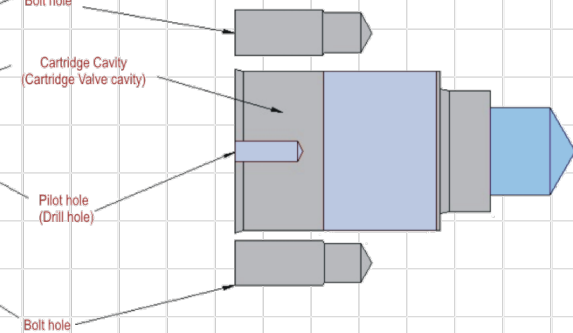
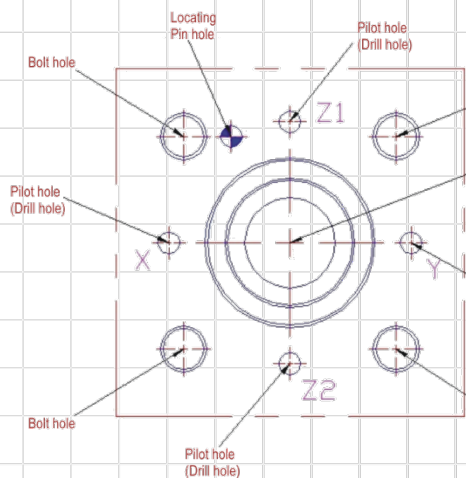
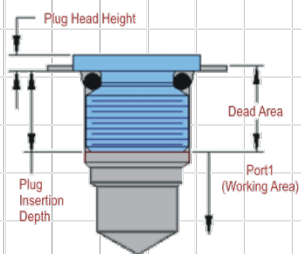
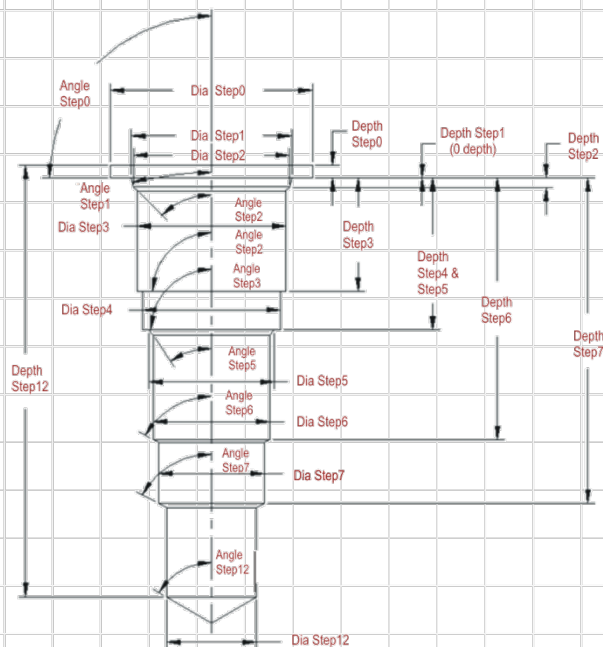
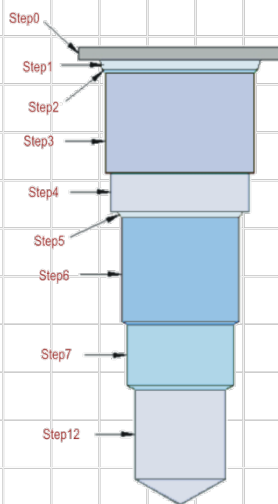
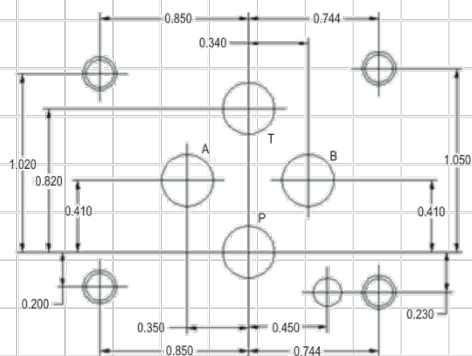




MDTools® Library Manager 2012 R1

User Manual

VEST, Inc. 3250 W, Big Beaver Road, Suite 440, Troy, MI 48084 USA

Tel: 01 248 649 9550 Fax: 01 248 649 9560

Email: sales@VESTusa.com Visit: www.VESTusa.com

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1.Introduction

MDTools® Library Manager is a group of library programs that can be used to customize the database, per the user's specific requirements.

Edit Cavity Library:

Customize the cavity data in MDTools libraries, per your specific requirements.

Edit Envelope Library:

Create, modify, and store valve assembly envelopes.

Edit O-ring Groove:

Add, edit, or delete the O-ring and O-ring groove data, per your specific requirements.

Edit Slot:

Add, edit, or delete the slot data, per your specific requirements.

Edit Tool Library:

Add, edit, or delete the standard tool data, per your specific requirements.

Edit Assembly Library:

Assign the Valve model for cavities in your library to facilitate automatic assembly in MDTools.

Import Cavity:

Import cavities or footprints from other MDTools Cavity libraries into your library.

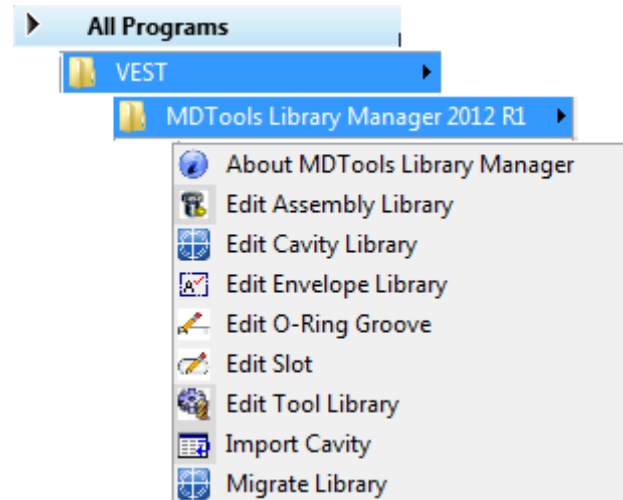
Import new cavities added in the MDTools Cavity library into your cavity library.

Migrate Library:

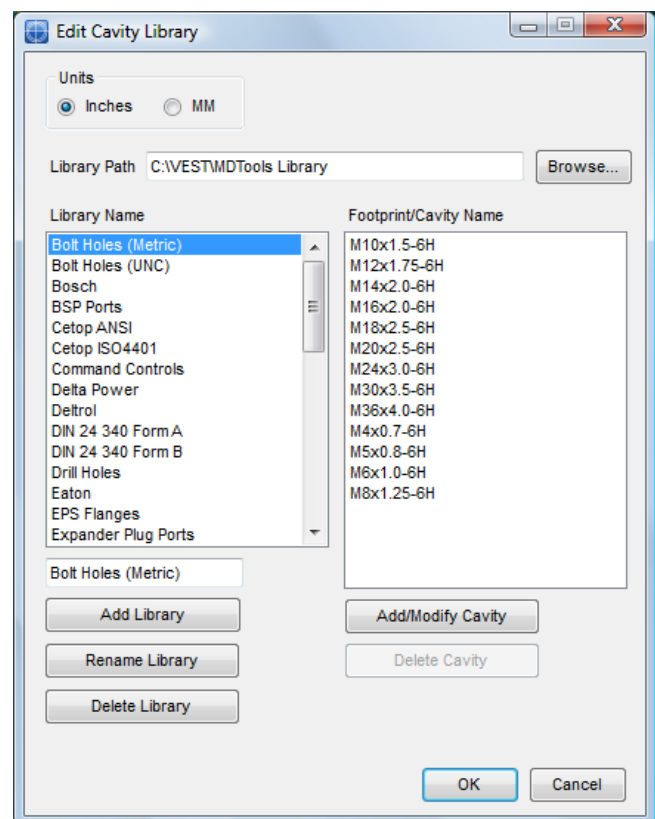
Migrate the MDTools library to the new format.

About MDTools Library Manager:

The About dialog box displays the current MDTools Library Manager release and build number.



MDTools Library Manager 2012 R1 Programs Menu



Edit Cavity Library

2. Installation

Install MDTools Library Manager 2012 R1 using the installation program. The installer creates all required directories and installs the MDTools Library Manager on your system.

1. System Requirements

- Microsoft Windows XP/Windows Vista Business/Windows7 (64 Bit).
- Microsoft .NET Framework 3.5 or higher.

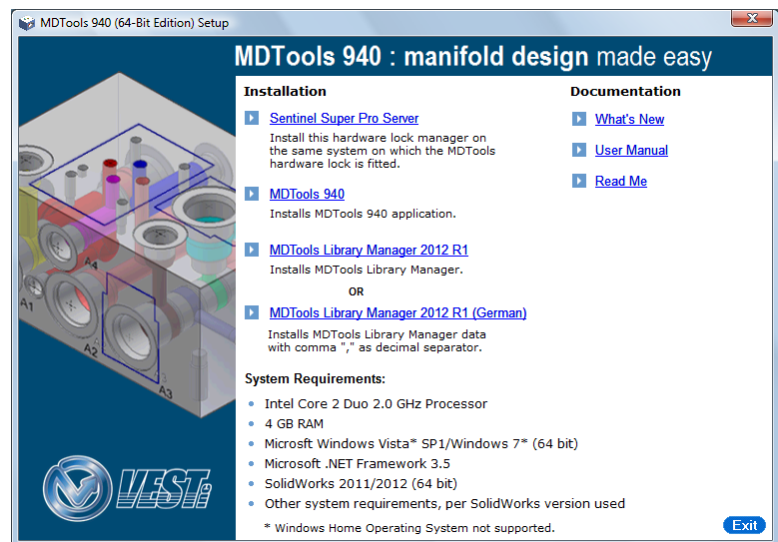
2. Software Installation

Insert the MDTools® CD-ROM (Inventor/SolidWorks version) in the CD drive of your system.

If Auto-run is not set, then:

1. Launch the Setup program.
Windows **Start>Run...>** Browse...
(Browse to E:\ MDToolsStart.exe assuming E is your CD drive).
2. Select **MDToolsStart.exe**.
3. Click **Open**.
4. Click **OK**.

The MDTools dialog box displays.

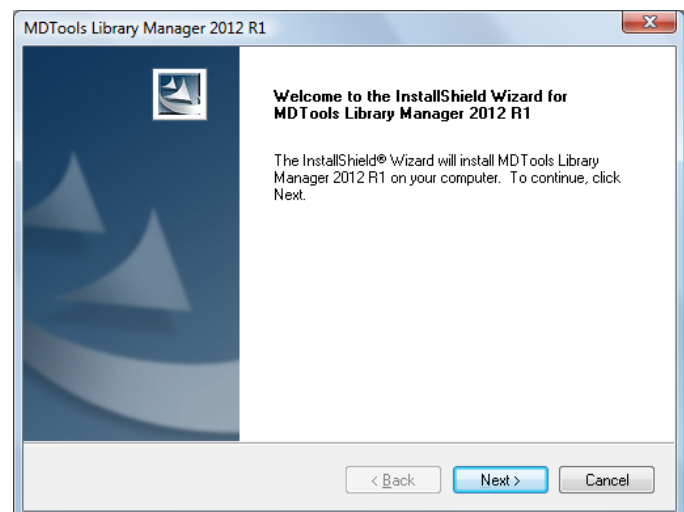


MDTools 940(64-Bit Edition) Library Manager Installation Wizard

Install MDTools Library Manager 2012 R1

1. Click **MDTools Library Manager 2012 R1**.
The MDTools Library Manager 2012 R1 Installation dialog box displays.
2. Respond to all the setup program prompts.
The MDTools Library Manager is installed on your system.

The installation program automatically creates the required directories in your system.



MDTools Library Manager 2012 R1 Installation dialog box

3.MDTools Cavities

In MDTools®, all types of holes used in a manifold are called **Cavities**.

An MDTools cavity can be a drill hole, a port (SAE ports, BSP ports, NPT ports, etc), a cartridge valve cavity, a bolthole, locating pin hole, or an under cut.

Modeling Cavities

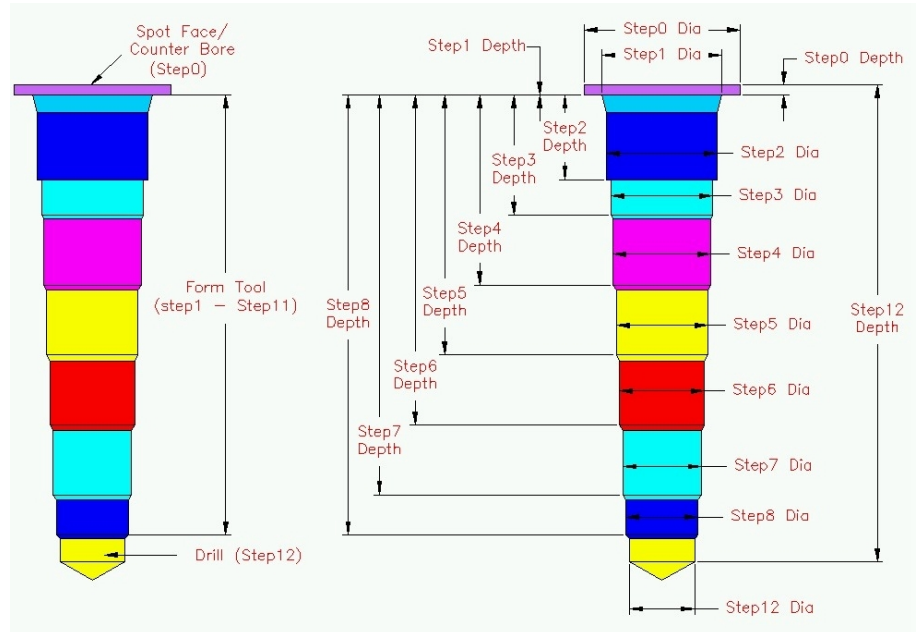
Geometry of a cavity is defined in terms of its dimensions, and its relationship with the step number and step dimensions.

Each step, which consists of cylindrical and/or a conical pair, in the cavity profile is denoted by the term 'Step' in MDTools®.

Step information is analogous to a drill tool, which has the drill diameter, drill depth, and bottom cone angle of the drill.

Note:

- Depth for Step1 through Step11 is measured from Step0.



MDTools Cavity Geometry

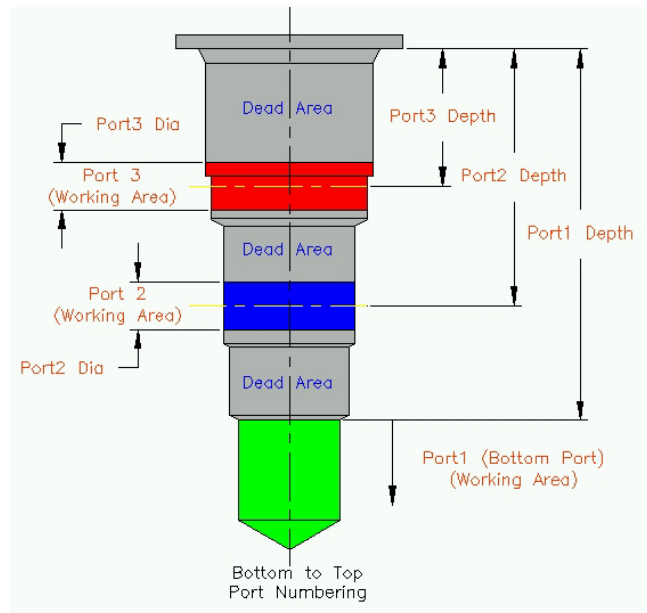
1. Cartridge Valve Cavities

Cartridge valve cavities are divided into working areas (port areas) and dead areas.

All parts of a cavity other than the port areas are considered as Dead Areas.

Note:

- Bottom port depth of a cartridge valve cavity is the starting depth of the bottom port from the spot face.



Typical 3-port Cartridge Valve Cavity

2. Ports

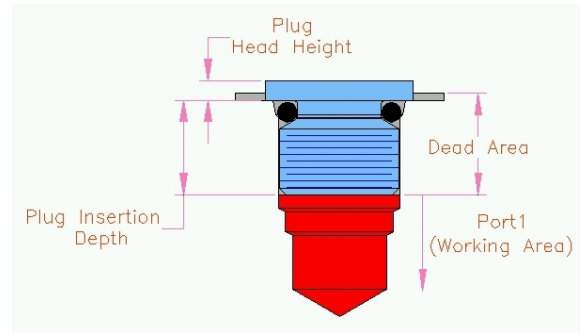
Cavities of ports are divided into working and dead areas.

Area of a cavity below the insertion depth of plug/fitting is considered as Working Area.

Area of a cavity down to the insertion depth is considered as Dead Area.

Note:

- For port cavities, the plug insertion depth must be specified.
- If not specified, the complete cavity is included in the working area during connectivity and wall thickness checks.

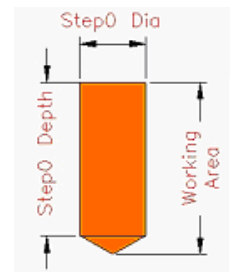


Port Cavities

3. Drill Holes

The complete cavity is treated as Working Area.

Hole dimensions are entered in Step0 of the cavity.



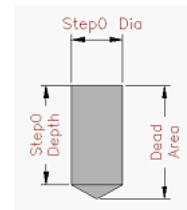
Drill Holes

4. Locating Pin Holes

The complete cavity is treated as Dead Area.

Hole dimensions are entered in Step0 of the cavity.

All the dimensions are fixed.



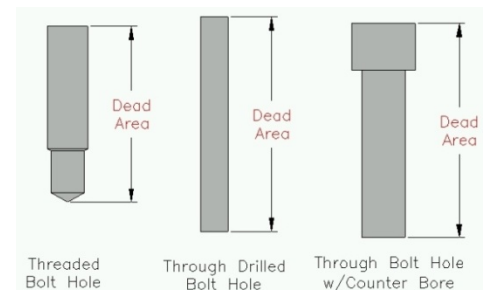
Location Pin Hole

5. Bolt Holes

The complete cavity is treated as Dead Area.

Three variations of bolt holes are used in manifold design.

- Threaded Bolt Hole (for mounting components on manifolds and for mounting manifolds)
- Through Drilled Bolt Hole
- Through Bolt Hole with Counter Bore (for mounting manifolds)



Bolt Holes

4. MDTools Edit Cavity Library

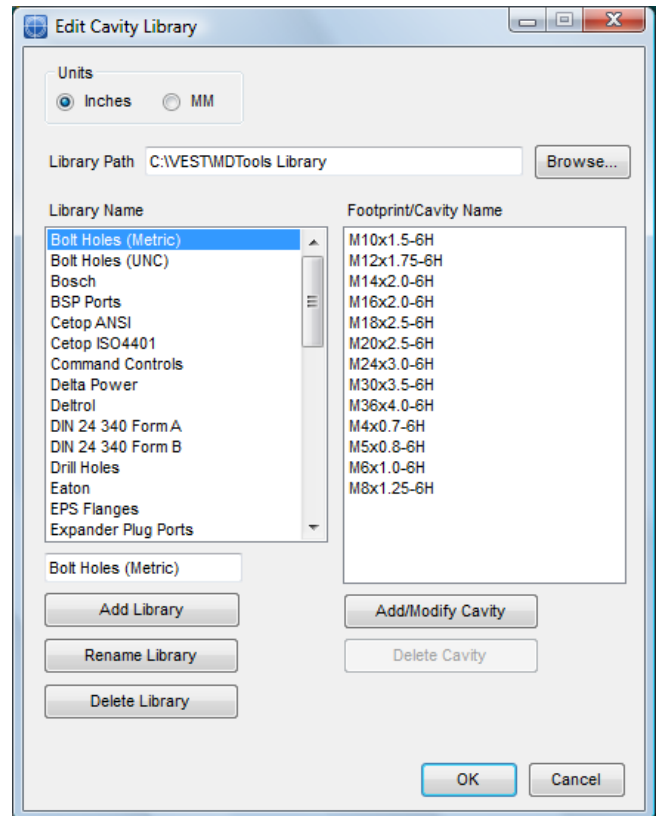
MDTools® *Edit Cavity Library* is the MDTools' Cavity/Footprint library created as a Microsoft Access database. This library is independent of MDTools, i.e. you can run the library management module without running MDTools.

1. Click the Edit Cavity Library icon created on your desktop to run the library module.

You can also run the program by selecting the Edit Cavity Library option from the Windows Start Menu program.

2. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Cavity Library**

The Edit Cavity Library dialog box displays.
3. Perform the following operations from the Edit Cavity Library dialog box:
 - Add new library
 - Delete an existing library
 - Rename an existing library
 - Add cavities/footprints to the library
 - Modify cavities/footprints in the library
 - Delete an existing cavity/footprint



Edit Cavity Library dialog box

Note:

- You can edit both the Inch and Metric unit libraries.
 - The default unit setting is Inches.
 - Do not edit the cavity library manually using the Microsoft Access; always use the MDTools Library Manager program to edit the library.
 - Microsoft Access is not required to edit the cavity library. You can edit the cavity library using the MDTools Cavity Library program even if Microsoft Access is not installed on your machine.
 - Whichever cavities you use in the manifold should be available in the MDTools Cavity Library. You cannot create a cavity inside the MDTools program, if it is not available in the library.
 - Two separate databases, one for inch and one for metric units are used to store the data.
 - The Inch library is stored in the Microsoft Access database file named, InchVESTMDToolsLibrary.mdb and the Metric library is stored in MMVESTMDToolsLibrary.mdb.
- These files are located in the root (installation) directory of MDTools Library.
- Share the cavity library over a network in your group by specifying the location of the library in the Edit Cavity Library dialog box.
- Click the Browse button to browse and select the library location.

4.1 Adding Library

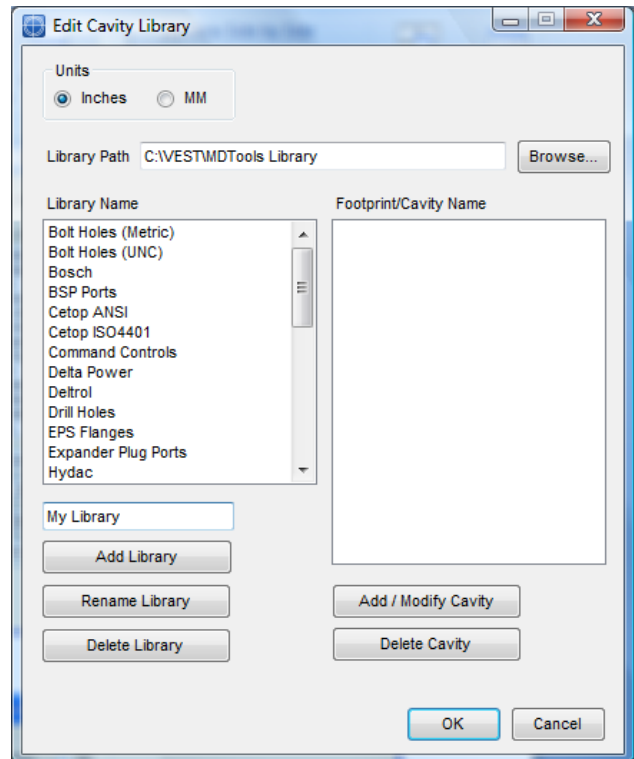
1. Start
 - > Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Cavity Library**

The Edit Cavity Library dialog box displays.

2. Enter the new library name in the text box provided below the list of library names.
3. Click **Add Library** to add a new library.

A new library is added to the existing libraries.

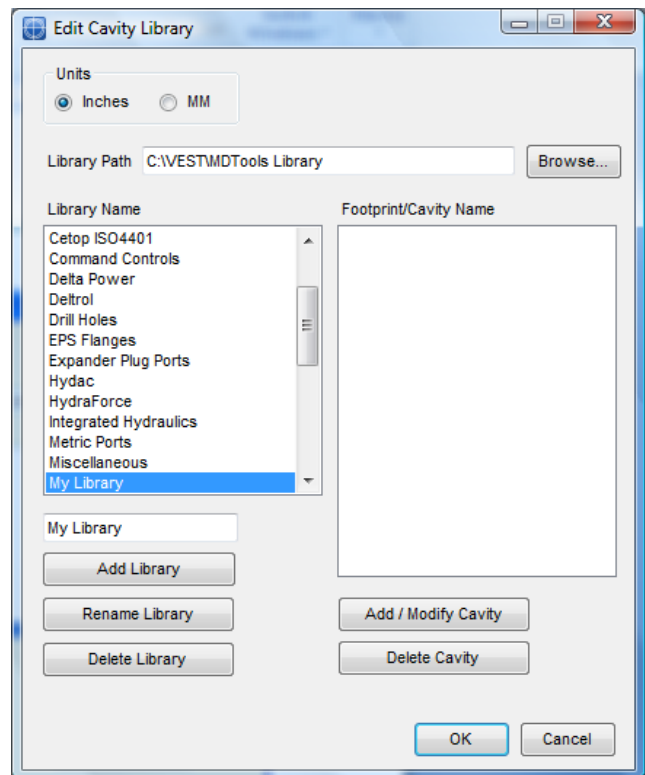
The new library name displays in the Library Name list.



Edit Cavity Library dialog box

Note:

- If the unit setting is Inches, then the library is added to the inch libraries. (InchVESTMDToolsLibrary.mdb)
- If the unit is set to MM, then the library is added to the metric libraries. (MMVESTMDToolsLibrary.mdb)
- When the library is added, you can add cavities/footprints into the library using the Add / Modify Cavity feature on the Edit Cavity Library dialog box.



Edit Cavity Library dialog box: Add / Modify Cavity

4.2 Deleting Library

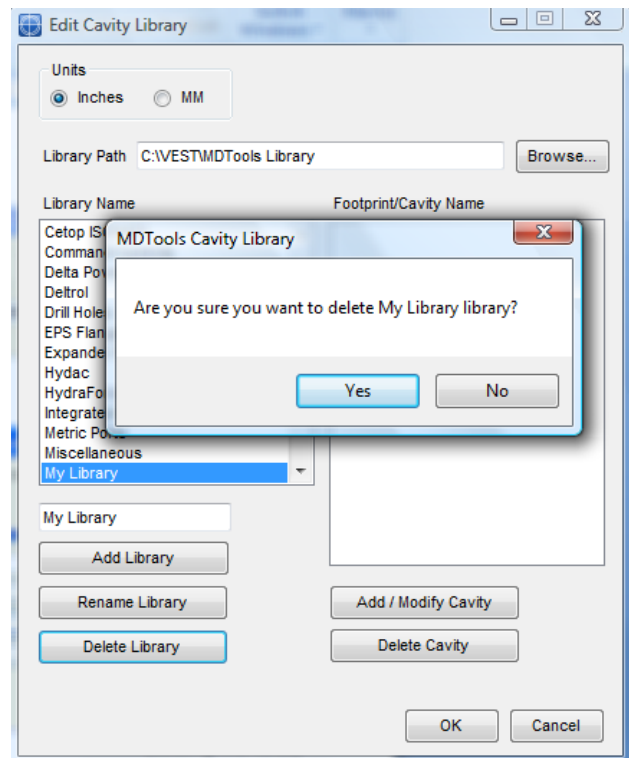
1. Select the library you want to delete.
2. Click **Delete Library** to delete the library along with all its contents.

A message box displays.

3. Check the library name mentioned in the message box to make sure that the correct library is selected for deletion.
4. Click **Yes** to delete the library.

CAUTION!

A library, once deleted, cannot be recovered.



Deleting the library

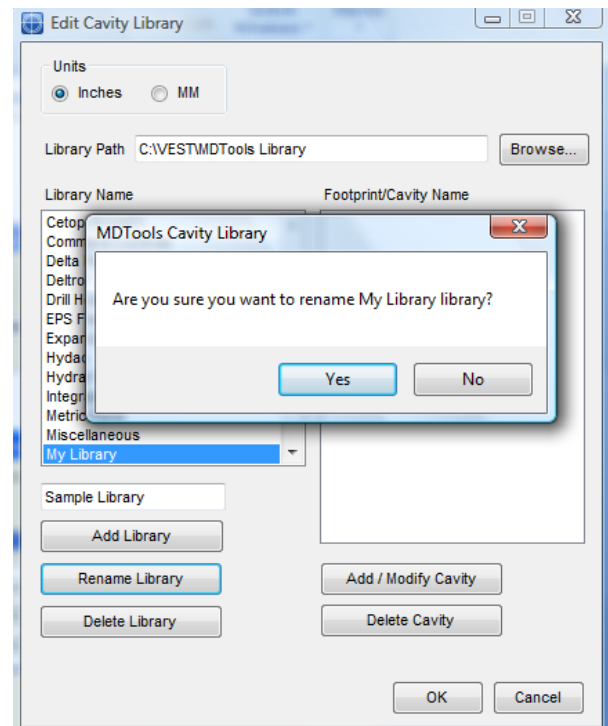
4.3 Renaming Library

1. Select the library you want to rename.
2. Enter the new name in the text box above the Add Library button.
3. Click **Rename Library** to rename the library with the new name entered in the text box.

A message box displays.

4. Check the library name mentioned in the message box to make sure that the correct library is selected for renaming.
5. Click **Yes** to rename the library.

The library is renamed and the new name displays in the Library Name list.



Renaming the library

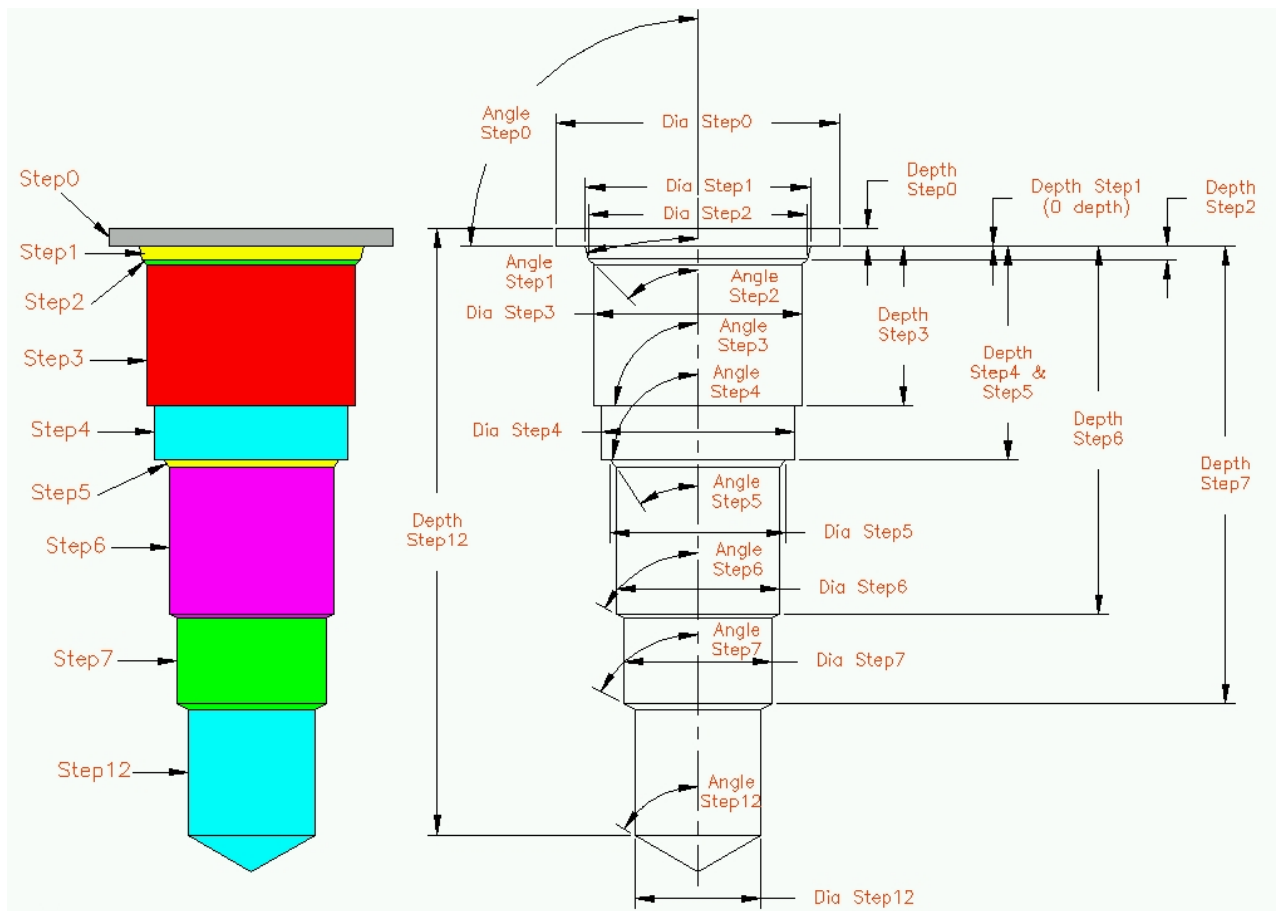
5. Create Cavities

Create cavities that are not available in the MDTools® Cavity Library and add these cavities into the library.

You cannot create a cavity inside SolidWorks, if it is not available in the library; i.e. the cavity you want to use on the manifold must be available in the MDTools Cavity Library.

5.1 Modeling Cavities

Geometry of a cavity in terms of its dimensions and relationship with the step number and step dimensions is shown below. Each step, which generally consists of a cylindrical and conical pair, in the cavity profile, is denoted by the term 'Step'. Step information is analogous to a drill tool, which has the drill diameter, drill depth, and bottom cone angle of the drill.



Cavity Geometry

Note:

- Depth for Step1 through Step11 is measured from the spot face.
- Step angle is the half included angle of the conical area in the step. If there is no cone in a step, then the step angle will be 90 degrees.
- Depth of a cylinder will be the full bore depth, i.e. the depth to the start of the conical part of the step.

5.2 Adding/Modifying Cavity

Add a new cavity/footprint into the library or modify an existing cavity/footprint.

Start

> Programs

> VEST

> MDTools Library Manager 2012 R1

> **Edit Cavity Library**

The Edit Cavity Library dialog box displays.

Click **Add / Modify Cavity** below the Footprint/Cavity Name list in the Edit Library dialog box.

The Add/Modify Cavity dialog box displays.

The screenshot shows the 'Add/Modify Cavity' dialog box with various input fields and sections. Red circles with numbers 1 through 13 point to specific elements:

- 1: Cavity Name text field
- 2: Footprint OEM Name text field
- 3: Cavity Type dropdown menu
- 4: Cavity Dimensions table (Step, Diameter, Depth, Angle)
- 5: Max Drill Diameter text field
- 6: Thread Detail section (Step#, Size, Pitch, Class)
- 7: Machining Sequence table (Operation, Tool Name, Diameter, Depth)
- 8: Cartridge Valve Port Detail table (Port, Port Dia, Port Depth, Connecting Cavity)
- 9: Plug Detail section (Head Height, Ins. Depth, Max. Pressure)
- 10: Footprint Data section (Footprint checkbox, Port Application Name)
- 11: Footprint Data section (Footprint from this Cavity checkbox, Add/Modify Footprint Data button)
- 12: Preview area
- 13: UnderCut section (Mandatory, Optional buttons)

At the bottom of the dialog are buttons: Import, Save as New, Save, Cancel, Hide Preview, and Update Preview.

Add/Modify Cavity dialog box

The Add/Modify Cavity dialog box includes:

1. Cavity Name

Name of the cavity to be displayed in the Edit Library dialog box and the Insert Cavity dialog box.

2. Footprint OEM Name

Name of the OEM and name of the cavity/footprint used by the OEM to identify the cavity.

3. Cavity Type

Select the cavity type from the dropdown list. The five different type of cavities in MDTools® are:

- Cartridge Valve Cavity
- Port
- Drill Hole
- Bolt Hole
- Locating Pin Hole

4. Cavity Dimensions:

Step0 through Step12 for entering the cavity geometry dimensions. Pilot drill dimensions should be entered in Step12.

5. Max. Drill Diameter:

Enter the maximum drill diameter allowed for the cavity.

6. Thread Detail:

Enter the thread details for the cavity.

7. Machining Sequence:

Enter the cavity machining detail.

Maximum number of operations in a cavity is seven.

8. Cartridge Valve Port Detail:

Enter the cartridge valve port dimensions and locations.

9. Plug Detail:

Enter the plug head height, plug insertion depth, and the plug max. pressure rating.

10. Footprint Data:

Enter details of the footprint.

Click the Add/Modify Footprint Data button to add the details of other cavities in the footprint.

11. Comments:

Enter any notes about the cavity.

12. Preview:

Shows the preview of the cavity.

13. UnderCut:

Store the details of Mandatory and Optional UnderCut for the Cartridge Valve cavity.

6. Create New Cavities

The following example illustrates creating a new cavity in the MDTools® library.

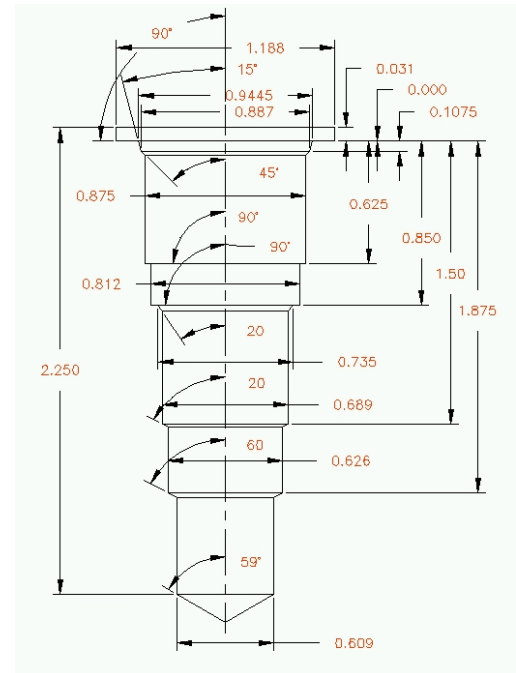
6.1 Cavity Geometry and Machining Details

1. Select the library to add the new cavity.
2. Click **Add / Modify Cavity** below the Footprint/Cavity Name list in the Edit Library dialog box.
The Add/Modify Cavity dialog box displays.
3. Enter the cavity name **C10-3**.
This name displays in the Cavity Name list.
4. Enter the footprint OEM name.
For example, Parker C10-3
5. Select the cavity type.
Select cartridge valve cavity from the drop-down list.
6. Enter the cavity dimensions.
Drill (last step in the cavity) dimensions should be entered in Step12.
7. Enter the maximum drill diameter for the cavity.
This data is used to ensure that the drill diameter in a design does not exceed maximum allowable value for a cavity.
8. Enter the thread detail.
Step number for thread in cavity, size, pitch, and class of thread.
9. Enter the machining sequence.
10. Enter all the machining details required to machine the cavity. These details appear in the machining chart.

Notice that the diameter and depth are specified as '\$step#'. For example '\$step12' is used for drill diameter and depth.

The machining information section picks up the drill diameter and depth from the diameter and depth of Step12 in the Geometry section.

During the design you can change the diameter and depth. When the machining chart is created, the tooling information is automatically extracted from the current definition of geometry in the drawing.



C10-3 Cavity

Screenshot of the Add/Modify Cavity dialog box. The dialog box is divided into several sections: Cavity Name (C10-3), Footprint OEM Name (Parker C10-3), Cavity Type (Cartridge Valve), Cavity Dimensions (a table with columns Step, Diameter, Depth, Angle), Machining Sequence (a table with columns Operation, Tool Name, Diameter, Depth), Cartridge Valve Port Detail (a table with columns Port, Port Dia, Port Depth, Connecting Cavity), and a Preview pane showing a 3D model of the cavity. The Cavity Dimensions table has 12 rows, with the last row (Step 12) showing a diameter of 0.627 and a depth of 1.875. The Machining Sequence table has 6 rows, with the last row (Step 6) showing a diameter of 0.626 and a depth of 1.875. The Cartridge Valve Port Detail table has 3 rows, with the last row (Port 3) showing a port diameter of 0.25 and a port depth of 0.725. The Preview pane shows a 3D model of the cavity with the ports highlighted in green.

Add/Modify Cavity dialog box :
Cavity dimensions

Note:

- MDTools displays a preview of the cavity in the preview pane as you create the cavity.

6.2 Cartridge Valve Port Details

1. Enter the port details for all the cartridge valve cavities.
2. Enter the number of ports.

Enter 3, as there are three ports in this cavity.

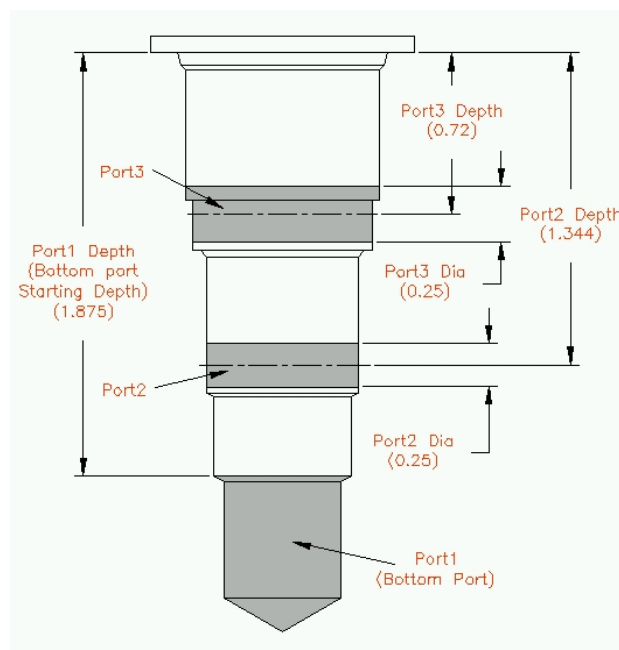
When you enter the number of ports, all the required port dimensions section are enabled automatically.

3. Enter the port details.

Enter the port number, port diameter, port depth, and connecting cavity name.

Connecting cavity name is used as a design reference to determine the size of the construction port to be used to make connection with the cartridge valve ports.

This is very useful, if you are a new manifold designer.



C-10-3 Port Dimensions

Note:

- Enter the bottom port detail in the first row.
 - Do not enter the bottom port diameter in the cavity.
 - The bottom port depth is the starting depth of the bottom port from the spot face of the cavity. For all the other ports, the port depth is the depth from the spot face to the center of port.
4. Click **Save** to save the cavity into the library.

Step	Diameter	Depth	Angle
0	1.344	0.031	90
1	0.947	0	15
2	0.875	0.625	90
3	0.814	0.85	90
4	0.735	0.85	20
5	0.689	1.5	20
6	0.626	1.875	60
7			
8			
9			
10			
11			
12	5/8	2.2	59

Port	Port Dia	Port Depth	Connecting Cavity
1		1.875	
2	0.25	1.344	#2 SAE
3	0.25	0.725	#2 SAE

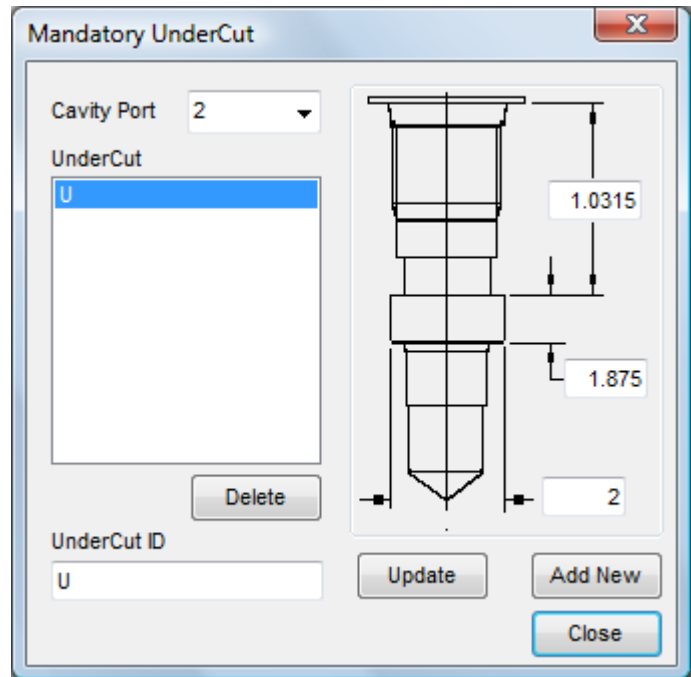
Add/Modify Cavity dialog box: Port details

6.3 UnderCut Details

1. Mandatory UnderCut

Mandatory UnderCut is an integral part of the cavity profile and will appear during insertion of cavity in MDTools®.

1. Click **Mandatory** in the UnderCut section.
The Mandatory UnderCut dialog box displays.
2. Select **Cavity Port**.
3. *The UnderCut depth and width automatically displays. Alternatively, you can also enter the depth and width of the UnderCut directly in the textbox.*
4. Enter the diameter and the UnderCut ID .
5. Click **Add New** to create a new UnderCut.
6. Select the existing UnderCut; modify the values and click **Update** to save.
7. Select the existing UnderCut; Click **Delete** to delete the selected UnderCut.
8. Click **Close** to close the dialog box.



Mandatory UnderCut

Note:

- The UnderCut will not appear on the Cavity Preview in the MDTools Library.

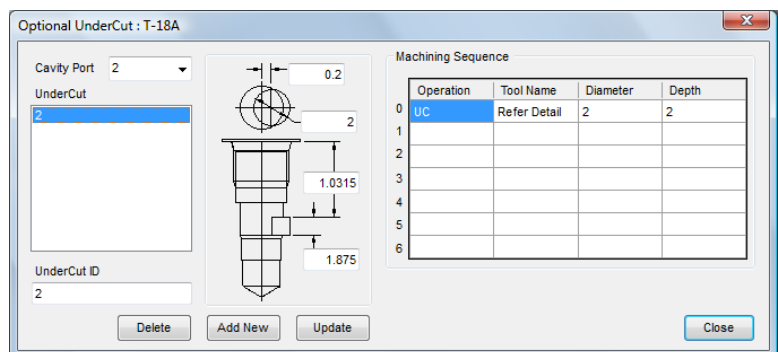
2. Optional UnderCut

Optional UnderCuts are stored along with the cavity and will be available during the insertion of UnderCut in MDTools.

Click Optional in the UnderCut section.

The Optional UnderCut dialog box displays.

1. Select Cavity Port.
2. *The UnderCut depth and width displays automatically. Alternatively, you can also enter the depth and width of the UnderCut in the textbox.*
3. Enter the offset, diameter and UnderCut ID.
4. Enter the Machining Sequence.
5. Click **Add New** to create a new UnderCut.
6. Select the existing UnderCut; modify the values and click **Update** to save.
7. Select the existing UnderCut; Click **Delete** to delete the selected UnderCut.
8. Click **Close** to close the dialog box.



Optional UnderCut

6.4 Plug Details

For all type of ports, (SAE, BSP and Metric) enter the following plug details in the **Plug Detail** section of the Add/Modify Cavity dialog box.

Head Height

Enter the plug head height.

This information is used to flush the plug below the manifold surface using MDTools®.

Ins. Depth

Enter the insertion depth of plug/fitting.

Insertion depth is the depth from the spot face; this is used to determine the dead area in ports.

Max. Pressure

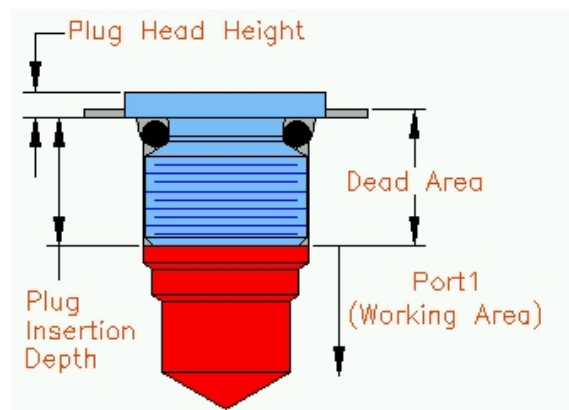
Enter the pressure rating of the port.

The screenshot shows the 'Add/Modify Cavity' dialog box. The 'Cavity Name' is '#4 SAE'. The 'Footprint OEM Name' is '#4 SAE' and 'Cavity Type' is 'Port'. The 'Cavity Dimensions' table shows 12 steps with diameters, depths, and angles. The 'Machining Sequence' table shows 6 operations: DRILL, FORM PORT, TAP, and three more steps. The 'Plug Detail' section shows 'Head Height' as 0.125, 'Ins. Depth' as 0.361, and 'Max. Pressure' as 6000 psi. The 'Footprint Data' section shows 'Footprint' and 'Dimension from this Cavity' checked. The 'UnderCut' section has 'Mandatory' and 'Optional' buttons. The 'Comments' section is empty. The 'Preview' section shows a 3D model of the plug.

Sample Add/Modify Cavity dialog box showing the plug details of #4 SAE port

Note:

- If the plug insertion depth is not entered in a port, then the complete area below the spot face is considered as Working Area.
- Maximum pressure is the design reference that enables you to select the correct construction ports for making connections in the manifold.
- Enter the pressure rating in any of the units as required.
- Pressure rating is entered for all the ports in the MDTools Cavity Library.
- Change the data if required, by modifying the cavity.



Plug Details

Modifying an existing cavity

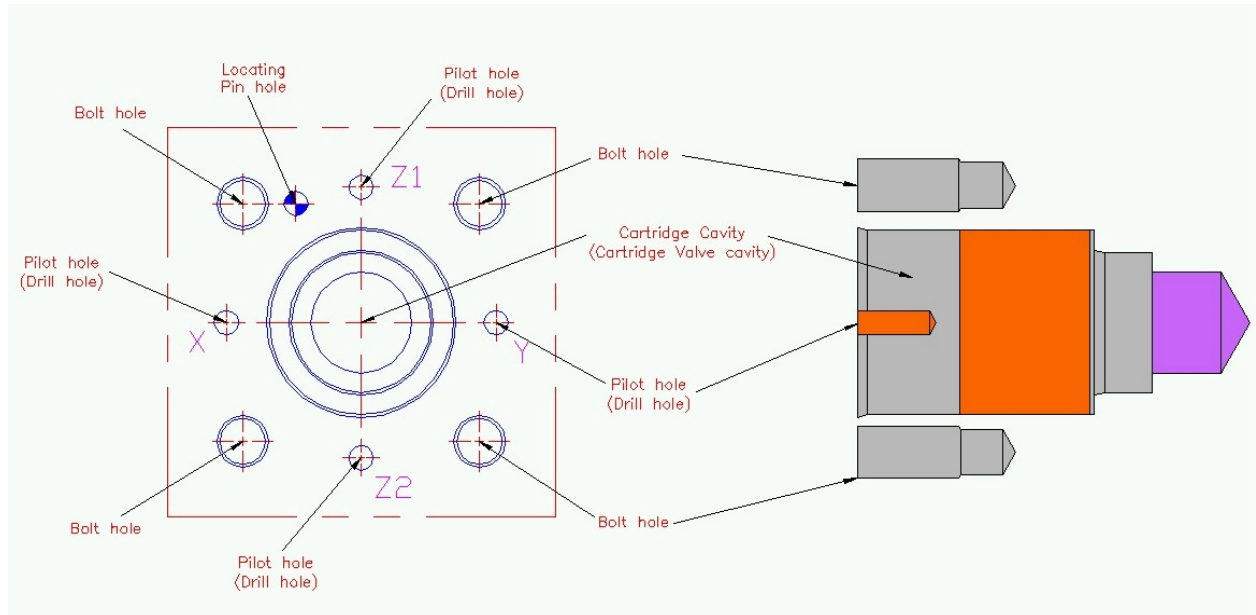
1. Select the cavity you want to edit from the Cavity Name list in the Edit Library dialog box.
2. Click **Add/Modify**.
The Add/Modify Cavity dialog box displays the entire cavity data.
3. Make the desired changes.
4. Click **Add / Modify** to save the changes into the library.

7. Create Footprints

If a component in a circuit has more than one cavity, such cavities are grouped together to form footprints.

Footprints generally contain different type of cavities; bolt holes for mounting the component, locating pinholes for locating the component in the correct orientation, and drill holes for different ports on the component.

Creating footprints is the same as creating cavities; the only difference is that you need to create multiple cavities in the footprint.



Typical slip-in cartridge valve footprint

7.1 Creating Footprints

1. Select the library to add the footprint from the Library Name list.
2. Click **Add / Modify Cavity** below the Footprint/Cavity Name list in the Edit Library dialog box.

The Add/Modify Cavity dialog box displays.

3. Enter the main cavity details.
The cavity is created at the insertion point when the footprint is inserted on the manifold.
4. Click **Add/Modify** to save the details into the library.
5. Select the Footprint option to create the remaining cavities in the footprint.
The Add/Modify Footprint Data button is enabled on selecting the Footprint option.

The screenshot shows the 'Add/Modify Cavity' dialog box. The 'Cavity Name' is 'D03'. The 'Footprint OEM Name' is 'D03'. The 'Cavity Type' is 'Drill Hole'. The 'Cavity Dimensions' table shows a diameter of 1/4 and a depth of 1. The 'Machining Sequence' table shows a sequence of operations: 0 DRILL, 1 SSTEP0, 2 SSTEP0, 3 SSTEP0, 4 SSTEP0, 5 SSTEP0, 6 SSTEP0. The 'Cartridge Valve Port Detail' table shows a port diameter of 1/4 and a port depth of 1. The 'Plug Detail' table shows a plug diameter of 1/4 and a plug depth of 1. The 'Footprint Data' section has 'Footprint' and 'Dimension from this Cavity' checked. The 'Port Application Name' is 'P'. The 'Comments' field is empty. The 'Update Preview' button is visible.

Add/Modify Cavity dialog box: D03 footprint data

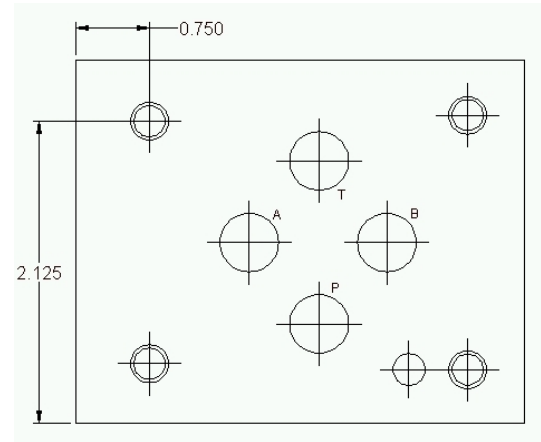
6. Enter the port application name of the cavity in the Port Application Name field.

The port application name is automatically entered, depending on the type of the cavity.

You can edit the port application name, if the cavity is a drill hole.

Port application name is the application name of the hole on the footprint.

For example A, B, T, and P are the application names of four working ports on a D03 footprint.



D03 footprint

7. The **Dimension from this Cavity** option enables you to specify, which cavity will be dimensioned in the block machining drawing, when you want to dimension only the reference cavity in a footprint.

8. The Dimension from this Cavity option is automatically selected in the main cavity, when you click the Add/Modify option.

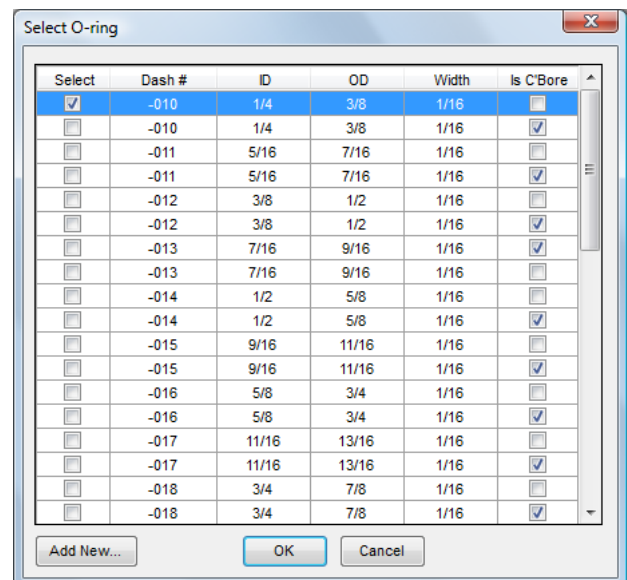
- You can change this by selecting another cavity as a reference cavity.
- You can attach O-ring groove to a Drill Hole (DH).
 - o Click O-ring groove.
 - o *The O-ring dialog box displays.*
 - o Select the O-ring.
 - o Click OK to attach the selected O-ring groove corresponding to the O-ring.
 - o To define a new O-ring and O-ring Groove details, click Add New....
- Click **Add/Modify** to save the main cavity data into the library.

Note:

- Save the main cavity into the library to create other cavities in the footprint.
- The O-ring Groove will not appear on the Cavity Preview in the MDTools Library.
- The O-ring Groove is available only for Drill Holes (DH).

9. Click **Add/Modify Footprint Data** to create other cavities in the footprint.

The Add/Modify Footprint dialog box displays.



Select O-ring

10. Enter the following details

Cavity Dimensions

Thread Details, if any

Port Application Name

Cavity X Dim and Cavity Y Dim

Cavity Machining Sequence

11. Click **O-ring Groove** and select the O-ring, if required.

Note:

- The O-ring Groove will not appear on the Cavity Preview in the MDTTools Library.
- The O-ring Groove is available only for Drill Holes (DH).

12. Click **Save** or **Save as New** to add the cavity to the footprint data.

When you add a cavity to the footprint, the cavity displays in the list of cavities in the footprint.

This list contains the following details

Cavity Type

Port Application Name

Cavity X Dim

Cavity Y Dim

Note:

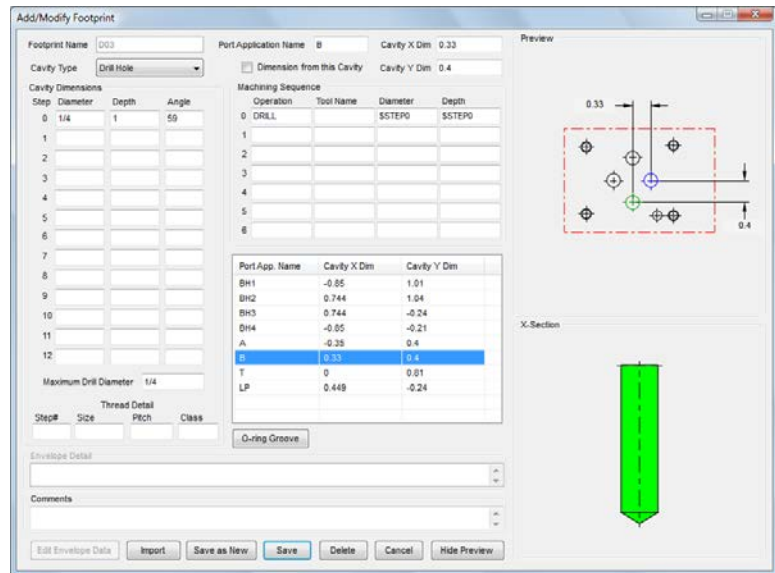
- You can modify the cavity after selecting the cavity from the cavity list.
- When you select the cavity, the cavity details are displayed in the Add/Modify Footprint dialog box.
- After modifying the cavity, click Add / Modify to save the changes to the library.
- To delete a cavity from the footprint, select the cavity from the list and click Delete.

Port Application Name

The default port application name for different type of cavities:

Cavity Type	Port Application Name
Cartridge Valve Cavity	CV
Port	Port
Drill Hole	DH
Bolt Hole	BH
Locating Pin Hole	LP

You can only change the port application name of drill holes.

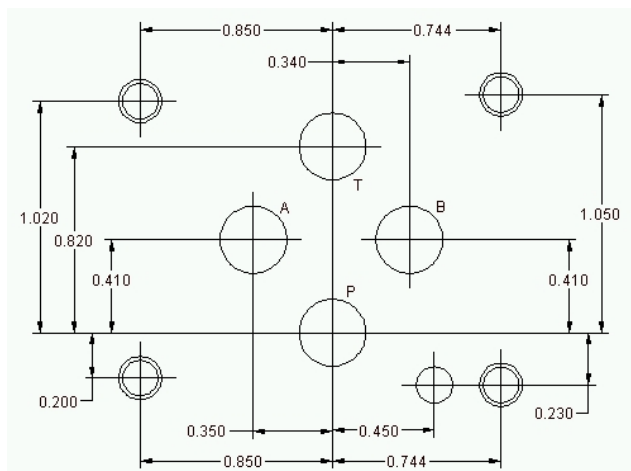


Add/Modify Footprint dialog box: D03 footprint data

Cavity X and Y Dim

Cavity X and Y dim are the X and Y dimensions of cavities in the footprint from the main cavity entered on the Add/Modify Cavity dialog box.

When you create a footprint you need to enter the X and Y dimensions for all the cavities created on the Add/Modify Footprint dialog box.



D03 footprint showing X and Y Dim from 'P' port

7.2 Creating/Modifying Footprint Envelope

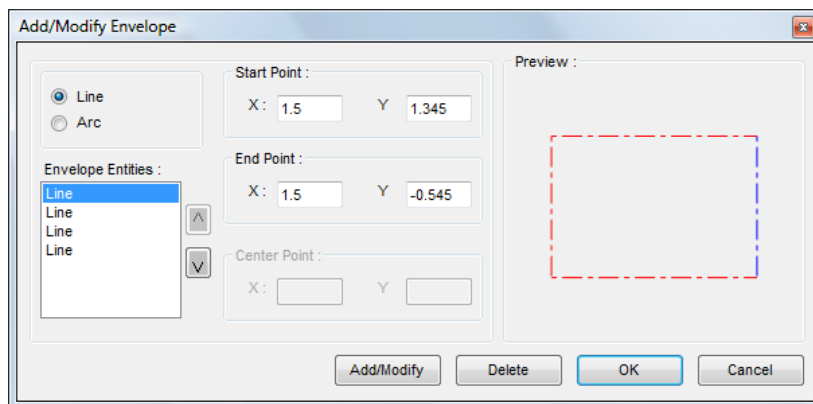
Footprint envelope dimensions are stored with the first bolt hole in a footprint.

1. Select the first bolt hole (BH1) from the cavity list on the Add/Modify Footprint dialog box.

2. Click **Edit Envelope Data**.

The Edit Envelope Data button is enabled automatically on selecting the first bolt hole.

The Add/Modify Envelope dialog box displays.



Add/Modify Envelope dialog box

3. Select the entity type, Line or Arc.
4. Enter the X and Y values of start point, endpoint, and center point from the center of the parent cavity in the footprint.
5. Click **Add/Modify** to save the data.
6. Create all the entities in the footprint envelope.
7. Click **OK**.

Note:

- The Footprint envelope can only contain two types of entities, Line and Arc.
- The Footprint envelope data must be stored with the first bolt hole in the footprint.

8. Edit O-ring Groove

Edit O-ring Groove commands enables to store the O-ring and O-ring Groove data in the MDTools Library. O-ring is available for only Drill Hole (DH) type cavities.

1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit O-ring Groove**

The Edit O-ring Groove dialog box displays.

2. Enter the O-ring size details,
 - Dash #
 - OD
 - Width

The ID is automatically displayed based on the OD and the width.

3. Select the type, Groove/Counter Bore.
4. Feed the O-ring groove details,
 - OD
 - Width
 - Depth
 - Corner Radius

Width is only applicable for groove.

5. Enter **Machining Sequence**.
6. Click **Add New** to create a new O-ring groove.
7. Select the existing O-ring groove; modify the values and click **Update** to save.
8. Select the existing O-ring groove; click **Delete** to delete the selected O-ring groove.
9. Click **Close** to close the dialog.

Note:

- Select the Units, Inch/MM and Library Path to Add/Edit O-ring Groove Library at a different location.

Dash #	ID	OD	Width	Is C'Bore
-008	0.1875	0.3125	1/16	☒
-008	0.1875	5/16	1/16	☐
-009	7/32	11/32	1/16	☐
-009	7/32	11/32	1/16	☒
-010	1/4	3/8	1/16	☐
-010	1/4	3/8	1/16	☒
-011	5/16	7/16	1/16	☐
-011	5/16	7/16	1/16	☒
-012	3/8	1/2	1/16	☐
-012	3/8	1/2	1/16	☒
-013	7/16	9/16	1/16	☒
-013	7/16	9/16	1/16	☐
-014	1/2	5/8	1/16	☐
-014	1/2	5/8	1/16	☒
-015	9/16	11/16	1/16	☐
-015	9/16	11/16	1/16	☒

Edit O-ring Groove dialog box

9.Edit Slot

Edit Slot commands enables to store the Slot details in the MDTools Library.

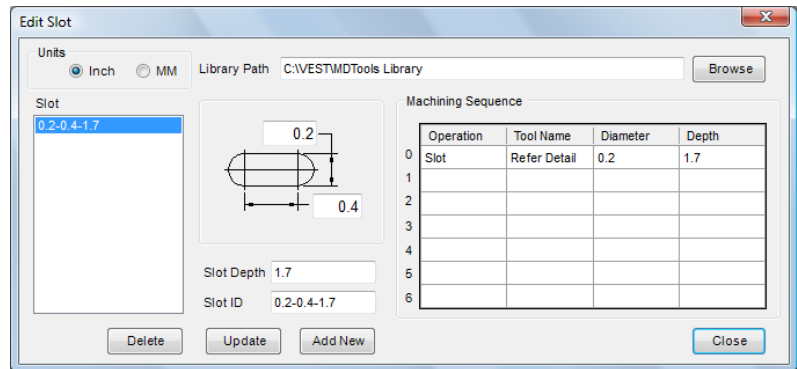
1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Slot**

The Edit Slot dialog box displays.

2. Enter the slot diameter and width.
3. Enter **Slot Depth**.
4. Enter **Slot ID**.
5. Enter **Machining Sequence**.
6. Click **Add New** to create a new slot.
7. Select the existing slot; modify the values and click **Update** to save.
8. Select the existing slot; Click **Delete** to delete the selected slot.
9. Click **Close** to close the dialog.

Note:

- Select Units, Inch/MM and Library Path to Add/Edit Slot Library at a different location.



Edit Slot dialog box

10. Envelope Library

The Envelope Library is the MDTools® Valve Outer Envelope library created as a Microsoft Access database.

Create and save valve assembly envelopes in the MDTools Envelope Library.

Run the program by selecting MDTools Envelope Library from the Windows program menu.

Two separate databases are used to store the library in Inch and Metric units.

MDTools® does not provide an Envelope Library. Use this program to create your own library.

10.1 Creating Assembly Envelope

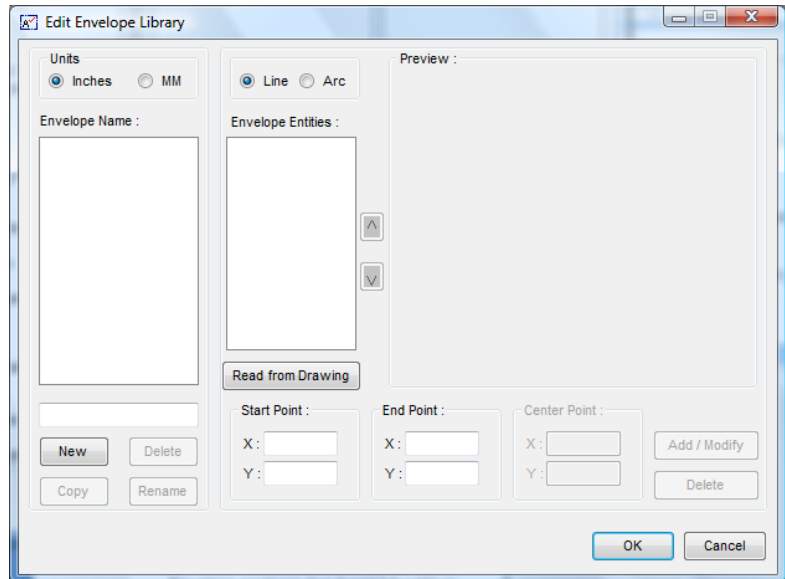
1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Envelope Library**

The Edit Envelope Library dialog box displays.

2. Select the units, Inches/MM.
3. Enter the envelope name.
4. Select the type of entity, i.e. Line or Arc.

Envelope contains two types of entities;
Line and Arc.

Line is selected by default.



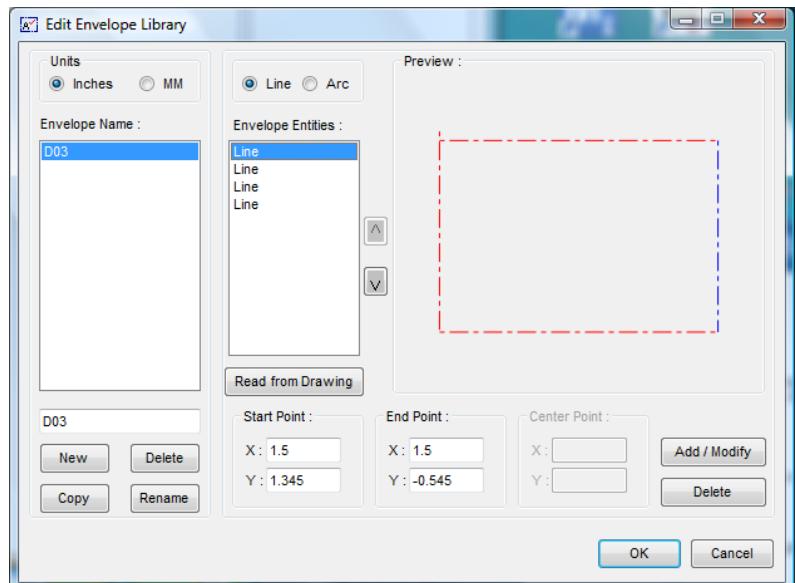
Editing Envelope Library dialog box

1. Adding line data

1. Enter X and Y coordinate for the line start point.
2. Enter X and Y coordinate for the line end point.

The X and Y coordinates must be entered with respect to the cavity center or the center of the main cavity in the footprint.

3. Click **Add / Modify** to save the line data.



Adding Line data

2. Adding Arc Data

Select the entity type, Arc

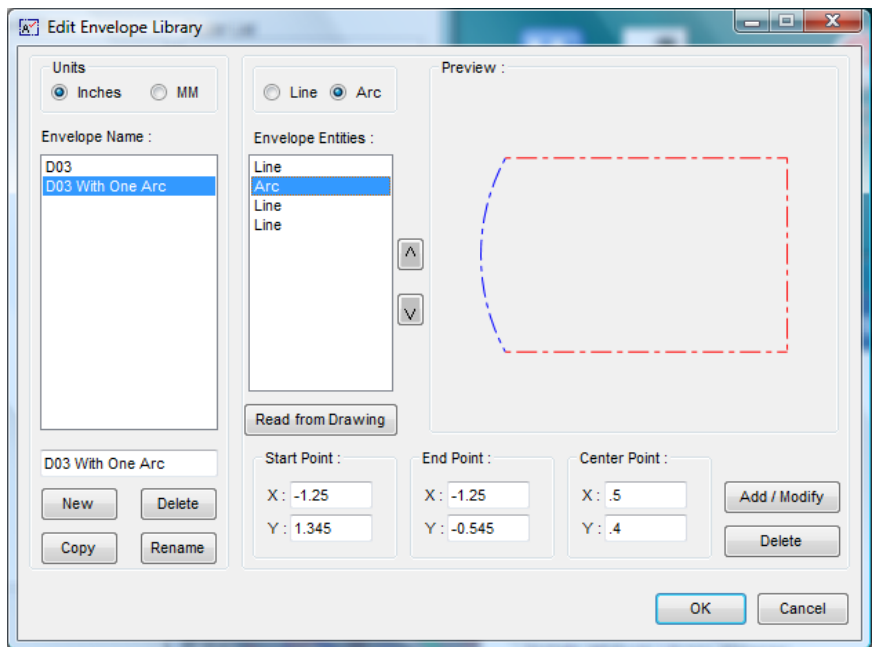
1. Enter X and Y coordinate for the arc start point.
2. Enter X and Y coordinate for the arc end point.

Note:

- Enter the start and end point in the counter clockwise direction.
3. Enter X and Y coordinate for the arc center point.

The X and Y coordinates must be entered with respect to the cavity center or the center of the main cavity in the footprint.

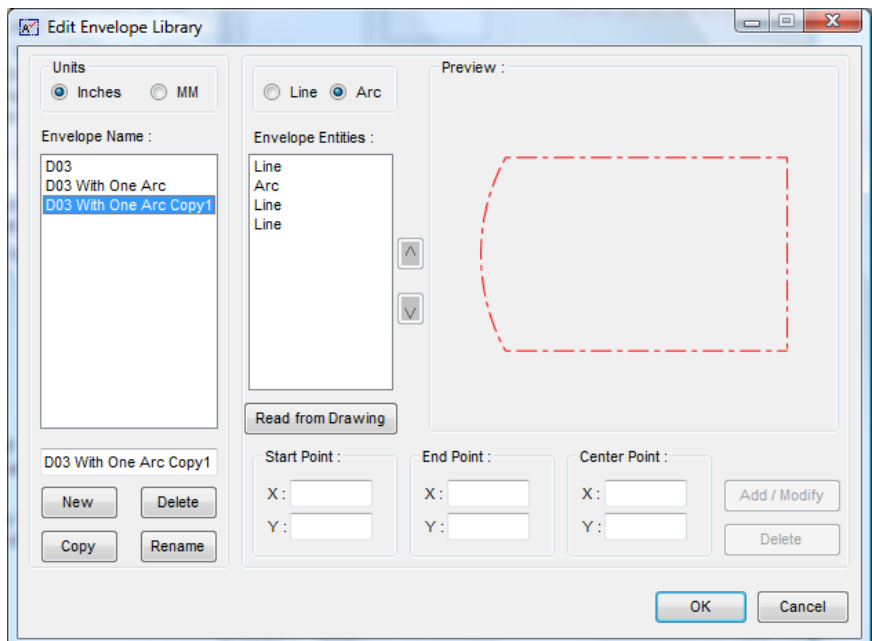
4. Click **Add / Modify** to save the arc data.
5. Similarly, enter data for all the lines and arcs in the envelope.
6. Click **New** to create the next envelope.



Adding Arc data

3. Creating Copy of an Envelope

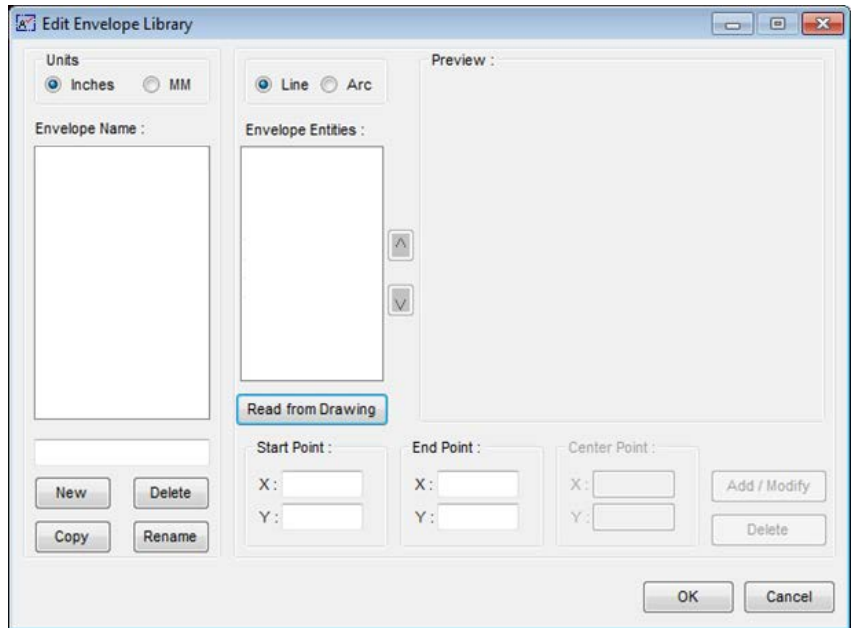
1. Select envelope name from the list.
2. Click **Copy** to create a copy of the selected envelope.



Creating Copy of an Envelope

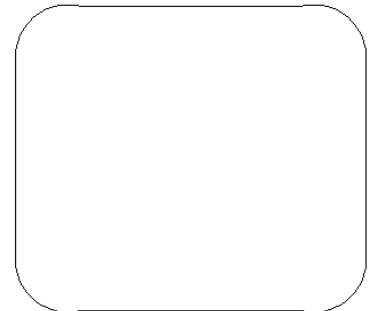
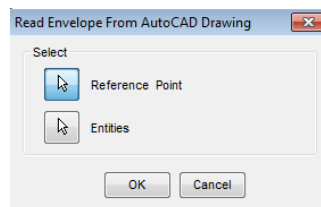
10.2 Read Envelope Data from AutoCAD 2010 or higher

1. Select the units, Inches/MM.
2. Enter **Envelope Name** in the textbox and click the **New** button.
3. Open the AutoCAD drawing, which has the envelope design and has to be imported into MDTools.
4. Select the envelope name from the listing.
5. Click the **Read from Drawing** button.



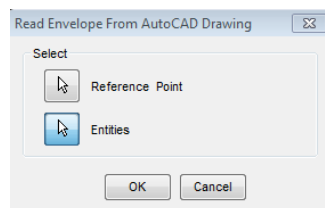
Create Assembly Envelope

The **Read Envelope From AutoCAD Drawing** dialog box displays in the AutoCAD drawing window.

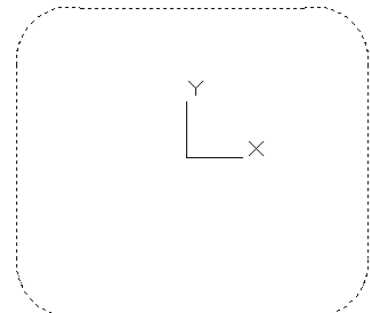


Read Envelope From AutoCAD Drawing
- Reference Point Selection

6. Click the **Reference Point** button and then click on the AutoCAD drawing window.
This ensures that the focus is changed.



7. Select the center point of the flange as the reference point.
The Select button's active state switches off, this indicates the selection state.

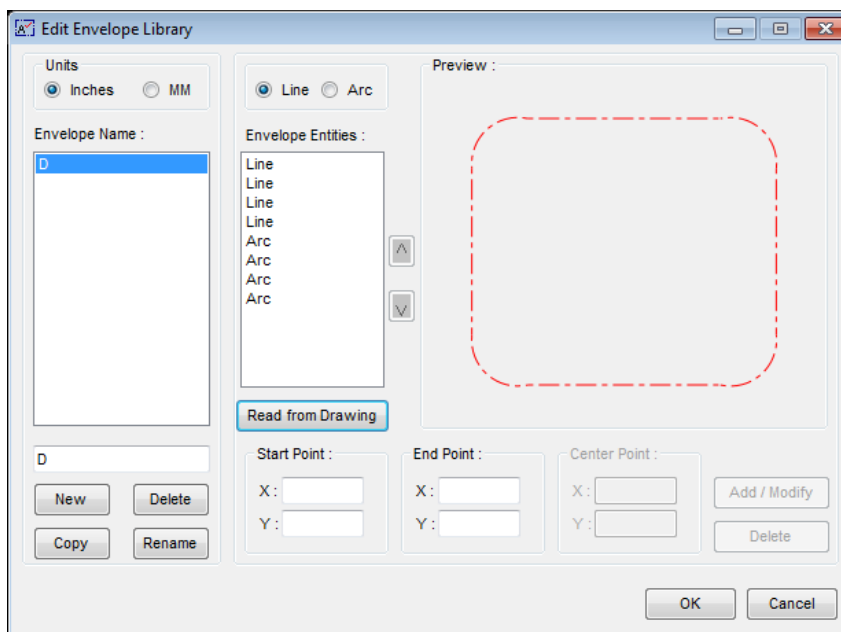


Entities Selection

8. Click the **Entities** button on the Read Envelope From AutoCAD Drawing dialog box and then click on the AutoCAD drawing window.

This ensures that the focus is changed.

9. Select the envelope entities in the AutoCAD drawing.
10. Press **Enter** or the **Spacebar** to complete the selection.



Edit Envelope Library with Imported Envelope

11. Click the **OK** button.
The envelope data gets imported and assigned to the selected envelope name.

11. Tool Library

Edit the tooling database and make required changes in the Tool library to meet your own standards.
Run the program by selecting Edit Tool Library from the Windows program menu.

11.1 Adding a Tool

1. Start
> All Programs
> VEST
> MDTools Library Manager 2012
> **Edit Tool Library**

The Edit Tool Library dialog box displays.

2. Select the units, Inches/MM.
3. Select a tab to add tools to the required tool library.
For example, select the Drill Tool tab to add tools to the Drill Tool library.
4. Enter values for the tool **Diameter** and the tool **Max Length**.
5. Click **Add New**.
The selected tool is added to the selected library.
6. Click **OK**.

Tool Diameter	Tool Max Length
0.063	1.5
0.125	3
0.156	4
0.188	5
0.219	5.5
0.250	8
0.281	7
0.313	8
0.344	8.5
0.375	9
0.406	10
0.438	11
0.469	12

Edit Tool Library dialog box: Adding a tool

Note:

- The Tooling data is saved in ToolingAndManufacturing.mdb.

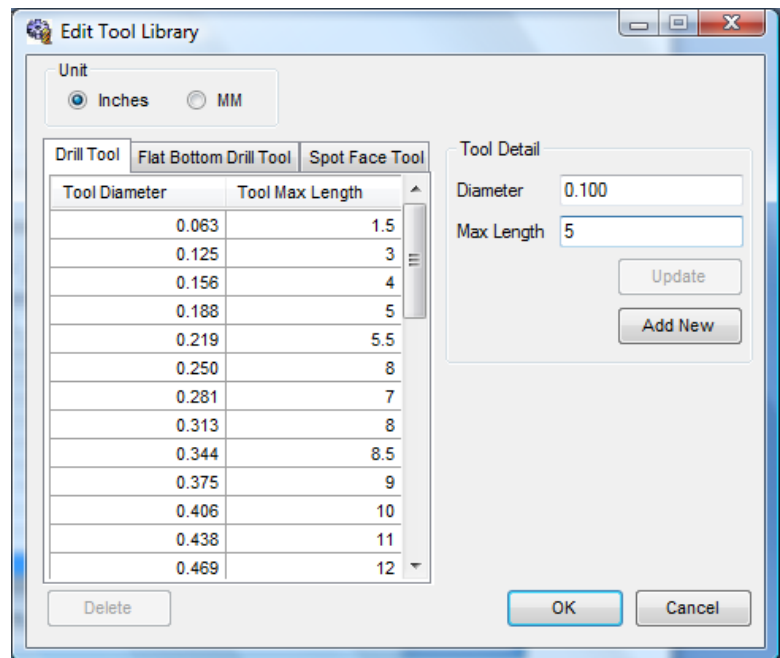
11.2 Updating a Tool

1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Tool Library**

The Edit Tool Library dialog box displays.

2. Select the units, Inches/MM.
3. Select a tab to update a tool in the required tool library.
4. Select a tool from the list.
5. Enter new values for the tool **Diameter** and the tool **Max Length**.
6. Click **Update**.
7. Click **OK**.

The selected tool is updated with the new values.



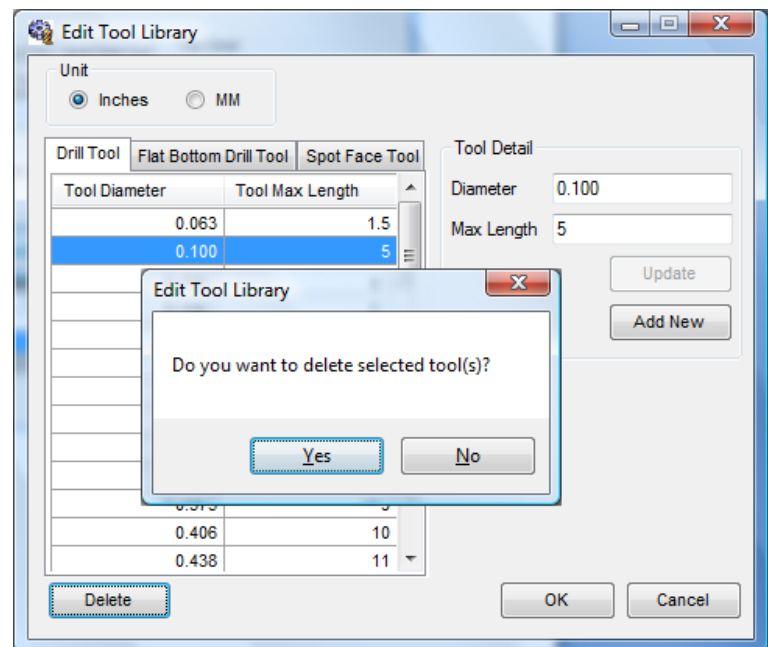
Edit Tool Library dialog box: Updating a tool

11.3 Deleting a Tool

1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager
 - > **Edit Tool Library**

The Edit Tool Library dialog box displays.

2. Select the units, Inches/MM.
3. Select a tab to delete tool(s) in the required tool library.
4. Select a tool from the list.
*You can select multiple tools using the **Ctrl** or **Shift** keys.*
5. Click **Delete**.
The selected tool(s) is deleted from the library.
6. Click **OK**.



Edit Tool Library dialog box: Deleting a tool

12. Assembly Library

Assembly Library is the MDTools Cavity and Plug Assembly library created as a Microsoft Access database.

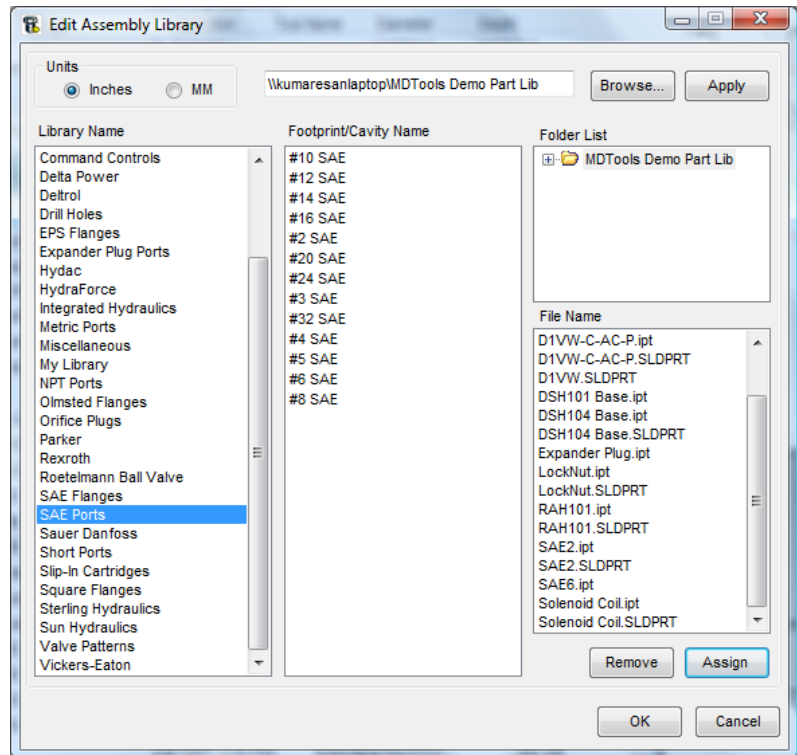
1. Run the program by selecting the Edit Assembly Library from the **Windows All Programs** option.
2. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012
 - > **Edit Assembly Library**

The Edit Assembly Library dialog box displays.

3. Perform the following operations from the Edit Assembly Library dialog box:
 - Assign Plug file with cavity
 - Modify Plug file assigned with cavity

Note:

- You can edit both inch and metric units Assembly libraries.
- The default unit is set to Inches.
- Set the unit to MM, when you want to edit the metric Assembly library.



Edit Assembly Library dialog box

Note:

- Do not edit the Assembly library manually using Microsoft Access; always use the MDTools Assembly Library program to edit the Assembly library.
- Microsoft Access is not required to edit the library. You can edit the Assembly library using the MDTools Assembly Library program even if Microsoft Access is not installed on your machine.
- Whichever construction ports you use in the manifold should be assigned with the particular plug/part file in the MDTools Assembly Library. Also, the plug file should exist at that specified location.

- Two separate databases, one for inch and one for metric units are used to store the library.

The inch library is stored in the MS Access database file named, INCHVESTMDToolsPLUGLibrary.mdb and the metric library is stored in MMVESTMDToolsPLUGLibrary.mdb.

These files are located in the root (installation) directory of the MDTools library.

Share the Assembly library over a network in your group by specifying the location of the library in the Edit Assembly Library dialog box.

- Click the Browse button to browse and select the library location where the plug files exist.

12.1 Assigning the Plug File with Cavity

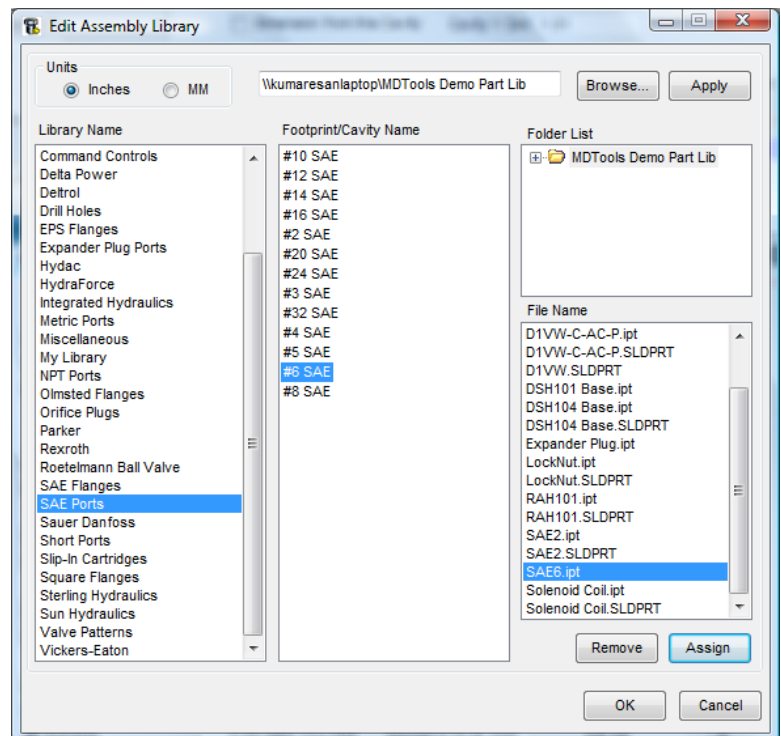
1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Assembly Library**

The Edit Assembly Library dialog box displays.

2. Select the cavity.
3. Select the plug file name, which displays in the **File Name** list box.
4. Click **Assign**.

*The cavity is assigned with the plug file.
The assigned cavity is identified by the blue color.*

When you select the assigned cavity (blue color), it highlights the specified plug file.



Edit Assembly Library

Note:

- Prior to assigning the plug file to the cavity, assembly constraints must be set for the plug part file using the MDTools Set Assembly Constraints feature.
- If the unit setting is Inches, then the assembly library is added to inch libraries.
(INCHVESTMDToolsPLUGLibrary.mdb)
- If the unit is set to MM, then the library is added to metric libraries.
(MMVESTMDToolsPLUGLibrary.mdb)
- If you modify the assigned plug file path, select the plug file and click the Assign button.
It removes the previous linked file and assigns the new file.

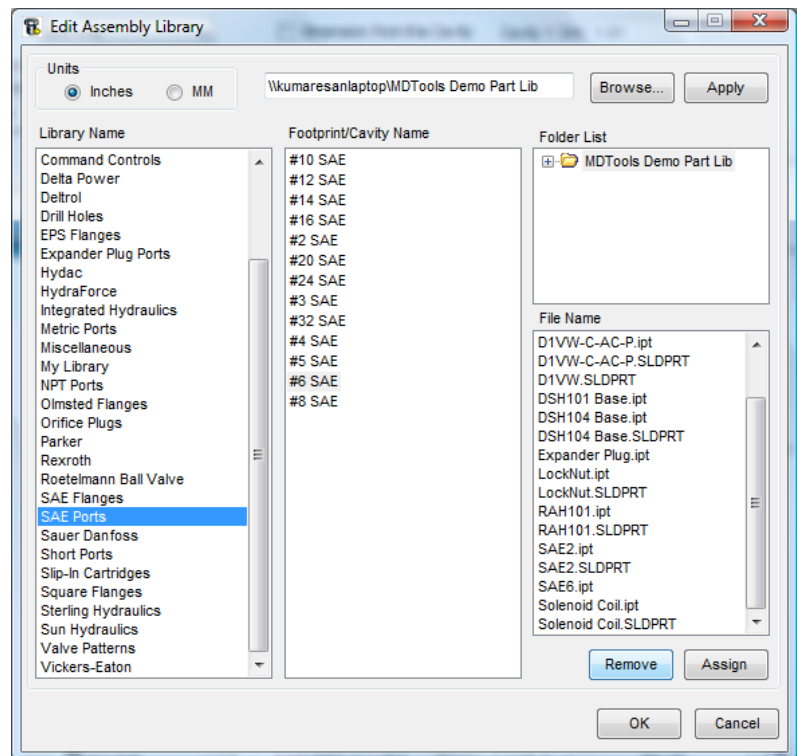
12.2 Removing the Plug File Assigned with Cavity

1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Edit Assembly Library**

The Edit Assembly Library dialog box displays.

2. Select the cavity.
3. Click **Remove**.

The program removes the linked part file for the selected cavity.



Edit Assembly Library

13. Import Cavities

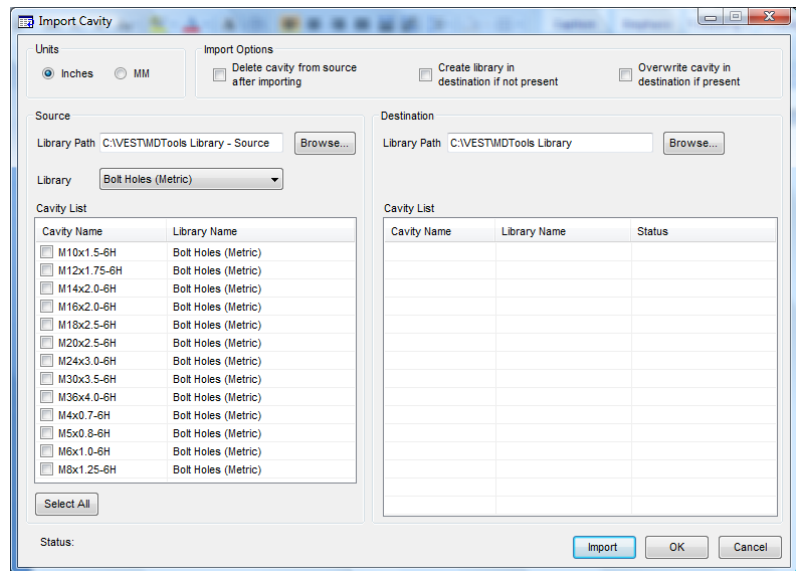
Import cavities/footprints from a different MDTools Cavity library file into your library.
Import new cavities added in the MDTools Cavity library into your cavity library.

1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Import Cavity**

The Import Cavity dialog box displays.

2. Select the units, Inches/MM.
3. Browse and select the source library path.
4. Select the cavity library you want to import.

Cavities in the selected library display in the Cavity list.



Import Cavity dialog box

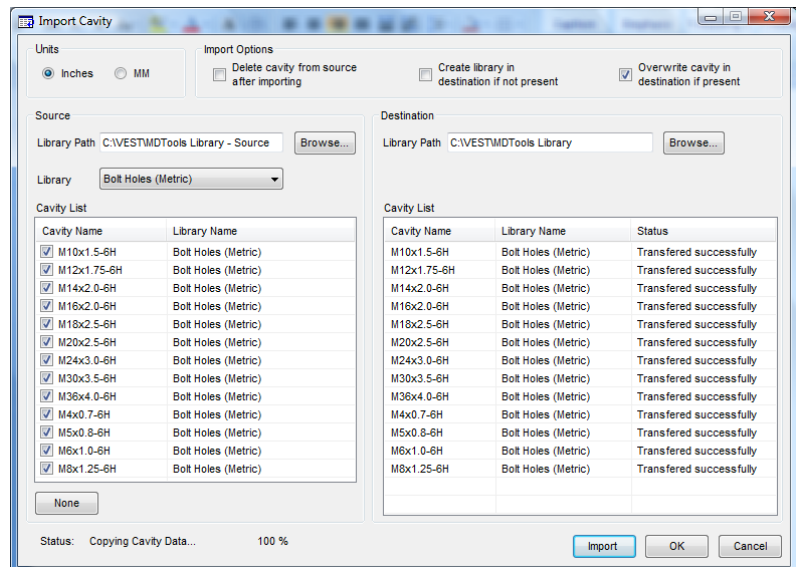
5. Select the cavities you want to import.
6. Browse and select the destination library path.
7. Select **Transferring Options**.

Choose to;

- *Delete cavities in the original library after transfer*
- *Create library, if not present in the destination*
- *Overwrite existing cavities*

8. Click **Start Transfer**.

The program lists all the cavities imported into the destination library with the status of transfer.



Import Cavity: Selected cavities transferred

9. Click **OK**.

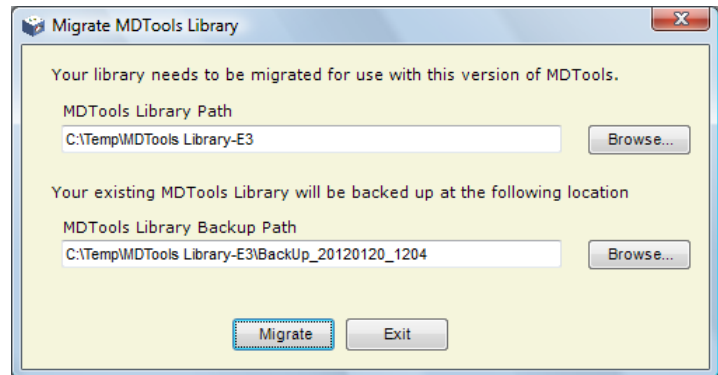
14. Library Migration

Migrate your existing MDTools Library to the new MDTools Library format.

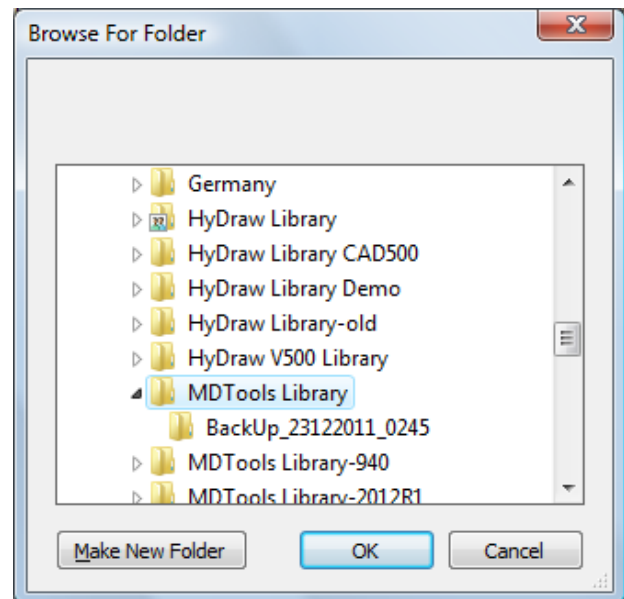
1. Start
 - > All Programs
 - > VEST
 - > MDTools Library Manager 2012 R1
 - > **Migrate Library**

The Migrate MDTools Library dialog box displays.

2. In the MDTools Library Path, click **Browse...** and select the previous version of the MDTools Library.
3. In the MDTools Library Backup Path, click **Browse...** and select the Backup Path.
4. Click **Migrate** to migrate the library.
5. Click **Exit**.



Migrate MDTools Library dialog box



Browse and Select the Access Database Library to Migrate

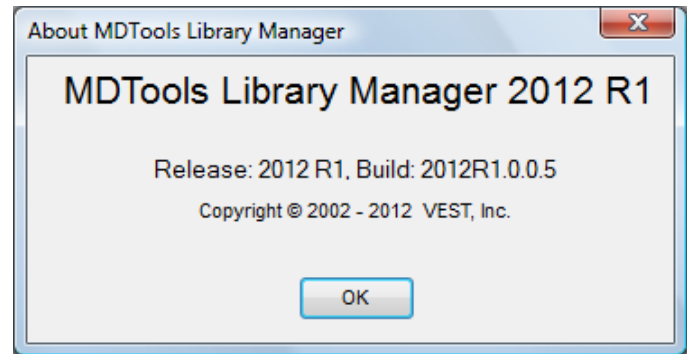
15. About MDTools Library Manager

The About MDTools Library Manager dialog box displays the current MDTools Library Manager's release and build number.

Start

- > All Programs
- > VEST
- > MDTools Library Manager 2012 R1
- > **About MDTools Library Manager**

The About MDTools Library Manager dialog box displays and shows the current release and build number.



About MDTools Library Manager dialog box

16. List of Cavities included in MDTools Library Manager 2012 R1

Library Name	Cavity Name	Library Ver		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Bucher Hydraulics	AA	2010	--	Delta Power	40500000	2010	2010
Bucher Hydraulics	AB	2010	--	Delta Power	40500001	2010	2010
Bucher Hydraulics	AC	2010	--	Delta Power	40500002	2010	2010
Bucher Hydraulics	AD	2010	--	Delta Power	40500003	2010	2010
Bucher Hydraulics	AE	2010	--	Delta Power	40500004	2010	2010
Bucher Hydraulics	AEZ	2010	--	Delta Power	40500005	2010	2010
Bucher Hydraulics	AG	2010	--	Delta Power	40500006	2010	2010
Bucher Hydraulics	AGS	2010	--	Delta Power	40500012	2010	2010
Bucher Hydraulics	AL	2010	--	Delta Power	40500017	2010	2010
Bucher Hydraulics	ALM	2010	--	Delta Power	40500018	2010	2010
Bucher Hydraulics	AM	2010	--	Delta Power	40500019	2010	2010
Bucher Hydraulics	AN	2010	--	Delta Power	40500020	2010	2010
Bucher Hydraulics	AS	2010	--	Delta Power	40500021	2010	2010
Bucher Hydraulics	CA	2010	--	Delta Power	40500024	2010	2010
Bucher Hydraulics	DA	2010	--	Delta Power	40500028	2010	2010
				Delta Power	40500029	2010	2010
Command Controls	C1020	2010	2010	Delta Power	40500032	2010	2010
Command Controls	C1025	2010	2010	Delta Power	40500033	2010	2010
Command Controls	C1030	2010	2010	Delta Power	40500034	2010	2010
Command Controls	C1040	2010	2010	Delta Power	40500035	2010	2010
Command Controls	C1220	2010	2010	Delta Power	40500037	2010	2010
Command Controls	C1225	2010	2010				
Command Controls	C1230	2010	2010	Roetelmann Ball Valves	2-Way SM DN 10	2010	2010
Command Controls	C1240	2010	2010	Roetelmann Ball Valves	2-Way SM DN 12	2010	2010
Command Controls	C1620	2010	2010	Roetelmann Ball Valves	2-Way SM DN 20	2010	2010
Command Controls	C1630	2010	2010	Roetelmann Ball Valves	2-Way SM DN 25	2010	2010
Command Controls	C1640	2010	2010	Roetelmann Ball Valves	2-Way SM DN 32	2010	2010
Command Controls	C0420	2012	2012	Roetelmann Ball Valves	2-Way SM DN 40	2010	2010
Command Controls	C0430	2012	2012	Roetelmann Ball Valves	2-Way SM DN 50	2010	2010
Command Controls	C0825	2012	2012	Roetelmann Ball Valves	2-Way SM DN 6	2010	2010
Command Controls	C0830	2012	2012				
Command Controls	C0840	2012	2012	EPS Flanges	4" EPS Flange	2010	2010
Command Controls	C1625	2012	2012	EPS Flanges	5" EPS Flange	2010	2010
				EPS Flanges	6" EPS Flange	2010	2010
				EPS Flanges	8" EPS Flange	2010	2010
Deltrol	080-2	2010	2010				
Deltrol	080-2P	2010	2010	Expander Plug Ports	MB-600-030	2010	2010
Deltrol	080-3	2010	2010	Expander Plug Ports	MB-600-040	2010	2010
Deltrol	080-4	2010	2010	Expander Plug Ports	MB-600-050	2010	2010
Deltrol	100-2	2010	2010	Expander Plug Ports	MB-600-060	2010	2010
Deltrol	100-2P	2010	2010	Expander Plug Ports	MB-600-070	2010	2010
Deltrol	100-3	2010	2010	Expander Plug Ports	MB-600-080	2010	2010
Deltrol	100-4	2010	2010	Expander Plug Ports	MB-600-090	2010	2010
Deltrol	100-4L	2010	2010	Expander Plug Ports	MB-600-100	2010	2010
Deltrol	120-3	2010	2010	Expander Plug Ports	MB-600-120	2010	2010
Deltrol	160-3S	2010	2010	Expander Plug Ports	MB-600-140	2010	2010
Deltrol	100-3S	2012	2012				

Library Name	Cavity Name	Library Ver		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Hawe SICV Cavities	AM1-20/E	2010	2010	Hawe SICV Cavities	RE1	2010	2010
Hawe SICV Cavities	BEV3-Z	2010	2010	Hawe SICV Cavities	RE2	2010	2010
Hawe SICV Cavities	CAV1	2010	2010	Hawe SICV Cavities	RE3	2010	2010
Hawe SICV Cavities	CAV2	2010	2010	Hawe SICV Cavities	RE30	2010	2010
Hawe SICV Cavities	CDK 3	2010	2010	Hawe SICV Cavities	RE32	2010	2010
Hawe SICV Cavities	CDSV 1	2010	2010	Hawe SICV Cavities	RE4	2010	2010
Hawe SICV Cavities	CMV1	2010	2010	Hawe SICV Cavities	RHC1	2010	2010
Hawe SICV Cavities	CMV2	2010	2010	Hawe SICV Cavities	RHC13	2010	2010
Hawe SICV Cavities	CMV3	2010	2010	Hawe SICV Cavities	RHC2	2010	2010
Hawe SICV Cavities	CNE2	2010	2010	Hawe SICV Cavities	RHC23	2010	2010
Hawe SICV Cavities	CNE21/22/23	2010	2010	Hawe SICV Cavities	RHC23/1	2010	2010
Hawe SICV Cavities	CRH 1	2010	2010	Hawe SICV Cavities	RHC3	2010	2010
Hawe SICV Cavities	CRH 2	2010	2010	Hawe SICV Cavities	RHC33	2010	2010
Hawe SICV Cavities	CRH 3/3V	2010	2010	Hawe SICV Cavities	RHC4	2010	2010
Hawe SICV Cavities	CRK 3	2010	2010	Hawe SICV Cavities	RHC43	2010	2010
Hawe SICV Cavities	CRK/B 1	2010	2010	Hawe SICV Cavities	RHC43/3	2010	2010
Hawe SICV Cavities	CRK/B 2	2010	2010	Hawe SICV Cavities	RHC5	2010	2010
Hawe SICV Cavities	CSJ	2010	2010	Hawe SICV Cavities	RHC53	2010	2010
Hawe SICV Cavities	CSV2	2010	2010	Hawe SICV Cavities	RHC6	2010	2010
Hawe SICV Cavities	CSV3	2010	2010	Hawe SICV Cavities	RHCE1	2010	2010
Hawe SICV Cavities	EM 11D	2010	2010	Hawe SICV Cavities	RHCE13	2010	2010
Hawe SICV Cavities	EM 11V/S	2010	2010	Hawe SICV Cavities	RHCE2	2010	2010
Hawe SICV Cavities	EM 21D	2010	2010	Hawe SICV Cavities	RHCE23	2010	2010
Hawe SICV Cavities	EM 41V/S	2010	2010	Hawe SICV Cavities	RHCE3	2010	2010
Hawe SICV Cavities	EM(P) 21V/S	2010	2010	Hawe SICV Cavities	RHCE33	2010	2010
Hawe SICV Cavities	EM(P) 31V/S	2010	2010	Hawe SICV Cavities	RHCE4	2010	2010
Hawe SICV Cavities	LB1	2010	2010	Hawe SICV Cavities	RHCE43	2010	2010
Hawe SICV Cavities	LB14-C	2010	2010	Hawe SICV Cavities	RHCE5	2010	2010
Hawe SICV Cavities	LB2	2010	2010	Hawe SICV Cavities	RHCE53	2010	2010
Hawe SICV Cavities	LB26-C	2010	2010	Hawe SICV Cavities	RHCE6	2010	2010
Hawe SICV Cavities	LB28-C	2010	2010	Hawe SICV Cavities	RHCE63	2010	2010
Hawe SICV Cavities	LB2-UNF	2010	2010	Hawe SICV Cavities	RK/B0	2010	2010
Hawe SICV Cavities	LB3	2010	2010	Hawe SICV Cavities	RK/B1	2010	2010
Hawe SICV Cavities	LB30-C	2010	2010	Hawe SICV Cavities	RK/B14	2010	2010
Hawe SICV Cavities	LB32-C	2010	2010	Hawe SICV Cavities	RK/B2	2010	2010
Hawe SICV Cavities	LB3-UNF	2010	2010	Hawe SICV Cavities	RK/B28	2010	2010
Hawe SICV Cavities	LB4	2010	2010	Hawe SICV Cavities	RK/B3	2010	2010
Hawe SICV Cavities	LB47-C	2010	2010	Hawe SICV Cavities	RK/B32	2010	2010
Hawe SICV Cavities	LB4-UN	2010	2010	Hawe SICV Cavities	RK/B4	2010	2010
Hawe SICV Cavities	LHT 3E	2010	2010	Hawe SICV Cavities	RK/B47	2010	2010
Hawe SICV Cavities	RC1	2010	2010	Hawe SICV Cavities	SB0	2010	2010
Hawe SICV Cavities	RC14	2010	2010	Hawe SICV Cavities	SB0-14	2010	2010
Hawe SICV Cavities	RC2	2010	2010	Hawe SICV Cavities	SB1	2010	2010
Hawe SICV Cavities	RC26	2010	2010	Hawe SICV Cavities	SB1-18	2010	2010
Hawe SICV Cavities	RC28	2010	2010	Hawe SICV Cavities	SB2	2010	2010
Hawe SICV Cavities	RC3	2010	2010	Hawe SICV Cavities	SB2-22	2010	2010
Hawe SICV Cavities	RC30	2010	2010	Hawe SICV Cavities	SB3	2010	2010
Hawe SICV Cavities	RC32	2010	2010	Hawe SICV Cavities	SB3-27	2010	2010
Hawe SICV Cavities	RE0	2010	2010	Hawe SICV Cavities	WVC1	2010	2010

Library Name	Cavity Name	Library Ver		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Hydac	03030	2010	2010	HydraForce	VC04-2	2010	2010
Hydac	03230	2010	2010	HydraForce	VC04-B2	2010	2010
Hydac	04220	2010	2010	HydraForce	VC04-B3	2010	2010
Hydac	05030	2010	2010	HydraForce	VC06-2	2010	2010
Hydac	05220	2010	2010	HydraForce	VC07-3	2010	2010
Hydac	05330	2010	2010	HydraForce	VC08-2	2010	2010
Hydac	05520	2010	2010	HydraForce	VC08-3	2010	2010
Hydac	05830	2010	2010	HydraForce	VC08-4	2010	2010
Hydac	06020	2010	2010	HydraForce	VC08-PCV	2010	2010
Hydac	06320	2010	2010	HydraForce	VC09-2	2010	2010
Hydac	08021	2010	2010	HydraForce	VC10-2	2010	2010
Hydac	08030	2010	2010	HydraForce	VC10-3	2010	2010
Hydac	08130	2010	2010	HydraForce	VC10-4	2010	2010
Hydac	08140	2010	2010	HydraForce	VC10-5	2010	2010
Hydac	08220	2010	2010	HydraForce	VC10-6	2010	2010
Hydac	08520	2010	2010	HydraForce	VC10-PCV	2010	2010
Hydac	08920	2010	2010	HydraForce	VC10-S3	2010	2010
Hydac	10120	2010	2010	HydraForce	VC10-S6	2010	2010
Hydac	10120A	2010	2010	HydraForce	VC12-2	2010	2010
Hydac	10130	2010	2010	HydraForce	VC12-3	2010	2010
Hydac	10520	2010	2010	HydraForce	VC12-4	2010	2010
Hydac	10920	2010	2010	HydraForce	VC12-6	2010	2010
Hydac	12120	2010	2010	HydraForce	VC12-S3	2010	2010
Hydac	12120A	2010	2010	HydraForce	VC12-S5	2010	2010
Hydac	12121	2010	2010	HydraForce	VC12-S6	2010	2010
Hydac	12130	2010	2010	HydraForce	VC16-2	2010	2010
Hydac	12230	2010	2010	HydraForce	VC16-3	2010	2010
Hydac	12520	2010	2010	HydraForce	VC16-4	2010	2010
Hydac	12920	2010	2010	HydraForce	VC16-PCV	2010	2010
Hydac	16920	2010	2010	HydraForce	VC16-S3	2010	2010
Hydac	20021	2010	2010	HydraForce	VC16-S5	2010	2010
Hydac	FC07-3	2010	2010	HydraForce	VC16-S6	2010	2010
Hydac	FC081-2	2010	2010	HydraForce	VC20-2	2010	2010
Hydac	FC08-2	2010	2010	HydraForce	VC20-S3	2010	2010
Hydac	FC08-3	2010	2010	HydraForce	VC42-M2	2010	2010
Hydac	FC08-4	2010	2010	HydraForce	VC42-M3	2010	2010
Hydac	FC10-2	2010	2010	HydraForce	VC42-M4	2010	2010
Hydac	FC10-3	2010	2010	HydraForce	VC42-S6	2010	2010
Hydac	FC10-4	2010	2010	HydraForce	VC98-3	2010	2010
Hydac	FC12-2	2010	2010	HydraForce	VC-T001	2010	2010
Hydac	FC12-3	2010	2010	HydraForce	VC-T004	2010	2010
Hydac	FC12-4	2010	2010	HydraForce	VC-T009	2010	2010
Hydac	FC16-2	2010	2010	HydraForce	VC-T011	2010	2010
Hydac	FC16-3	2010	2010				
Hydac	FC16-4	2010	2010				

Library Name	Cavity Name	Library Ver		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Integrated Hydraulics	A1126	2010	2010				
Integrated Hydraulics	A12088	2010	2010	Parker	2G	2010	2010
Integrated Hydraulics	A12336	2010	2010	Parker	3J	2010	2010
Integrated Hydraulics	A13245	2010	2010	Parker	3Z	2010	2010
Integrated Hydraulics	A2791	2010	2010	Parker	54-1	2010	2010
Integrated Hydraulics	A2976	2010	2010	Parker	C04-2	2010	2010
Integrated Hydraulics	A3145	2010	2010	Parker	C04-3	2010	2010
Integrated Hydraulics	A3146	2010	2010	Parker	C08-2	2010	2010
Integrated Hydraulics	A3377	2010	2010	Parker	C08-3	2010	2010
Integrated Hydraulics	A3531	2010	2010	Parker	C08-4	2010	2010
Integrated Hydraulics	A5302	2010	2010	Parker	C09-2	2010	2010
Integrated Hydraulics	A6610	2010	2010	Parker	C10-2	2010	2010
Integrated Hydraulics	A6701	2010	2010	Parker	C10-3	2010	2010
Integrated Hydraulics	A6835	2010	2010	Parker	C10-3S	2010	2010
Integrated Hydraulics	A6835	2010	2010	Parker	C10-4	2010	2010
Integrated Hydraulics	A6935	2010	2010	Parker	C12-2	2010	2010
Integrated Hydraulics	A6951	2010	2010	Parker	C12-3	2010	2010
Integrated Hydraulics	A7447	2010	2010	Parker	C12-4	2010	2010
Integrated Hydraulics	A7708	2010	2010	Parker	C16-2	2010	2010
Integrated Hydraulics	A877	2010	2010	Parker	C16-3	2010	2010
Integrated Hydraulics	A878	2010	2010	Parker	C16-3S	2010	2010
Integrated Hydraulics	A879	2010	2010	Parker	C16-4	2010	2010
Integrated Hydraulics	A880	2010	2010	Parker	C20-2	2010	2010
Integrated Hydraulics	A881	2010	2010	Parker	C20-3S	2010	2010
Integrated Hydraulics	A890	2010	2010	Parker	CAVT11A	2010	2010
Integrated Hydraulics	A892	2010	2010	Parker	CDD-1010	2010	2010
Integrated Hydraulics	A893	2010	2010	Parker	CDD-1012	2010	2010
Integrated Hydraulics	CVA-20-01-0	2010	2010	Parker	CDD-1013	2010	2010
Integrated Hydraulics	CVA-22-06-0	2010	2010	Parker	CDD-1036	2010	2010
Integrated Hydraulics	CVA-27-04-0	2010	2010	BSP Ports-ISO 1179-1	G 1/8-28	2010	2010
Integrated Hydraulics	CVB-22-06-0	2010	2010	BSP Ports-ISO 1179-1	G 1/4-19	2010	2010
Integrated Hydraulics	CVB-27-04-0	2010	2010	BSP Ports-ISO 1179-1	G 3/8-19	2010	2010
Integrated Hydraulics	CVB-42-04-0	2010	2010	BSP Ports-ISO 1179-1	G 1/2-14	2010	2010
				BSP Ports-ISO 1179-1	G 3/4-14	2010	2010
Direct.Control-NFPA-T3.5.1	D02	2010	2010	BSP Ports-ISO 1179-1	G 1-11	2010	2010
Direct.Control-NFPA-T3.5.1	D03	2010	2010	BSP Ports-ISO 1179-1	G 1 1/4 -11	2010	2010
Direct.Control-NFPA-T3.5.1	D05	2010	2010	BSP Ports-ISO 1179-1	G 1 1/2 -11	2010	2010
Direct.Control-NFPA-T3.5.1	D05-Alt-B	2012	2012	BSP Ports-ISO 1179-1	G 2-11	2010	2010
Direct.Control-NFPA-T3.5.1	D05H	2010	2010				
Direct.Control-NFPA-T3.5.1	D06	2010	2010	Servo Valve-ISO 10372	10372-01-01-0-92	2012	2012
Direct.Control-NFPA-T3.5.1	D07	2010	2010	Servo Valve-ISO 10372	10372-03-03-0-92	2012	2012
Direct.Control-NFPA-T3.5.1	D08	2010	2010	Servo Valve-ISO 10372	10372-02-02-0-92	2012	2012
Direct.Control-NFPA-T3.5.1	D10	2010	2010	Servo Valve-ISO 10372	10372-04-04-0-92	2012	2012
				Servo Valve-ISO 10372	10372-06-05-0-92	2012	2012
Direct.Control-ISO 4401	ISO4401-02-01	2010	2010				
Direct.Control-ISO 4401	ISO4401-03-02	2010	2010	Pr.Red, Seq, Unload-ISO 5781	5781-02-01-0-00	2012	2012
Direct.Control-ISO 4401	ISO4401-03-03	2010	2010	Pr.Red, Seq, Unload-ISO 5781	5781-03-04-0-00	2012	2012
Direct.Control-ISO 4401	ISO4401-05-04	2010	2010	Pr.Red, Seq, Unload-ISO 5781	5781-06-07-0-00	2012	2012
Direct.Control-ISO 4401	ISO4401-05-05	2010	2010	Pr.Red, Seq, Unload-ISO 5781	5781-08-10-0-00	2012	2012
Direct.Control-ISO 4401	ISO4401-07-06	2010	2010	Pr.Red, Seq, Unload-ISO 5781	5781-10-13-0-00	2012	2012
Direct.Control-ISO 4401	ISO4401-08-07	2010	2010				
Direct.Control-ISO 4401	ISO4401-10-08	2010	2010				

Library Name	Cavity Name	Library Ver		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Sauer Danfoss	CP04-2	2010	2010	Sun Hydraulics	T-10A	2010	2010
Sauer Danfoss	CP04-3	2010	2010	Sun Hydraulics	T-11A	2010	2010
Sauer Danfoss	CP07-3	2010	2010	Sun Hydraulics	T-13A	2010	2010
Sauer Danfoss	CP08-3L	2010	2010	Sun Hydraulics	T-162A	2010	2010
Sauer Danfoss	CP12-2	2010	2010	Sun Hydraulics	T-162DP	2010	2010
Sauer Danfoss	CP12-3	2010	2010	Sun Hydraulics	T-163A	2010	2010
Sauer Danfoss	CP12-3M	2010	2010	Sun Hydraulics	T-16A	2010	2010
Sauer Danfoss	CP12-3S	2010	2010	Sun Hydraulics	T-17A	2010	2010
Sauer Danfoss	CP12-4	2010	2010	Sun Hydraulics	T-18A	2010	2010
Sauer Danfoss	CP16-4	2010	2010	Sun Hydraulics	T-18AU	2012	2012
Sauer Danfoss	CP20-3S	2010	2010	Sun Hydraulics	T-19A	2010	2010
Sauer Danfoss	FC-144	2010	2010	Sun Hydraulics	T-19AU	2012	2012
Sauer Danfoss	FC-304	2010	2010	Sun Hydraulics	T-21A	2010	2010
Sauer Danfoss	FC-336	2010	2010	Sun Hydraulics	T-22A	2010	2010
Sauer Danfoss	NCS04/2	2010	2010	Sun Hydraulics	T-23A	2010	2010
Sauer Danfoss	NCS04/3	2010	2010	Sun Hydraulics	T-24A	2010	2010
Sauer Danfoss	NCS06/2	2010	2010	Sun Hydraulics	T-2A	2010	2010
Sauer Danfoss	NCS06/3	2010	2010	Sun Hydraulics	T-31A	2010	2010
Sauer Danfoss	NCS12/2	2010	2010	Sun Hydraulics	T-32A	2010	2010
Sauer Danfoss	NCS12/3	2010	2010	Sun Hydraulics	T-33A	2010	2010
Sauer Danfoss	SDC08-2	2010	2010	Sun Hydraulics	T-34A	2010	2010
Sauer Danfoss	SDC08-3	2010	2010	Sun Hydraulics	T-382A	2010	2010
Sauer Danfoss	SDC08-4	2010	2010	Sun Hydraulics	T-3A	2010	2010
Sauer Danfoss	SDC10-2	2010	2010	Sun Hydraulics	T-52A	2010	2010
Sauer Danfoss	SDC10-3	2010	2010	Sun Hydraulics	T-5A	2010	2010
Sauer Danfoss	SDC10-3S	2010	2010	Sun Hydraulics	T-61A	2010	2010
Sauer Danfoss	SDC10-4	2010	2010	Sun Hydraulics	T-62A	2010	2010
Sauer Danfoss	SDC12-2	2010	2010	Sun Hydraulics	T-63A	2010	2010
Sauer Danfoss	SDC16-2	2010	2010	Sun Hydraulics	T-64A	2010	2010
Sauer Danfoss	SDC16-3	2010	2010	Sun Hydraulics	T-8A	2010	2010
Sauer Danfoss	SDC16-3S	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M42	2010	2010
Sauer Danfoss	SDC20-2	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M48	2010	2010
Sauer Danfoss	SDC20-3	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M12	2010	2010
Sauer Danfoss	SDC20-4	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M14	2010	2010
Sauer Danfoss	VME06	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M22	2010	2010
Sauer Danfoss	VME07	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M27	2010	2010
Sauer Danfoss	VME08	2010	2010	Metric Ports-ISO 6149-1	ISO 6149-1-M33	2010	2010
				Metric Ports-ISO 6149-1	ISO 6149-1-M16	2010	2010
				Metric Ports-ISO 6149-1	ISO 6149-1-M18	2010	2010
				Metric Ports-ISO 6149-1	ISO 6149-1-M8	2010	2010
				Metric Ports-ISO 6149-1	ISO 6149-1-M10	2010	2010
				Metric Ports-ISO 6149-1	ISO 6149-1-M60	2010	2010

Library Name	Cavity Name	Library Ver		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Rexroth	MSR30KD	2010	2010	Eaton	C-10-2	2010	2010
Rexroth	MSR30KE	2010	2010	Eaton	C-10-3	2010	2010
Rexroth	MSR8KD	2010	2010	Eaton	C-10-3S	2010	2010
Rexroth	MSR8KE	2010	2010	Eaton	C-10-4	2010	2010
Rexroth	DBD10K	2010	2010	Eaton	C-10-4U	2010	2010
Rexroth	DBD20K	2010	2010	Eaton	C-10-5S	2010	2010
Rexroth	DBD30K	2010	2010	Eaton	C-12-2	2010	2010
Rexroth	DBD6K	2010	2010	Eaton	C-12-2U	2010	2010
Rexroth	MSR10KD	2010	2010	Eaton	C-12-3	2010	2010
Rexroth	MSR10KE	2010	2010	Eaton	C-12-3S	2010	2010
Rexroth	MSR15KD	2010	2010	Eaton	C-12-4	2010	2010
Rexroth	MSR15KE	2010	2010	Eaton	C-12-4U	2010	2010
Rexroth	MSR20KD	2010	2010	Eaton	C-12-5S	2010	2010
Rexroth	MSR20KE	2010	2010	Eaton	C-16-2	2010	2010
Rexroth	MSR25KD	2010	2010	Eaton	C-16-3	2010	2010
Rexroth	MSR25KE	2010	2010	Eaton	C-16-3S	2010	2010
Rexroth	003	2010	2010	Eaton	C-16-4	2010	2010
Rexroth	004	2010	2010	Eaton	C-16-5S	2010	2010
Rexroth	019-E	2010	2010	Eaton	C-20-2	2010	2010
Rexroth	065	2010	2010	Eaton	C-20-3	2010	2010
Rexroth	348	2010	2010	Eaton	C-20-3S	2010	2010
Rexroth	CA-04A-3Y	2010	2010	Eaton	C-20-4	2010	2010
Rexroth	CA-07A-3N	2010	2010	Eaton	C-20-5S	2010	2010
Rexroth	CA-08A-2N	2010	2010	Eaton	C-4-2	2010	2010
Rexroth	CA-08A-3C	2010	2010	Eaton	C-4-3	2010	2010
Rexroth	CA-08A-3N	2010	2010	Eaton	C-8-2	2010	2010
Rexroth	CA-08A-4N	2010	2010	Eaton	C-8-3	2010	2010
Rexroth	CA-10A-2N	2010	2010	Eaton	C-8-4	2010	2010
Rexroth	CA-10A-3C	2010	2010	Eaton	C-8-5S	2010	2010
Rexroth	CA-10A-3N	2010	2010	Eaton	CG02	2010	2010
Rexroth	CA-10A-4N	2010	2010	Eaton	CG03	2010	2010
Rexroth	CA-12A-2N	2010	2010	Eaton	CG06	2010	2010
Rexroth	CA-12A-3C	2010	2010	Eaton	CG10	2010	2010
Rexroth	CA-12A-3N	2010	2010	Eaton	CG2V-6	2010	2010
Rexroth	CA-12A-4N	2010	2010	Eaton	CG2V-8	2010	2010
Rexroth	CA-16A-2N	2010	2010	Eaton	RCG03	2010	2010
Rexroth	CA-16A-3C	2010	2010	Eaton	RCG06	2010	2010
Rexroth	CA-16A-3N	2010	2010	Eaton	RCG10	2010	2010
Rexroth	CA-16A-4N	2010	2010	Eaton	URG1-06	2010	2010
Rexroth	CA-20A-2N	2010	2010	Eaton	URG1-10	2010	2010
Rexroth	CA-20A-3C	2010	2010	Eaton	XGL03	2010	2010
Rexroth	CA-20A-3N	2010	2010				
Rexroth	CA-20A-4N	2010	2010	Hawe Valve Interface	TQ 3P-A	2010	2010
Rexroth	CC063A-01	2010	2010	Hawe Valve Interface	TQ 4P-A	2010	2010
Rexroth	CD072A-01	2010	2010	Hawe Valve Interface	TQ 5P-A	2010	2010
Rexroth	CD073A-01	2010	2010	Hawe Valve Interface	MVP 5	2010	2010
				Hawe Valve Interface	SF3-5	2010	2010

		Library Ver					
Library Name	Cavity Name	MM	Inch	Library Name	Cavity Name	MM	Inch
Bolt Holes (Metric)	M10x1,5-6H	2010	2010	Hawe Valve Interface	G (Z)4-1	2010	2010
Bolt Holes (Metric)	M12x1,75-6H	2010	2010	Hawe Valve Interface	G R/S2-0	2010	2010
Bolt Holes (Metric)	M14x2,0-6H	2010	2010	Hawe Valve Interface	G R/S2-1	2010	2010
Bolt Holes (Metric)	M16x2,0-6H	2010	2010	Hawe Valve Interface	G R/S2-2	2010	2010
Bolt Holes (Metric)	M18x2,5-6H	2010	2010	Hawe Valve Interface	G R/S2-3	2010	2010
Bolt Holes (Metric)	M20x2,5-6H	2010	2010	Hawe Valve Interface	G21-2	2010	2010
Bolt Holes (Metric)	M24x3,0-6H	2010	2010	Hawe Valve Interface	G21-3	2010	2010
Bolt Holes (Metric)	M30x3,5-6H	2010	2010	Hawe Valve Interface	G22-0	2010	2010
Bolt Holes (Metric)	M36x4,0-6H	2010	2010	Hawe Valve Interface	G22-1	2010	2010
Bolt Holes (Metric)	M4x0,7-6H	2010	2010	Hawe Valve Interface	G22-2	2010	2010
Bolt Holes (Metric)	M5x0,8-6H	2010	2010	Hawe Valve Interface	HRP3(V)	2010	2010
Bolt Holes (Metric)	M6x1,0-6H	2010	2010	Hawe Valve Interface	HRP4(V)	2010	2010
Bolt Holes (Metric)	M8x1,25-6H	2010	2010	Hawe Valve Interface	HRP5(V)	2010	2010
				Hawe Valve Interface	HRP7(V)	2010	2010
Bolt Holes (UNC)	#10-24 UNC	2010	2010	Hawe Valve Interface	LHT 33P-11	2010	2010
Bolt Holes (UNC)	#6-32 UNC	2010	2010	Hawe Valve Interface	MVP 6	2010	2010
Bolt Holes (UNC)	#8-32 UNC	2010	2010	Hawe Valve Interface	MVP 8	2010	2010
Bolt Holes (UNC)	1"-8UNC	2010	2010	Hawe Valve Interface	PDM4P	2010	2010
Bolt Holes (UNC)	1/2"-13 UNC	2010	2010	Hawe Valve Interface	PDM5P	2010	2010
Bolt Holes (UNC)	1/4"-20 UNC	2010	2010	Hawe Valve Interface	PMVP 4	2010	2010
Bolt Holes (UNC)	1-1/2"-6 UNC	2010	2010	Hawe Valve Interface	AM11	2010	2010
Bolt Holes (UNC)	1-1/4"-7UNC	2010	2010	Hawe Valve Interface	BVP-11R/S	2010	2010
Bolt Holes (UNC)	1-1/8"-7UNC	2010	2010	Hawe Valve Interface	BVP-11Z	2010	2010
Bolt Holes (UNC)	1-3/4"-5 UNC	2010	2010	Hawe Valve Interface	BVP-2R/S	2010	2010
Bolt Holes (UNC)	1-3/8"-6UNC	2010	2010	Hawe Valve Interface	BVP-2Z	2010	2010
Bolt Holes (UNC)	2"-4,5 UNC	2010	2010	Hawe Valve Interface	G R/S2-4	2010	2010
Bolt Holes (UNC)	2-1/2"-4 UNC	2010	2010	Hawe Valve Interface	G21-0	2010	2010
Bolt Holes (UNC)	2-1/4"-4,5 UNC	2010	2010	Hawe Valve Interface	G21-1	2010	2010
Bolt Holes (UNC)	3"-4 UNC	2010	2010	Hawe Valve Interface	G22-3	2010	2010
Bolt Holes (UNC)	3/4"-10 UNC	2010	2010	Hawe Valve Interface	HRP1	2010	2010
Bolt Holes (UNC)	3/8"-16 UNC	2010	2010	Hawe Valve Interface	BVP-3R/S	2010	2010
Bolt Holes (UNC)	5/16"-18 UNC	2010	2010	Hawe Valve Interface	BVP-3Z	2010	2010
Bolt Holes (UNC)	5/8"-11 UNC	2010	2010	Hawe Valve Interface	G (Z)3-0	2010	2010
Bolt Holes (UNC)	7/16"-14 UNC	2010	2010	Hawe Valve Interface	G (Z)3-1	2010	2010
Bolt Holes (UNC)	7/8"-9 UNC	2010	2010	Hawe Valve Interface	G (Z)3-2	2010	2010
Bolt Holes (UNC)	9/16"-12 UNC	2010	2010	Hawe Valve Interface	G (Z)3-3	2010	2010
				Hawe Valve Interface	G (Z)3-4	2010	2010
Slip-In Cartridge-ISO 7368	BA-06-2-A	2010	2010	Hawe Valve Interface	HRP2	2010	2010
Slip-In Cartridge-ISO 7368	BA-06-2-B	2010	2010	Hawe Valve Interface	LHT 33P-15	2010	2010
Slip-In Cartridge-ISO 7368	BB-08-2-A	2010	2010	Hawe Valve Interface	MVP 4	2010	2010
Slip-In Cartridge-ISO 7368	BB-08-2-B	2010	2010	Hawe Valve Interface	PMVP 5	2010	2010
Slip-In Cartridge-ISO 7368	BC-09-2-A	2010	2010	Hawe Valve Interface	PMVP 6	2010	2010
Slip-In Cartridge-ISO 7368	BC-09-2-B	2010	2010	Hawe Valve Interface	PMVP 8	2010	2010
Slip-In Cartridge-ISO 7368	BD-10-2-A	2010	2010	Hawe Valve Interface	PSLF3	2010	2010
Slip-In Cartridge-ISO 7368	BD-10-2-B	2010	2010	Hawe Valve Interface	PSLF5	2010	2010
Slip-In Cartridge-ISO 7368	BE-11-2-A	2010	2010	Hawe Valve Interface	SF2-3	2010	2010
Slip-In Cartridge-ISO 7368	BE-11-2-B	2010	2010	Hawe Valve Interface	SF2-4	2010	2010
Slip-In Cartridge-ISO 7368	BF-12-2-A	2010	2010	Hawe Valve Interface	SF2-5	2010	2010
Slip-In Cartridge-ISO 7368	BF-12-2-B	2010	2010	Hawe Valve Interface	SF3-3	2010	2010
Slip-In Cartridge-ISO 7368	BG-13-2-A	2010	2010	Hawe Valve Interface	SF3-4	2010	2010
Slip-In Cartridge-ISO 7368	BH-14-2-A	2010	2010	Hawe Valve Interface	SLF3	2010	2010
Slip-In Cartridge-ISO 7368	BH-14-2-A	2010	2010	Hawe Valve Interface	SLF5	2010	2010

Library Name	Cavity Name	Library Ver.		Library Name	Cavity Name	Library Ver	
		MM	Inch			MM	Inch
Drill Holes	5	2010	--	Drill Holes	3.000	--	2010
Drill Holes	6	2010	--	Drill Holes	2.500	--	2010
Drill Holes	8	2010	--	Drill Holes	3.500	--	2010
Drill Holes	10	2010	--	Drill Holes	4.000	--	2010
Drill Holes	11	2010	--	Drill Holes	0.15625	--	2010
Drill Holes	12	2010	--	Drill Holes	0.21875	--	2010
Drill Holes	14	2010	--	Drill Holes	0.28125	--	2010
Drill Holes	15	2010	--	Drill Holes	0.3125	--	2010
Drill Holes	16	2010	--	Drill Holes	0.375	--	2010
Drill Holes	17	2010	--	Drill Holes	0.34375	--	2010
Drill Holes	18	2010	--	Drill Holes	0.40625	--	2010
Drill Holes	19	2010	--	Drill Holes	0.46875	--	2010
Drill Holes	20	2010	--	Drill Holes	0.53125	--	2010
Drill Holes	22	2010	--	Drill Holes	0.5625	--	2010
Drill Holes	24	2010	--	Drill Holes	0.59375	--	2010
Drill Holes	25	2010	--	Drill Holes	0.65625	--	2010
Drill Holes	28	2010	--	Drill Holes	0.71875	--	2010
Drill Holes	30	2010	--	Drill Holes	0.78125	--	2010
Drill Holes	32	2010	--	Drill Holes	0.8125	--	2010
Drill Holes	35	2010	--	Drill Holes	0.84375	--	2010
Drill Holes	38	2010	--	Drill Holes	0.90625	--	2010
Drill Holes	40	2010	--	Drill Holes	0.9375	--	2010
Drill Holes	45	2010	--	Drill Holes	0.96875	--	2010
Drill Holes	50.80	2010	--				
Drill Holes	55	2010	--				
Drill Holes	63	2010	--	Direct.Control-DIN24340 Form A	DIN 24340-A 4	2010	2010
				Direct.Control-DIN24340 Form A	DIN 24340-A 6	2010	2010
Direct.Control-DIN24340 Form B	DIN 24340-B 10	2010	2010	Direct.Control-DIN24340 Form A	DIN 24340-A 8	2010	2010
Direct.Control-DIN24340 Form B	DIN 24340-B 16	2010	2010	Direct.Control-DIN24340 Form A	DIN 24340-A 10	2010	2010
Direct.Control-DIN24340 Form B	DIN 24340-B 25	2010	2010	Direct.Control-DIN24340 Form A	DIN 24340-A 16	2010	2010
Direct.Control-DIN24340 Form B	DIN 24340-B 32	2010	2010	Direct.Control-DIN24340 Form A	DIN 24340-A 25	2010	2010
Direct.Control-DIN24340 Form B	DIN 24340-B 40	2010	2010	Direct.Control-DIN24340 Form A	DIN 24340-A 32	2010	2010

Library Name	Cavity Name	Library Ver.	
		MM	Inch
Valve Patterns-NFPA-T3.5.1	P10	2012	2012
Valve Patterns-NFPA-T3.5.1	POC08	2012	2012
Valve Patterns-NFPA-T3.5.1	R02	2012	2012
Valve Patterns-NFPA-T3.5.1	R03	2012	2012
Valve Patterns-NFPA-T3.5.1	R06	2012	2012
Valve Patterns-NFPA-T3.5.1	R08	2012	2012
Valve Patterns-NFPA-T3.5.1	R10	2012	2012
Valve Patterns-NFPA-T3.5.1	RP06	2012	2012
Valve Patterns-NFPA-T3.5.1	2F06	2012	2012
Valve Patterns-NFPA-T3.5.1	3F06	2012	2012
Valve Patterns-NFPA-T3.5.1	C06	2012	2012
Valve Patterns-NFPA-T3.5.1	POC06	2012	2012
Valve Patterns-NFPA-T3.5.1	2F07	2012	2012
Valve Patterns-NFPA-T3.5.1	2F08	2012	2012
Valve Patterns-NFPA-T3.5.1	2F09	2012	2012
Valve Patterns-NFPA-T3.5.1	2FB07	2012	2012
Valve Patterns-NFPA-T3.5.1	3F07	2012	2012
Valve Patterns-NFPA-T3.5.1	C08	2012	2012
Valve Patterns-NFPA-T3.5.1	C09	2012	2012
Valve Patterns-NFPA-T3.5.1	D06	2012	2012
Valve Patterns-NFPA-T3.5.1	F02	2012	2012
Valve Patterns-NFPA-T3.5.1	F03	2012	2012
Valve Patterns-NFPA-T3.5.1	P02	2012	2012
Valve Patterns-NFPA-T3.5.1	P03	2012	2012
Valve Patterns-NFPA-T3.5.1	P06	2012	2012
Valve Patterns-NFPA-T3.5.1	P08	2012	2012
Valve Patterns-NFPA-T3.5.1	RP08	2012	2012
Valve Patterns-NFPA-T3.5.1	RV08	2012	2012
Valve Patterns-NFPA-T3.5.1	RV10	2012	2012

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VEST, Inc.
3250 W. Big Beaver Rd., #440
Troy, MI 48084 USA

Call: 01 (248) 649-9550
Email: sales@VESTusa.com
Visit: VESTusa.com

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