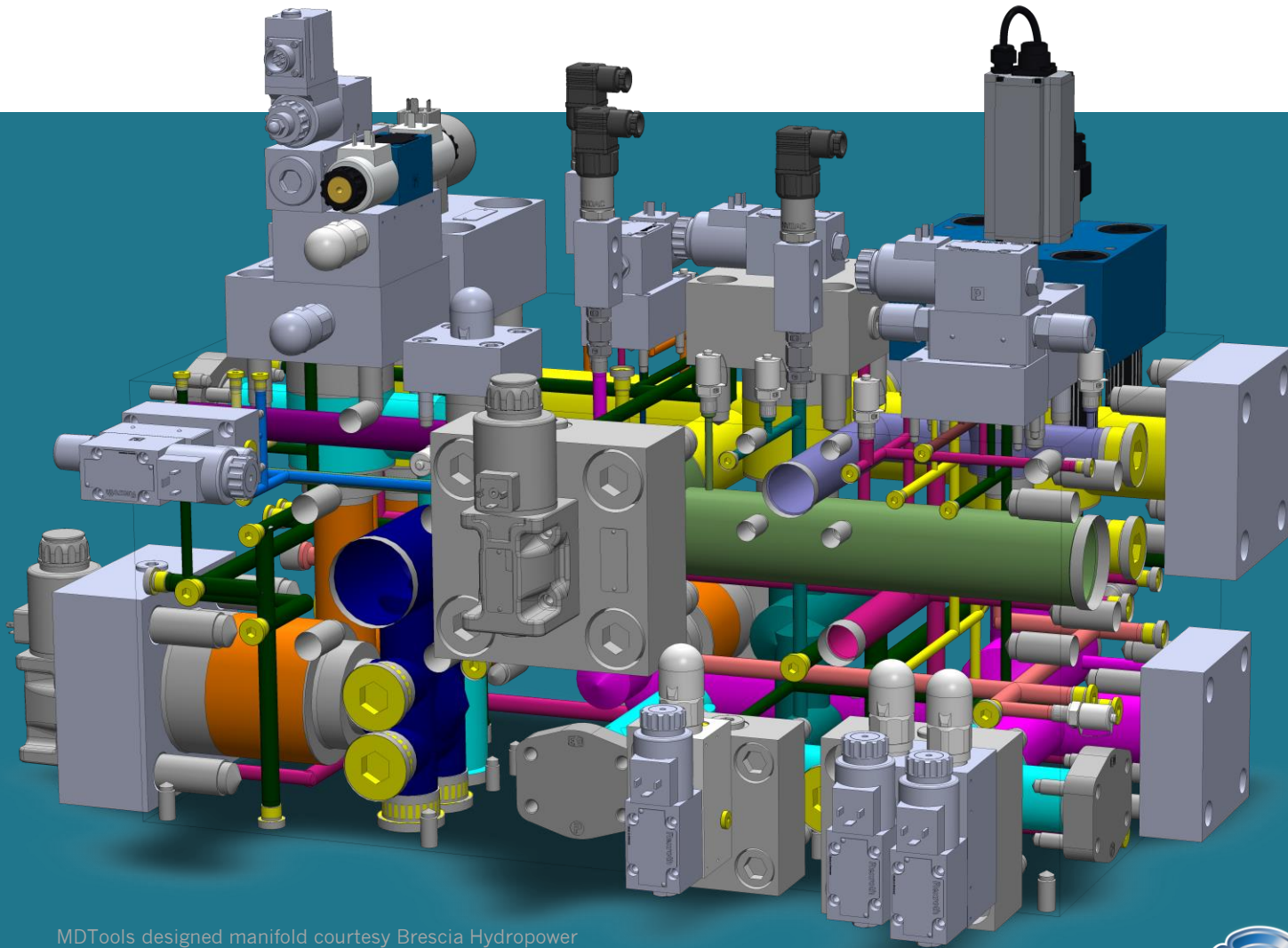


MDTools® 770 What's New



MDTools designed manifold courtesy Brescia Hydropower



MDTools® 770 What's New

Design Checks

- Locate Connection Problems
- Locate Wall Thickness Errors
- Locate Broken Nets
- Check Wall Thickness around Undercuts and Slots

Resize Block

- Through Bolt Holes depth updates automatically

Move

- Move Cavity with reference to another Cavity

O-ring Groove

- O-ring Groove ID independent of the Parent

Machining ID

- New Machining ID Format i.e. A1, A2, B1, B2, B3...

Machining Chart

- Set Precision for Diameter
- Display Cavities Location coordinates (X,Y) in separate columns
- Specify Decimal Separator for Machining chart

Orifice Plugs

- Import Orifice Plugs from HyDraw
- Assemble Orifice Plugs
- Assemble Orifice Discs

Assemble Component

- Autodesk Vault 2018 Compatible

Miscellaneous

- Preview while Adding Drill to a Cavity
- Move Multiple Cavities using Scroll Bars



Locate Connection Problems

Option selected*

- Indicate Design Errors
- Highlight Selected Cavities
- Remove Color from Unselected Cavities

Design Check

Include

Net List Poor Connections List

Meet List Non-Conformance to Schematic List

List an Intersection only once

Minimum Wall Thickness

Report

Connection Problems and Warnings

Dead Area to Working Area

Cavity	Connecting Cavities
FR10-D	B1
M	FR-D
MAX2-D	P1
PLUG3	MAX-D
PLUG3	O-D
PLUG7	FR10-D
T-D	R1-1

Dead Area to Dead Area

Cavity	Connecting Cavities
O-D	M-D

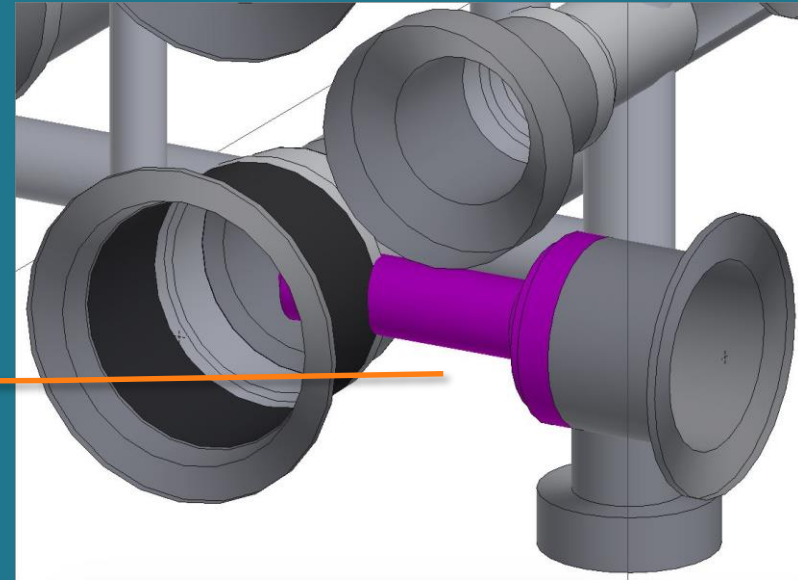
Clear Selection

Window Snip

Start Close

On a single click, MDTools colors the selected issue.

On double click, MDTools zooms into selected issue



* Default Design Error option is 'Highlight Selected Cavities'
WARNING: Option shown here can be time consuming to process for large manifolds.



Locate Wall Thickness Errors

Design Check

Include

Net List Poor Connections List

Meet List Non-Conformance to Schematic List

List an Intersection only once.

Minimum Wall Thickness

Report

Wall Thickness

Clearance List

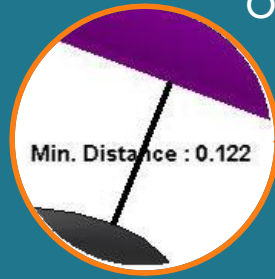
Cavity	Cavities with Wall Thickness < 0.188
EV-D	M [NET-7] (0.044)
MBolt1	PLUG1-D (0.067)
MBolt4	B1 [NET-6] (0.122)
O [NET-6]	FR-2 [NoNet] (0.071)
PLUG3 [NET-6]	M [NET-7] (0.105)
RM [NET-6]	NG6-A [NET-8] (0.142)

Clearance in Same Net

Cavity	Cavities with Wall Thickness < 0.188
CON [NET-6]	MAX2-2 [NET-6] (0.164)
PLUG3 [NET-6]	EV-1 [NET-6] (0.154)

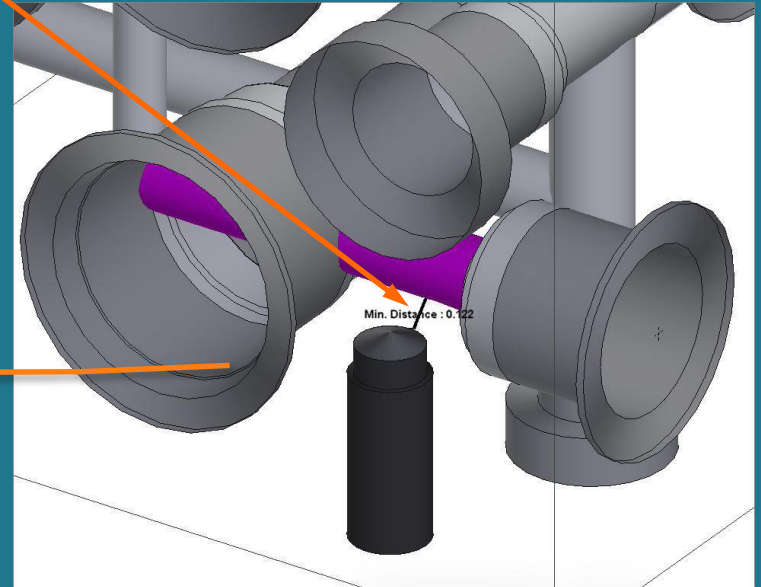
Clear Selection

Start Close



Option selected*

- Indicate Design Errors
- Highlight Selected Cavities
- Remove Color from Unselected Cavities



On a single click, MDTools colors the selected issue

On double click, MDTools zooms into selected issue

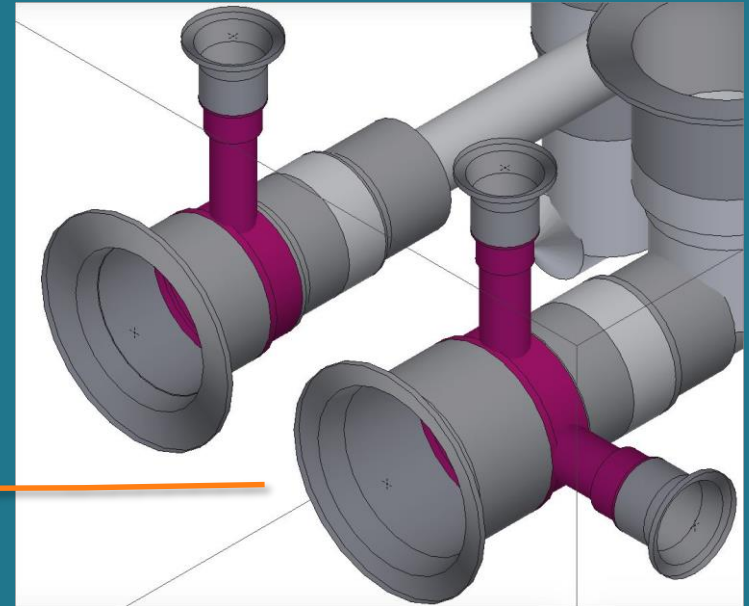
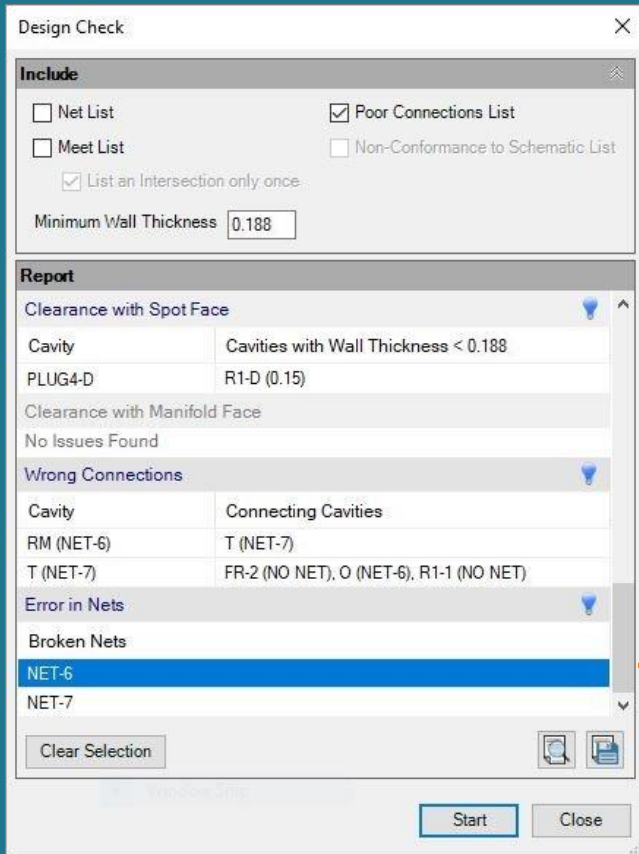
* Default Design Error option is 'Highlight Selected Cavities'
WARNING: Option shown here can be time consuming to process for large manifolds.



Locate Broken Nets

Option selected*

- Indicate Design Errors
- Highlight Selected Cavities
- Remove Color from Unselected Cavities



On a single click,
MDTools colors the
selected issue

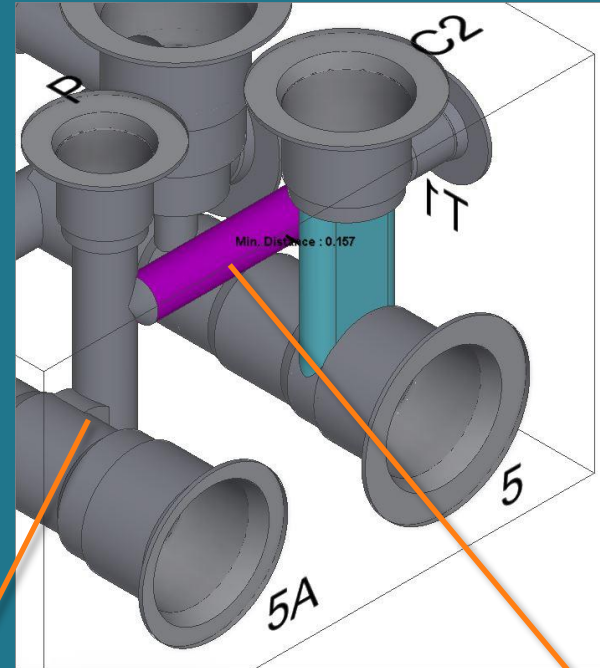
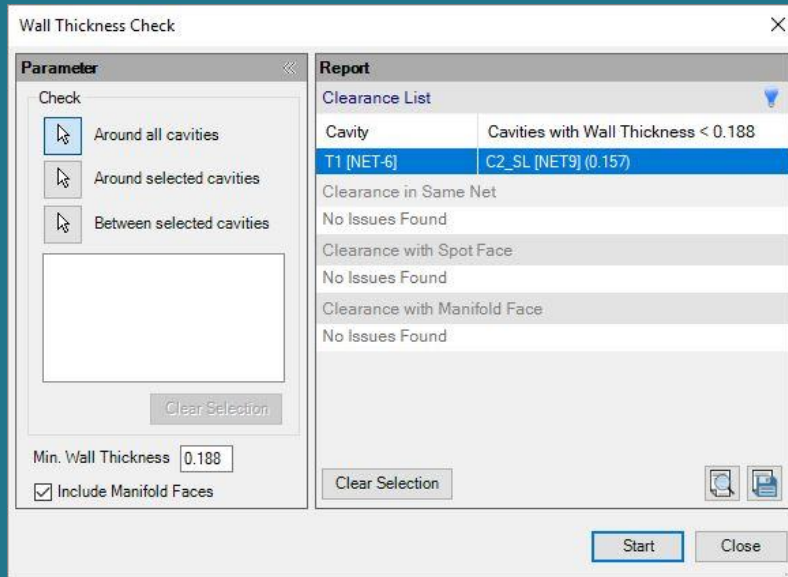
On double click,
MDTools zooms into
selected issue

* Default Design Error option is 'Highlight Selected Cavities'
WARNING: Option shown here can be time consuming to process for large manifolds.





Check Wall Thickness around Undercuts and Slots

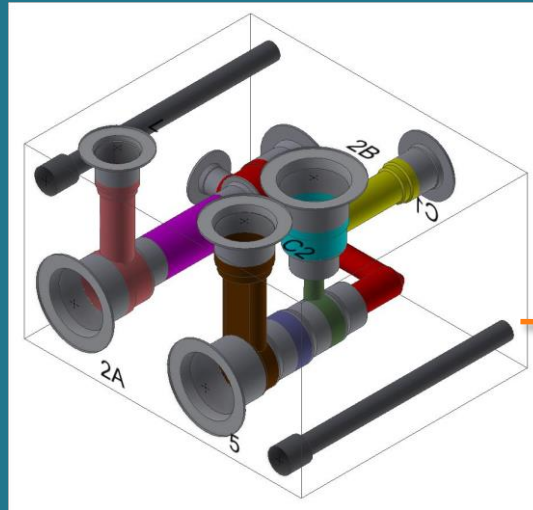
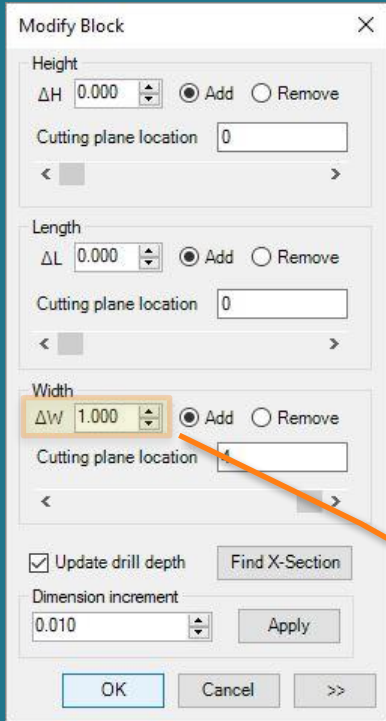


No issues found for
Undercut

Not enough clearance found
between a slot and another cavity



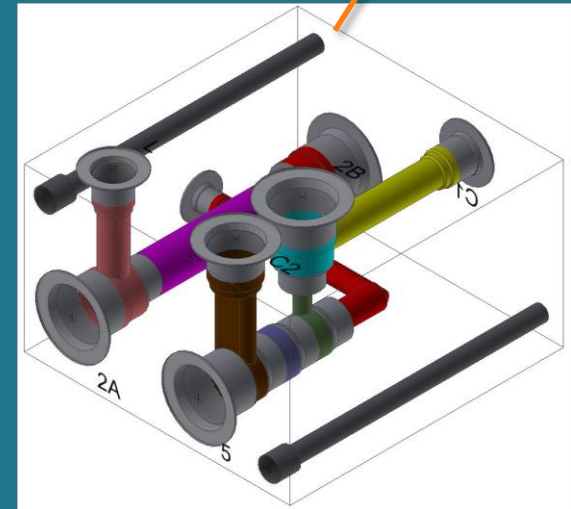
Through Bolt Holes depth updates automatically



Before Resizing

After Resizing

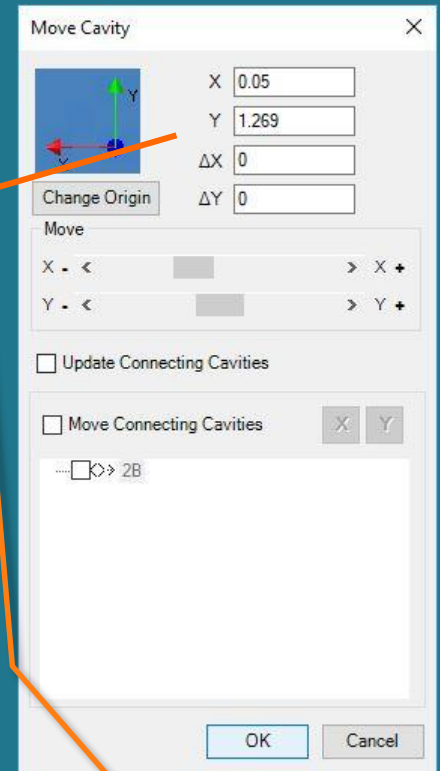
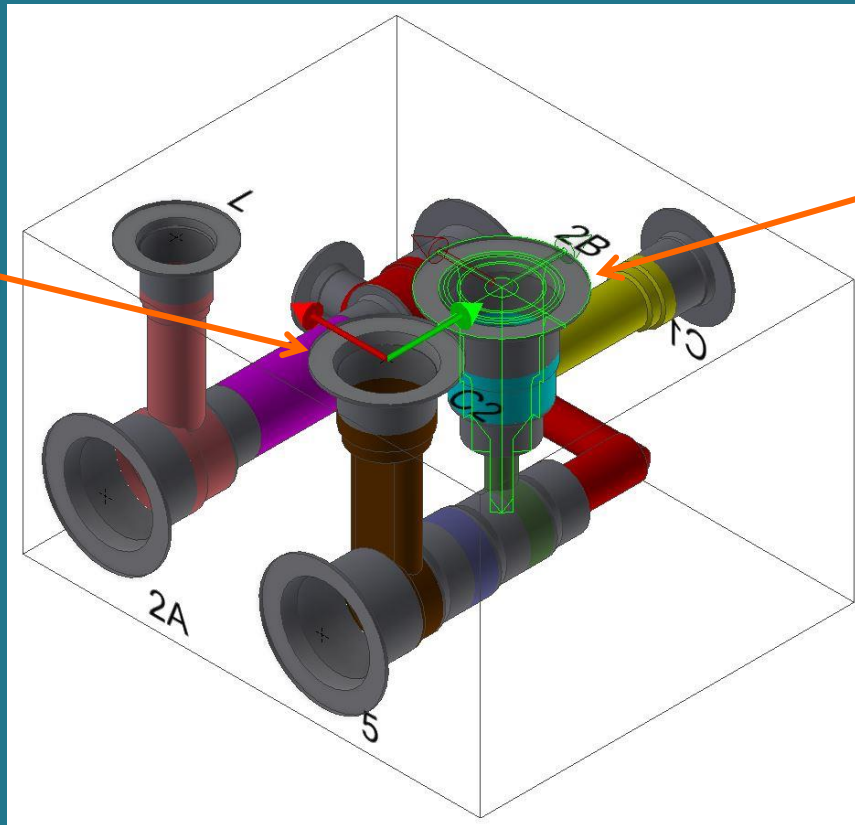
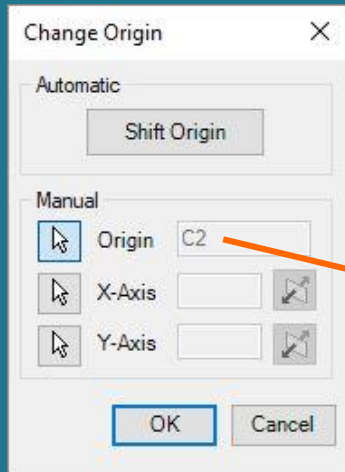
Resize Manifold Width



Note: Through Cavities depth also updates automatically after resizing the manifold.



Move Cavity with reference to another Cavity



Change Origin by
Selecting a Cavity

Move Cavity with reference
to Selected Cavity



O-ring Groove ID independent of the Parent

Edit O-ring Groove

Component ID: 2B O-ring
Machining ID: 2C

Groove Counter Bore

Dash #	ID	OD	Width
-028	1-3/8	1-1/2	1/16
-029	1-1/2	1-5/8	1/16
-030	1-5/8	1-3/4	1/16

Show All

Operation	Diameter	Depth	Remarks
O-RING GROOVE	\$STEP	\$STEP	REFER DET

OK Cancel

Edit O-ring Groove ID

Option selected*

O-ring Groove ID

Independent of Parent ID

Name	Operation	Diameter	Depth
2B	DRILL	0.250	2.000
	C10-2	1.344	0.031
	O-RING GROOVE	1.625	0.050

Name	Operation	Diameter	Depth
2B	DRILL	0.250	2.000
	C10-2	1.344	0.031
2C	O-RING GROOVE	1.625	0.050

If option is **unselected**:
O-ring Groove machining sequence merges with the parent cavity

If option is **selected**:
MDTools lists O-ring Groove as a separate item in machining chart

* You can select O-ring Groove ID option from MDTools Settings





New Machining ID Format i.e. A1, A2, B1, B2, B3...

New Machining ID Format

Group Cavities option added
for all naming schemes

Generate Machining ID

Naming Scheme

- 1, 2A, 2B, 3, 4...
- 1A, 1B, 2A1, 2A2, 2B...
- AA, AB1, AB2, BA, BB...
- 101, 102, 201, 202, 203...
- A1, A2, B1, B2, B3...

Change Face Name

Identical Cavities

- Group Cavities

Sort by

- Diameter
- Distance

Text

- Upper Case
- Lower Case

Keep Existing Machining ID

Cavity Machining ID

A 1

Index - Numeric

Face Name - Alphabetic

A

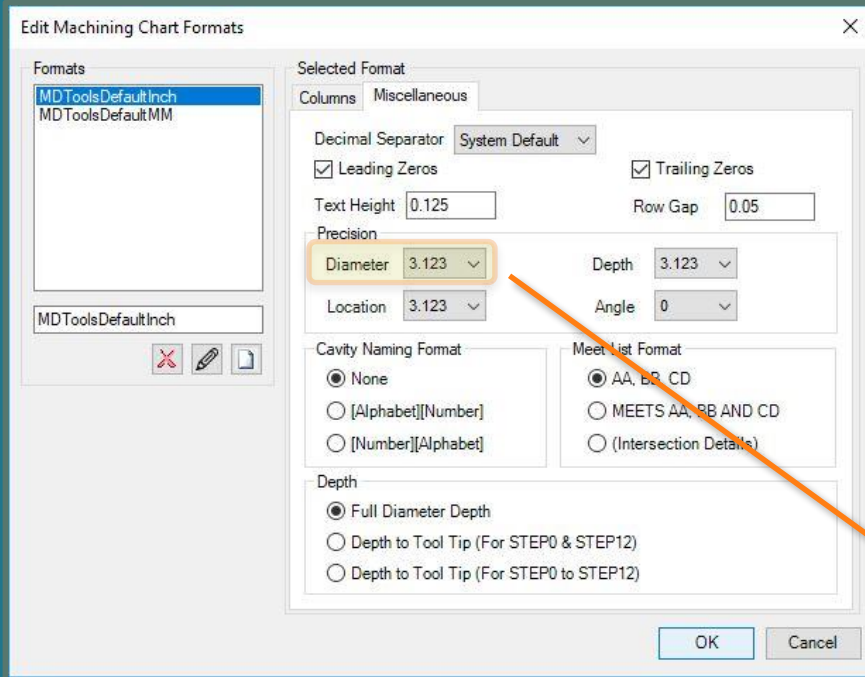
A1 A2

A3 A5 A4

OK Cancel



Set Precision for Diameter

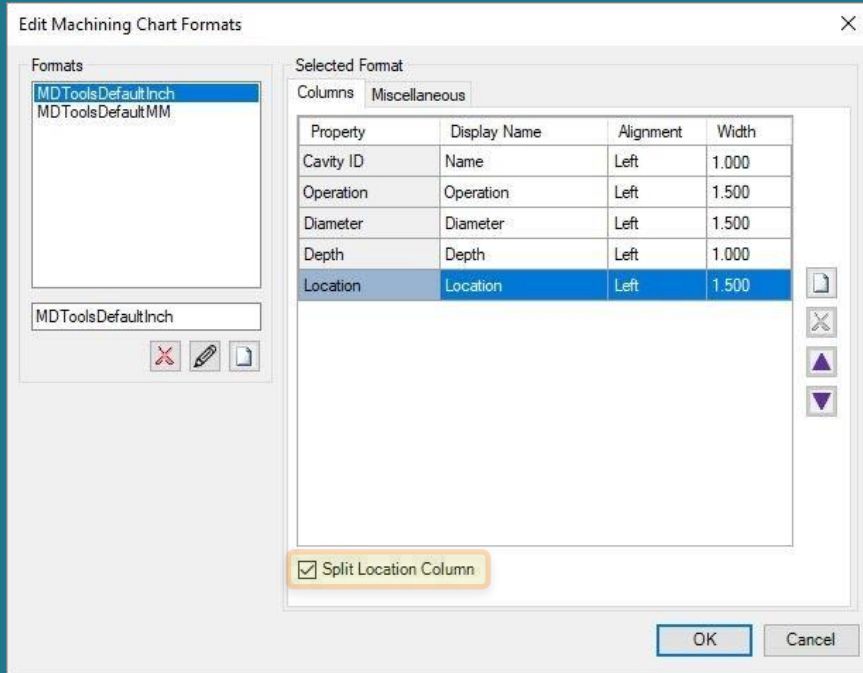


Machining Chart				
Name	Operation	Diameter	Depth	Location
2A	DRILL	0.630	2.667	(5.125/ 2.000)
	C10-2	1.344	0.031	
2B	DRILL	0.250	2.000	(1.750/ 1.971)
	C10-2	1.344	0.031	
3-A	DRILL	0.300	1.000	(3.600/ 1.870)
3-B	DRILL	0.300	1.000	(3.600/ 2.550)
3-P	DRILL	0.250	2.000	(4.000/ 2.220)
4	DRILL	0.625	2.667	(5.125/ 0.970)
	C10-2	1.344	0.031	
C1	DRILL	0.438	1.971	(1.750/ 2.214)
	FORM PORT	#6 SAE	0.031	
	TAP	9/16-18	0.531	

Decimal Precision for Diameter set to three decimal places



Display Cavities Location coordinates (X and Y) in separate columns



Name	Operation	Diameter	Depth	Location
2A	DRILL	5/8	2.667	(5.125/ 2.000)
	C10-2	1.344	0.031	
2B	DRILL	0.250	2.000	(1.750/ 1.971)
	C10-2	1.344	0.031	
4	DRILL	0.625	2.667	(5.125/ 0.970)
	C10-2	1.344	0.031	
5	DRILL	0.625	3.214	(1.750/ 2.000)
	C10-4	1.344	0.031	

Split Location Column is Unselected

Split Location Column is Selected

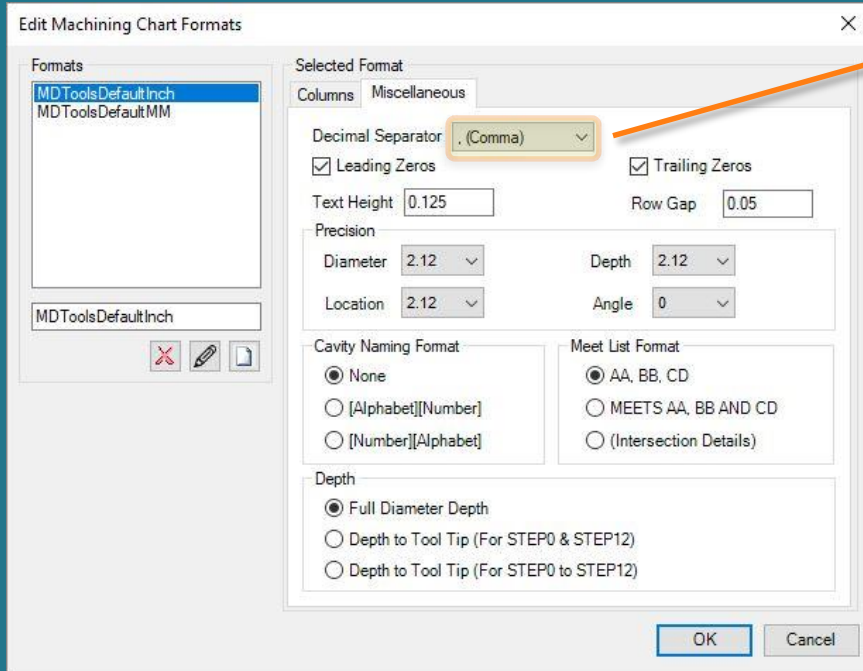
Name	Operation	Diameter	Depth	Location X	Location Y
2A	DRILL	5/8	2.667	5.125	2.000
	C10-2	1.344	0.031		
2B	DRILL	0.250	2.000	1.750	1.971
	C10-2	1.344	0.031		
4	DRILL	0.625	2.667	5.125	0.970
	C10-2	1.344	0.031		
5	DRILL	0.625	3.214	1.750	2.000
	C10-4	1.344	0.031		

Note: Split Location Column option appears only when Location column is selected in the Machining chart format.



Specify Decimal Separator for Machining Chart

Decimal Separator



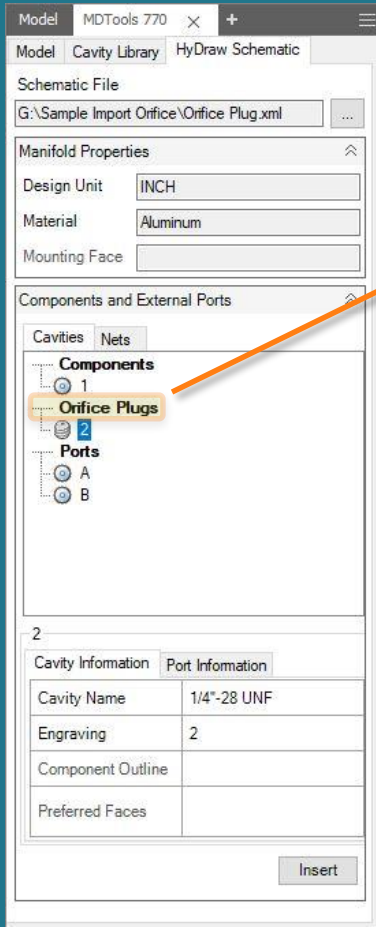
Name	Operation	Diameter	Depth	Location
2A	DRILL	5/8	2,667	(5,125/ 2,000)
	C10-2	1,344	0,031	
2B	DRILL	0,250	2,000	(1,750/ 1,971)
	C10-2	1,344	0,031	
4	DRILL	0,625	2,667	(5,125/ 0,970)
	C10-2	1,344	0,031	
5	DRILL	0,625	3,214	(1,750/ 2,000)
	C10-4	1,344	0,031	

Note: Three options available in the **Decimal Separator** dropdown:
 System Default
 ,(Comma)
 .(Period)

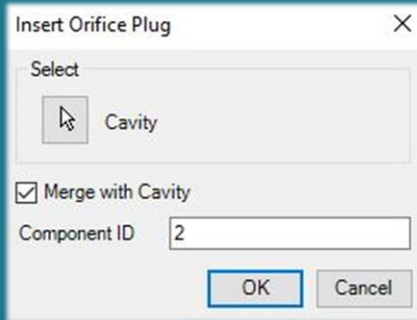




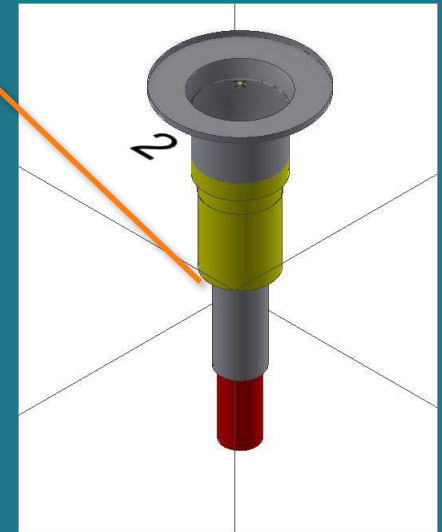
Import Orifice Plugs from HyDraw



MDTools lists Orifice Plugs separately

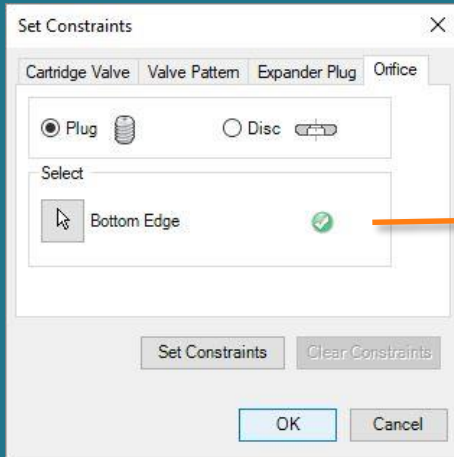


Orifice Plug inserted into selected cavity

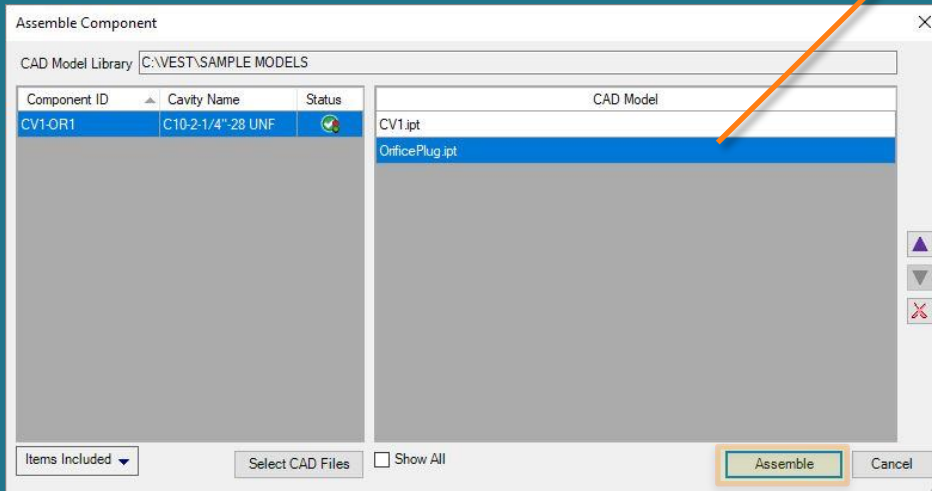




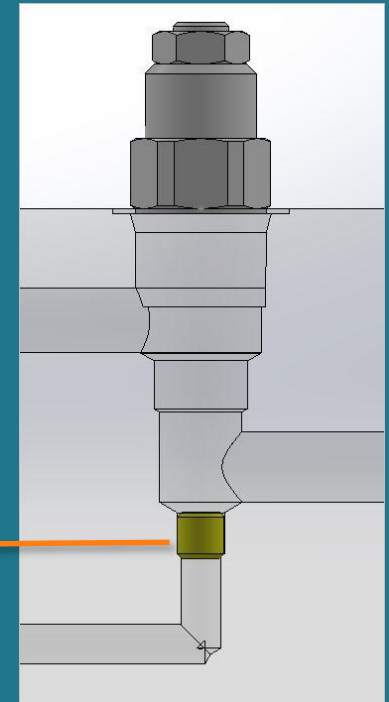
Assemble Orifice Plugs



Set constraints for Orifice plug CAD model



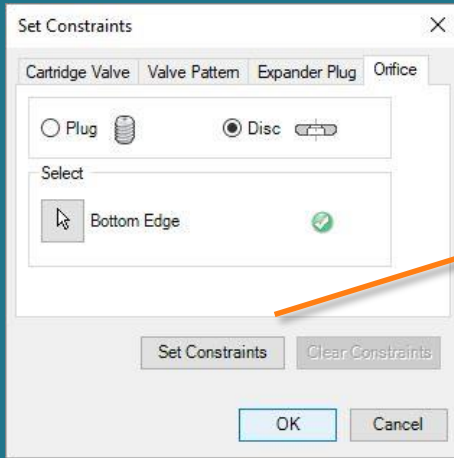
Select and Assemble Orifice plug CAD Model in Assembly Interface



MDTools automatically assembles orifice plug CAD model

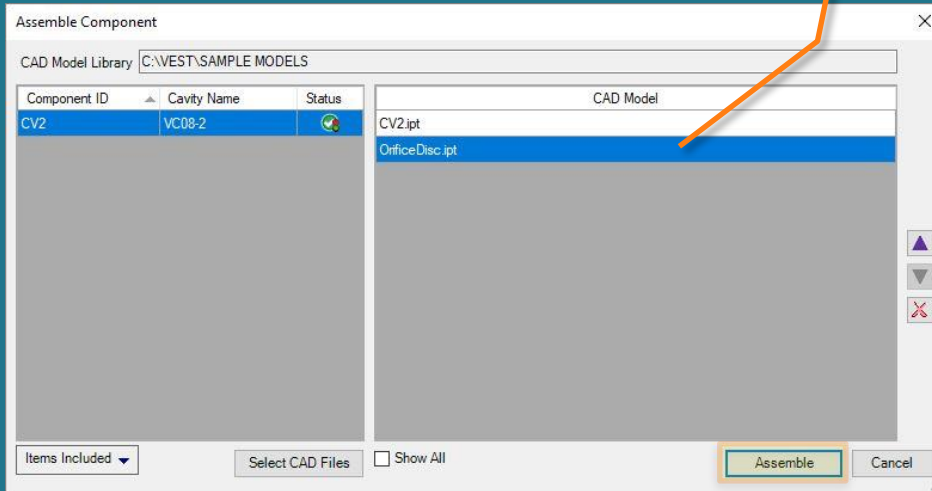


Assemble Orifice Discs

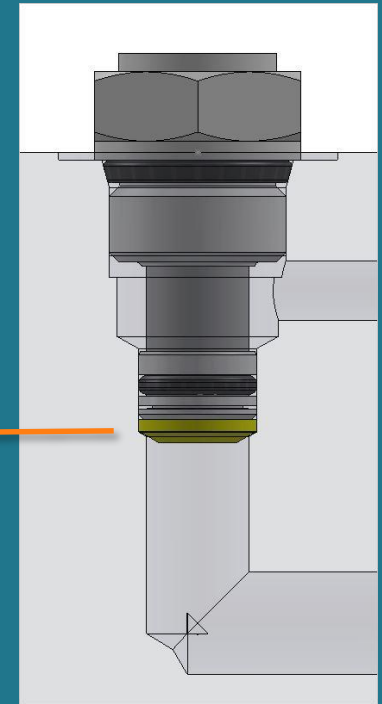


Set constraints for orifice disc CAD model

Select and Assemble orifice disc CAD model in Assembly Interface



MDTools automatically assembles orifice disc CAD model





Autodesk Vault 2018 Compatible

MDTools Assembly Settings

CAD Model Library

Location

Local File System

Vault Server

Log In Details

Vault Server Version : Vault 2017 and Lower

Authentication : Vault Account

User Name : User Name

Password : *****

Server : Vault Server

Vault : Vault2016

Path

\$\MDTools\CAD Models

Apply Cancel

Select Vault 2018 and Higher option for Autodesk Vault

MDTools Assembly Settings

CAD Model Library

Location

Local File System

Vault Server

Log In Details

Vault Server Version : Vault 2018 and Higher

Authentication : Vault Account

User Name : User Name

Password : *****

Server : Vault Server

Vault : Vault2018

Path

\$\MDTools\CAD Models

Apply Cancel

Select Vault 2017 and Lower option for Autodesk Vault

Note: For Autodesk Vault 2018 and Higher, use MDTools Library Manager 2018 to assign CAD models for construction ports.



Drill Preview while Adding Drill to a Cavity

Add Drill [X]

Drill Size
Current Drill Diameter = 0.438

Drill Diameter: < 0.438

Drill Depth: > 1.356
 Depth to Tip

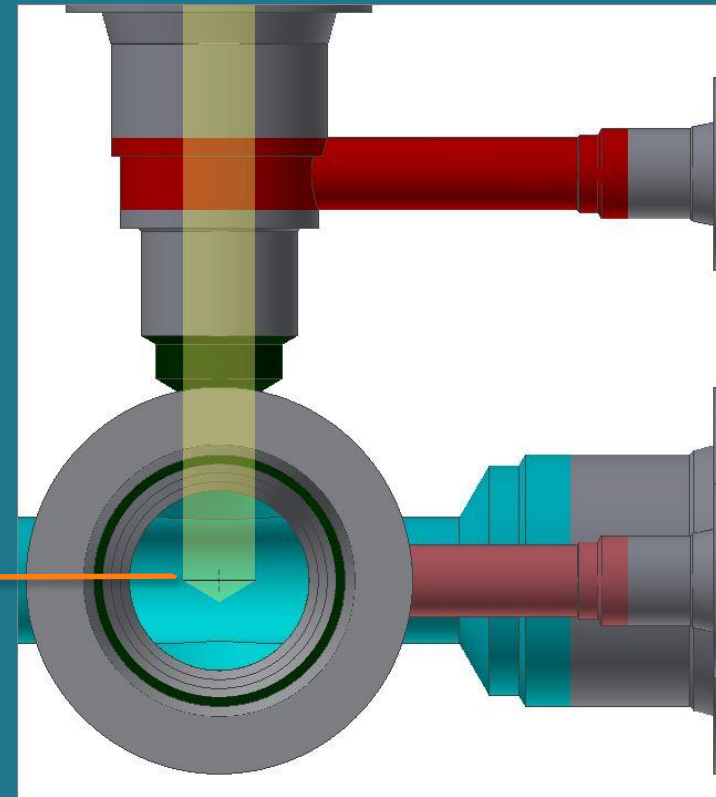
Angle: Degrees Flat Bottom Drill

Operation	Diameter	Depth	Remarks
DRILL	\$STEP12	\$STEP12	

Machining Sequence

Index	Operation	Diameter	Depth	Remarks
<input checked="" type="radio"/> 0	DRILL	\$STEP12	\$STEP12	
<input type="radio"/> 1	DRILL	\$STEP7	\$STEP7	
<input type="radio"/> 2	080-2	\$STEP0	\$STEP0	
<input type="radio"/> 3				
<input type="radio"/> 4				
<input type="radio"/> 5				
<input type="radio"/> 6				

OK Cancel

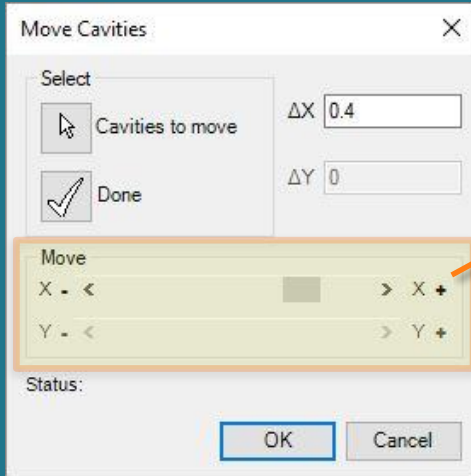


Preview of
new drill

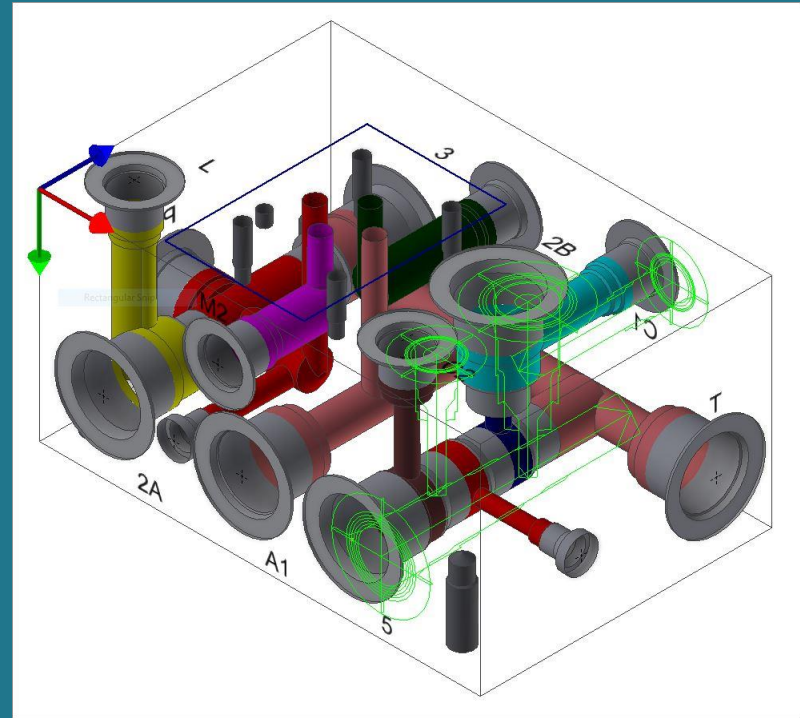
Note: Changing dimensions automatically updates the drill preview.



Move Multiple Cavities using Scroll Bars



Use Scroll Bars
to move selected cavities



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