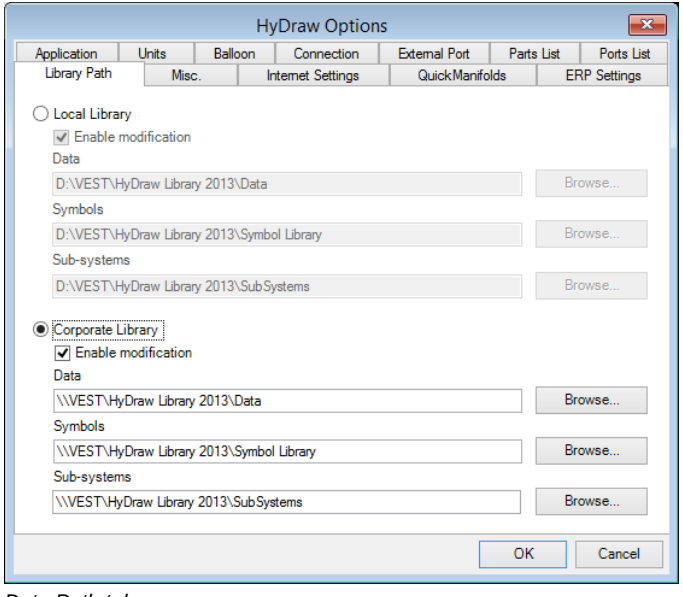
   The Library Path tab page displays.

2. Select the **Local Library** option.
3. Select the **Enable modification** check box to modify library.
4. Click **Browse… and v**avigate to the folder where the HyDraw® Library data is stored.

   The Symbols and Sub-subsystems path are automatically set if the Data, Symbols and Sub-systems folders are located at the same path.

5. Repeat the above steps for each of the specified HyDraw library path, if required.
6. Select the **Corporate Library** option to configure the second library path of your common Network library and repeat steps 3 to 6, if required.
7. Click **OK**.

   All the HyDraw library paths are configured.



Data Path tab page

Note

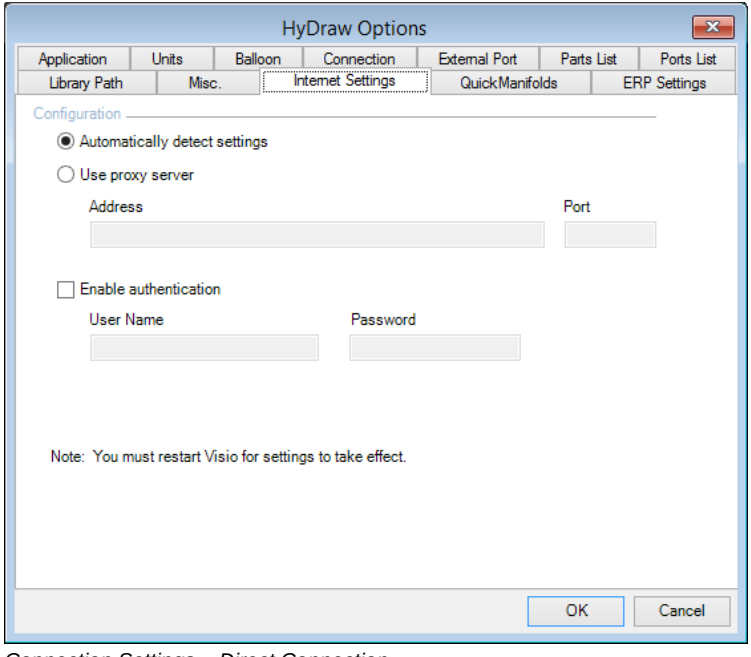
All data paths shown are default.
You can configure to common network data paths.

72. Setup Online Services (FPT & QM)

Internet Settings for accessing FluidPowerTools.com and QuickManifolds.com

1. Automatically detect settings

If your computer is connected to the Internet through a direct LAN connection, then select the **Automatically detect settings** option.



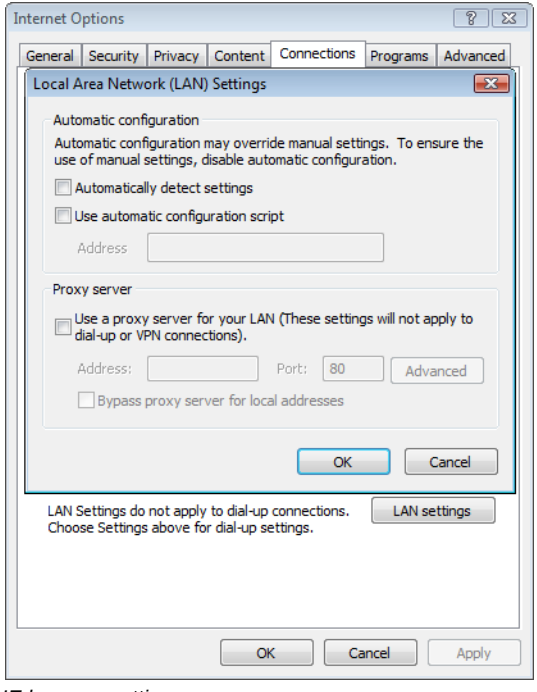
Connection Settings – Direct Connection

2 Configure LAN Settings

1. Open Internet Explorer.
2. Select Tools
   > **Internet Options**
3. Select **LAN settings** from the Connections tab.
4. Configure the LAN settings.

Note

For direct connection, you should deselect the *Use a proxy server for your LAN* option in the LAN Settings dialog box.



IE browser settings

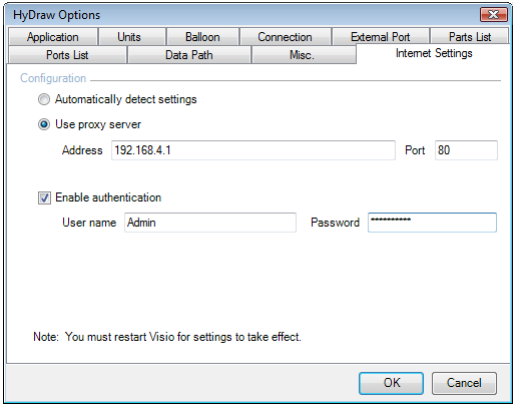
3 Proxy Connection

If your computer is connected to the Internet through a web proxy server, then select **Use proxy server**.

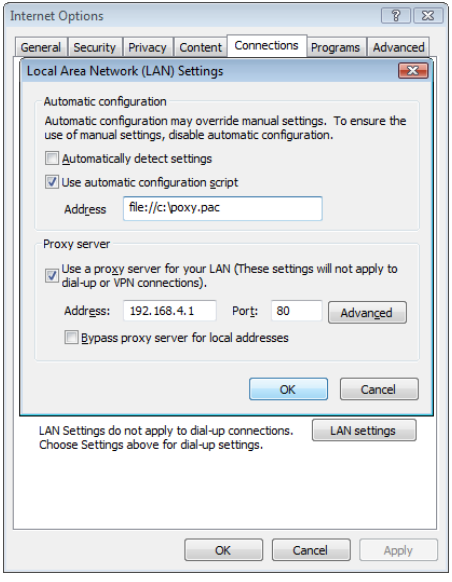
Configure the proxy settings.

1. Enter the Address.
2. Enter the Port number.
3. Enter authentication details, if required.

You may refer to the settings that may be already defined in your web browser.



Connection Settings – Proxy Settings



Internet Options

Note

- If an automatic configuration script is used in the browser for proxy, then use the Proxy server settings from the LAN Settings dialog box in the browser to configure your Proxy Connection Settings.
- If you do not find proxy server details in the browser, then contact your system administrator.

73. Configure ERPServiceConfiguration.xml

*You can configure the XML Code for each property in **ERPServiceConfiguration.xml**.*

The sample ERPServiceConfiguration.xml file is available at the "ERP" folder in the HyDraw Setup.

Configure the column name of the XML code for each property, per your ERP data Excel Sheet & InternalName and DisplayName in Properties table of ComponentData.mdb database by default available at "C:\VEST\HyDraw Library 2013\Data\".

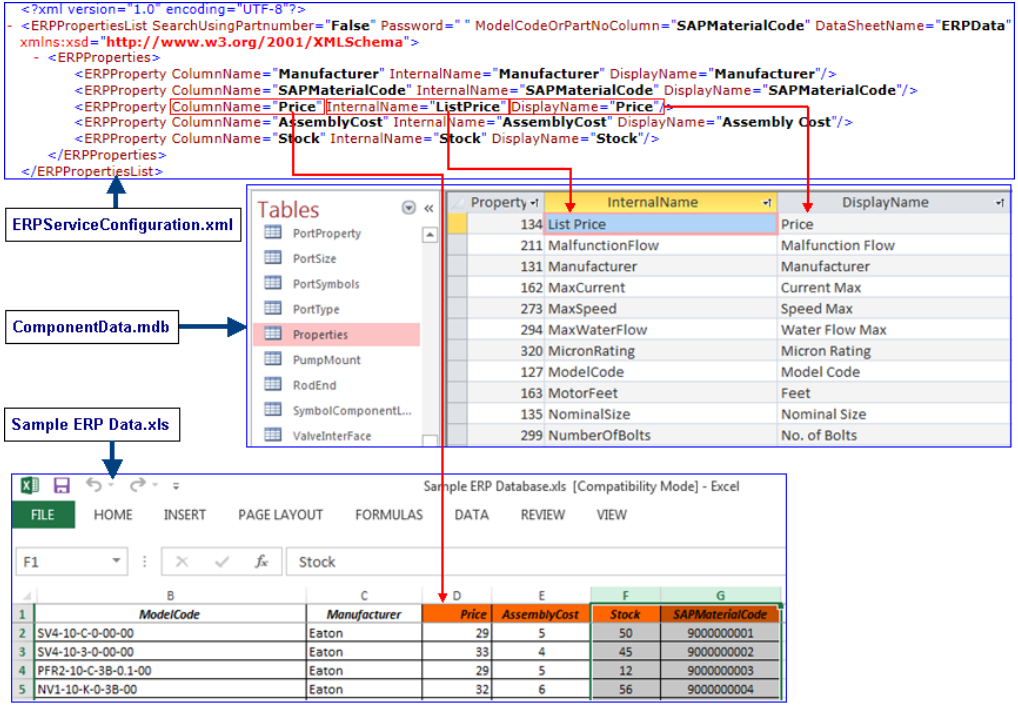
Each property has three attributes
1. **ColumnName** is the corresponding column as defined in the Excel sheet without any spaces. (Configurable)
2. **InternalName** is the variable name as in Properties table without any spaces. (Not Configurable)
3. **DisplayName** is the variable name as in Properties table. (Not Configurable)

Note:

ERPServiceConfiguration.xml and the ERP Excel sheet must be at the same location.

All the columns in the ERP Data in Excel, must be in Text Format.

Special characters are not supported in ERPServiceConfiguration.xml



ERPServiceConfiguration.xml, Properties Table & Sample ERP Data in Excel Format

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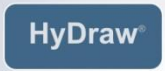
Circuit Design

Manifold Design



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