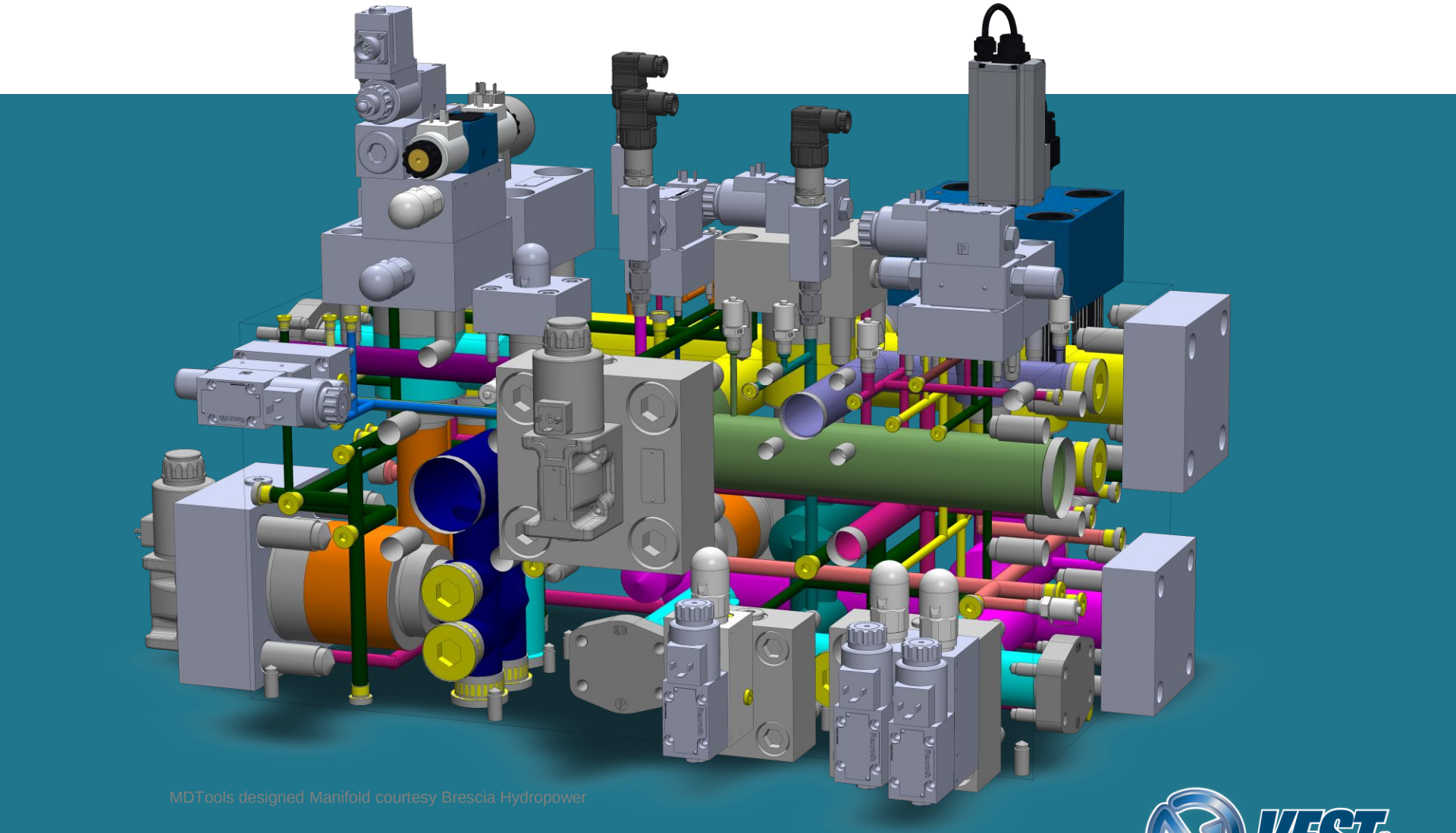
MDTools® 960 What's New



MDTools designed Manifold courtesy Brescia Hydropower

MDTools® 960 What's New?

Design Checks

- Locate Connection Problems
- Locate Wall Thickness Errors
- Locate Broken Nets
- Check Wall Thickness around Undercuts and Slots
- Undercuts and Slots included during Design checks
- Clearance issues in same Net listed

Slot

- Preview while Inserting and Editing a Slot
- Make Connections using Slot
- Add Slot to Inclined Cavities
- Manage Slot Machining sequence

Undercut

- Preview while Inserting and Editing an Undercut
- Preview Mandatory Undercuts
- Create optional Concentric Undercuts
- Undercut's Net info auto assigned
- Manage Undercut Machining Sequence

Machining Callout

- Create Machining Callouts for Slots and Undercuts

Orifice Plugs

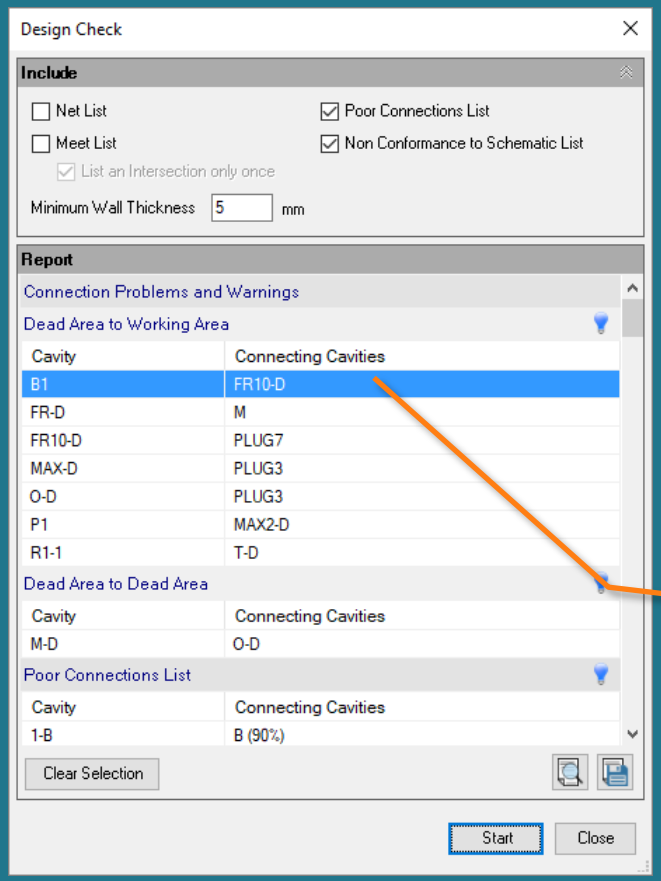
- Import Orifice Plugs from HyDraw
- Assemble Orifice Plugs
- Assemble Orifice Discs

Miscellaneous

- Rename a Net from MDTools browser
- Move Slot within parent Cavity
- Copy Slot with Cavity
- GUI made Compatible for Window's 125% scaling
- Set Precision for Diameter in Machining Chart
- Preview while Adding Drill to a Cavity

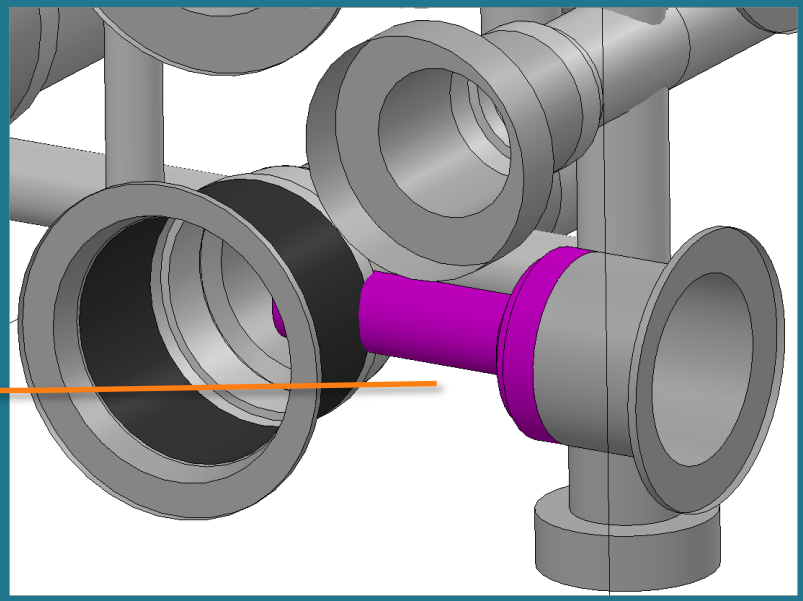
Locate Connection Problems

Option selected*



On a single click, MDTools colors the selected issue.

On double click, MDTools zooms into selected issue

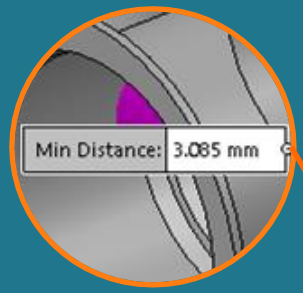


* Default Design Error option is 'Highlight Selected Cavities'
WARNING: Option shown here can be time consuming to process for large manifolds.

Locate Wall Thickness Errors

Option selected*

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



Design Check

Include

- Net List
- Meet List
- List an Intersection only once
- Poor Connections List
- Non Conformance to Schematic List

Minimum Wall Thickness 5 mm

Report

Wall Thickness

Clearance List

Cavity	Cavities with Wall Thickness < 5
1-A[NET-1]	PLUG1[NET-4] (4.6)
B1[NET-6]	MBolt4 (3.085)
FR-2[NoNet]	O[NET-6] (1.79)
M[NET-7]	EV-D (1.107)
M[NET-7]	PLUG3[NET-6] (2.653)
NG6-A[NET-8]	RM[NET-6] (3.6)
PLUG1-D	MBolt1 (1.7)

Clearance in Same Net

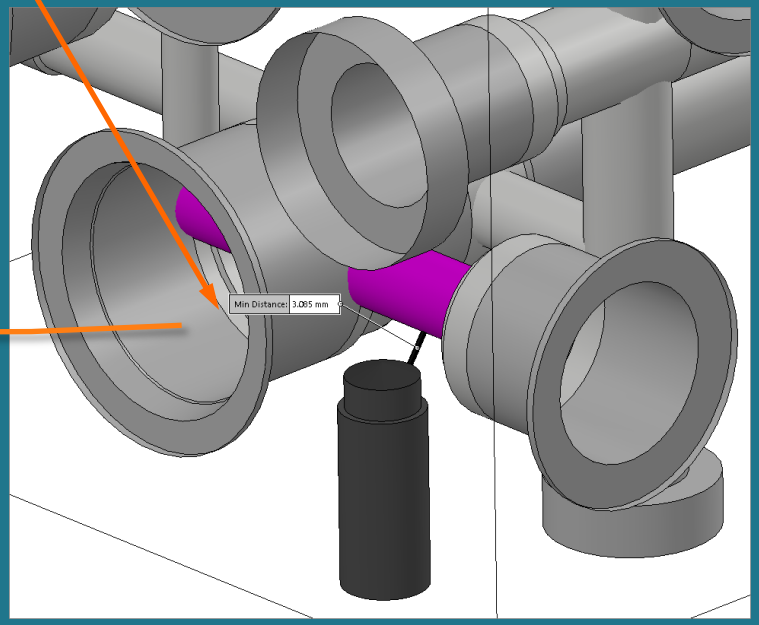
Cavity	Cavities with Wall Thickness < 5
EV-1[NET-6]	PLUG3[NET-6] (3.9)
FR10-3[NET-6]	PLUG4[NET-6] (1.562)
MAX2-2[NET-6]	CON[NET-6] (4.168)
MAX2-2[NET-6]	PLUG3[NET-6] (4.496)

Clear Selection

Start Close

On a single click, MDTools colors the selected issue

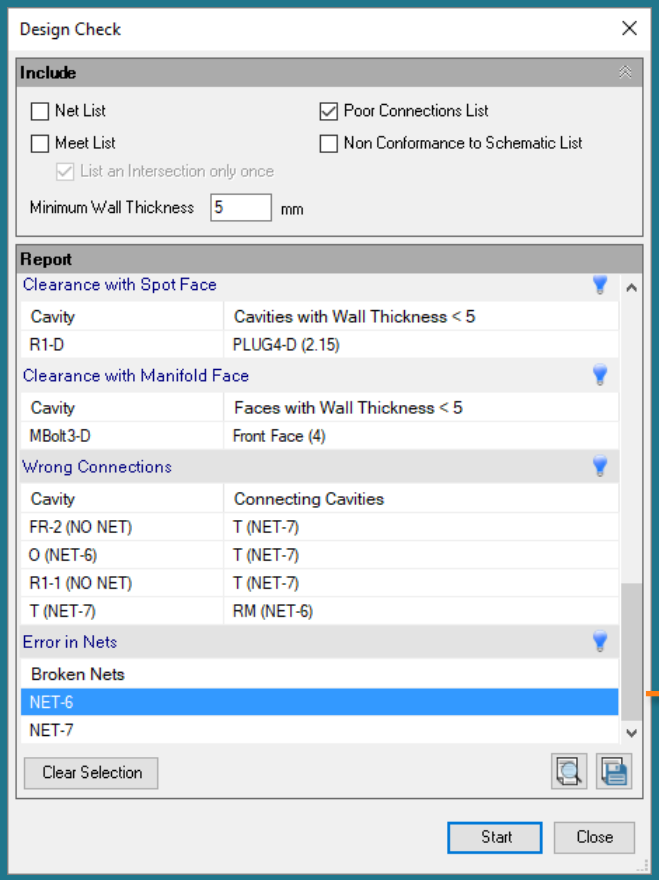
On double click, MDTools zooms into selected issue



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

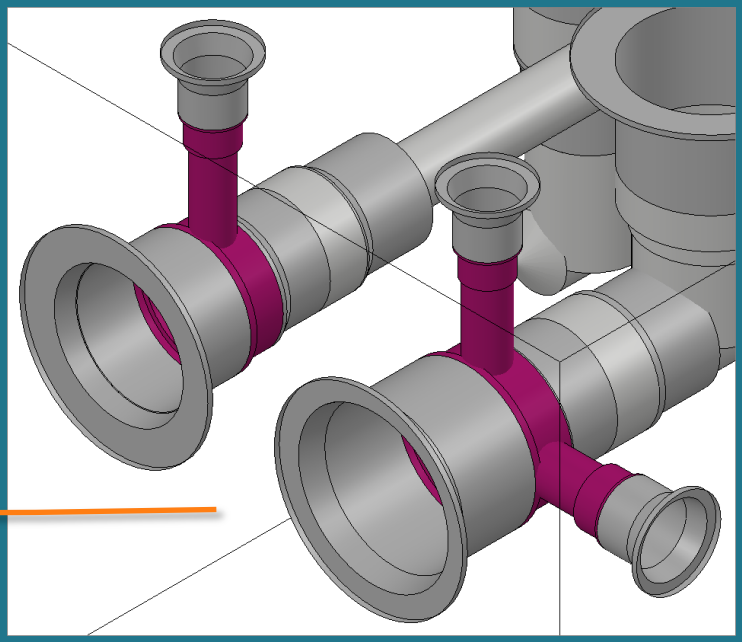
Locate Broken Nets

Option selected*



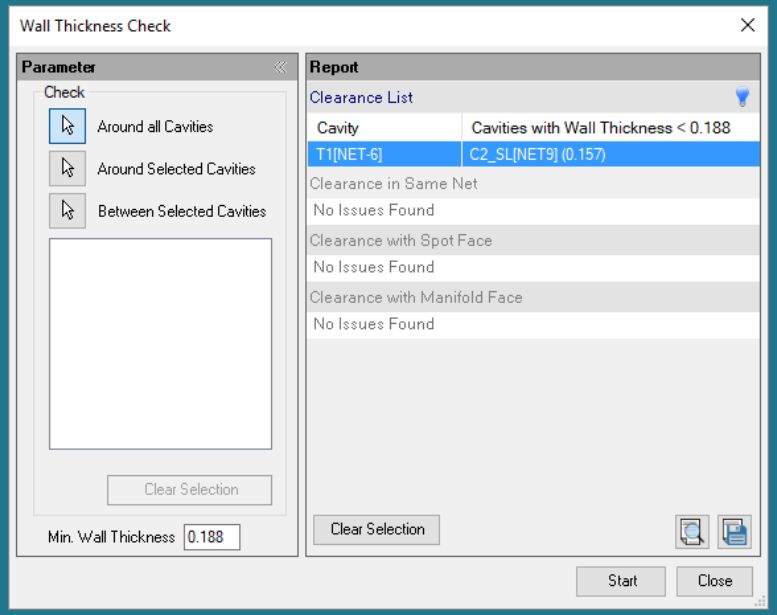
On a single click, MDTools colors the selected issue

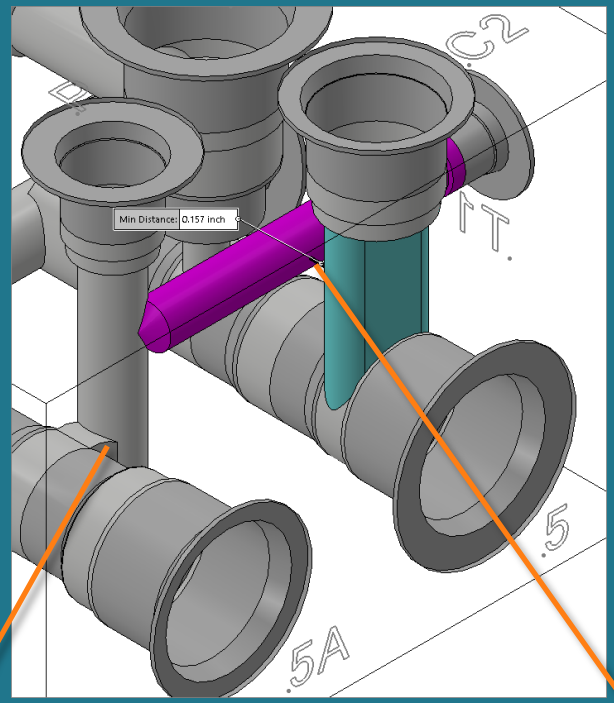
On double click, MDTools zooms into selected issue



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

NEW Check Wall Thickness around Undercuts and Slots

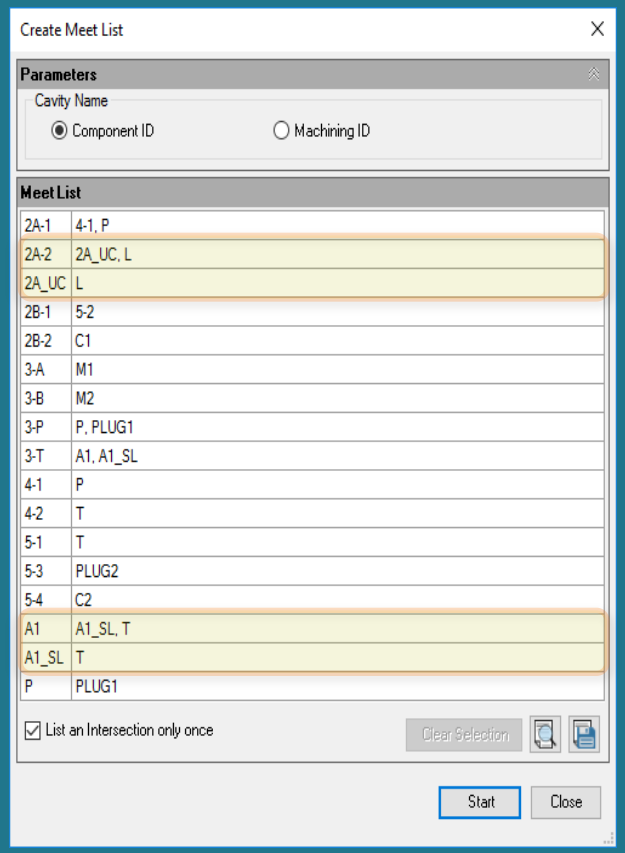


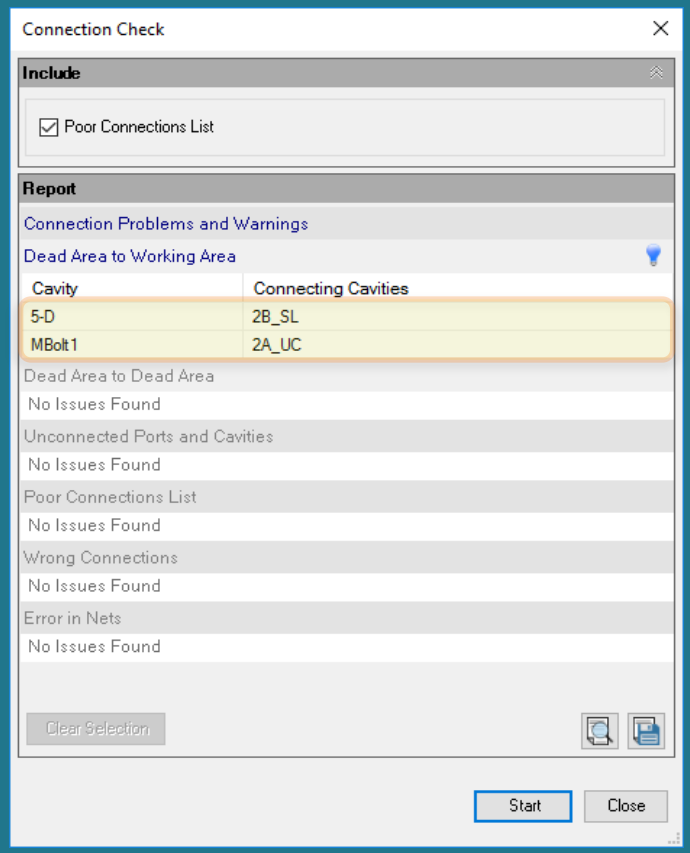


No issues found for Undercut

Not enough clearance found between a slot and another cavity

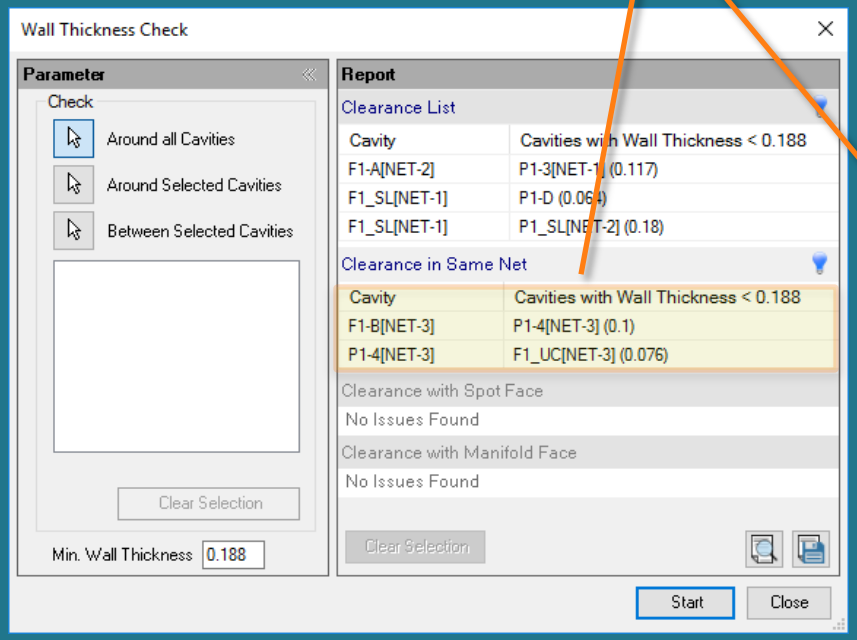
Undercuts and Slots included in design checks

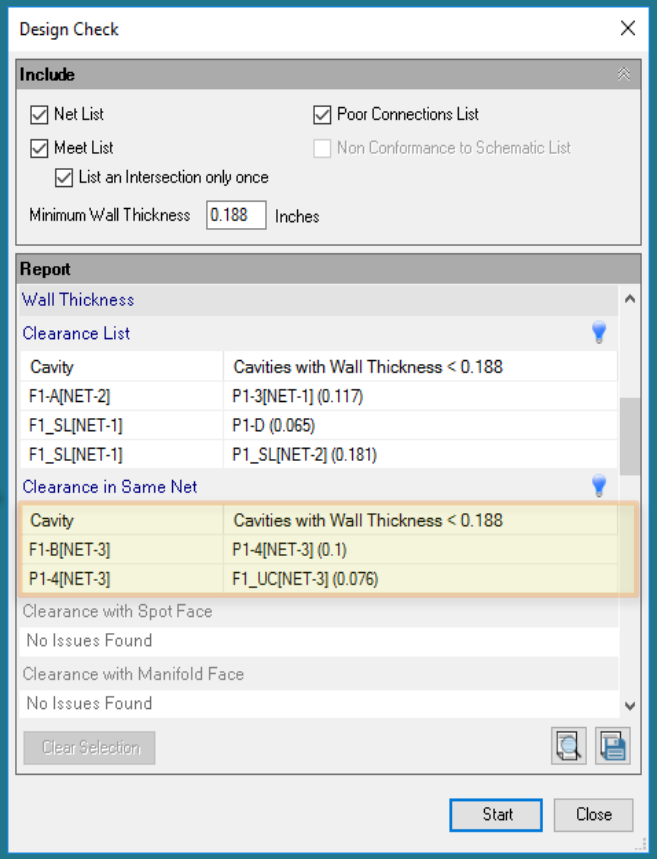




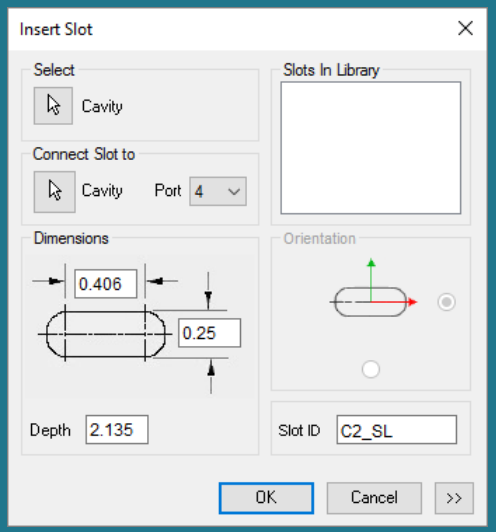
Clearance issues in same Net listed

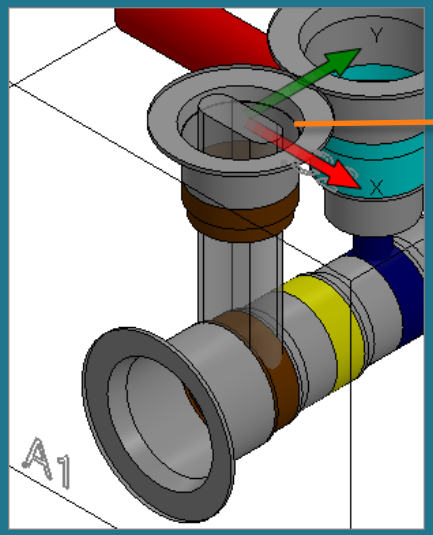
Clearance issues in same Net, listed separately





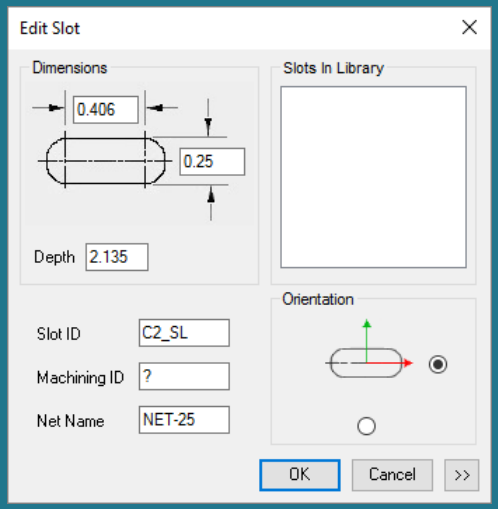
Preview while Inserting and Editing a Slot

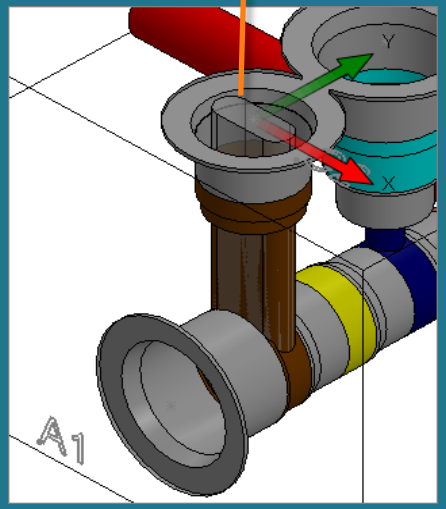




Preview before Insert

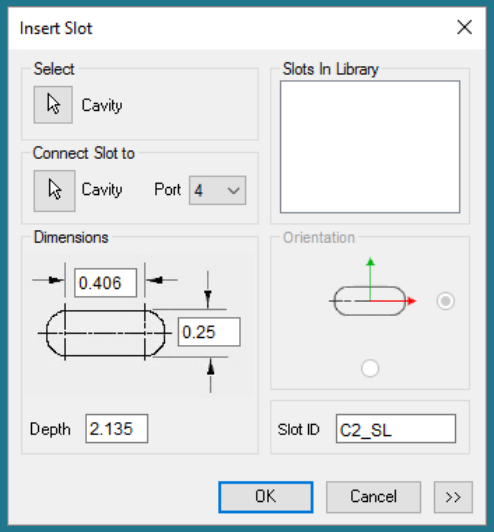
Preview while Edit

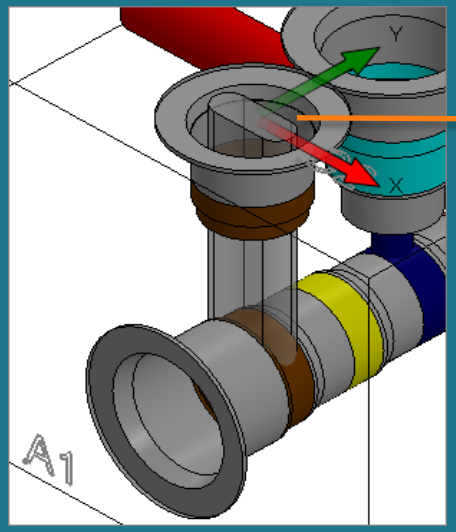




Note: Changing dimension and orientation automatically updates the Slot preview.

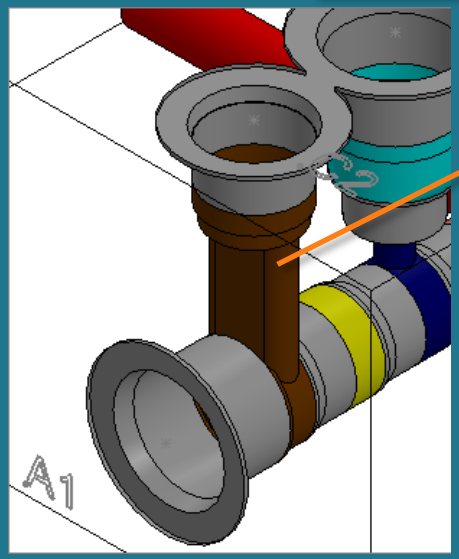
Make Connections using Slot





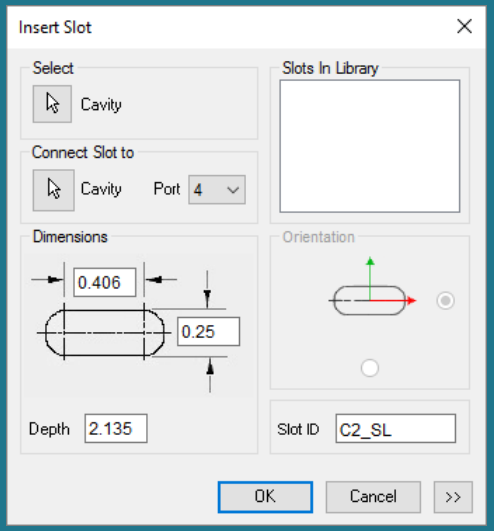
Preview of Slot

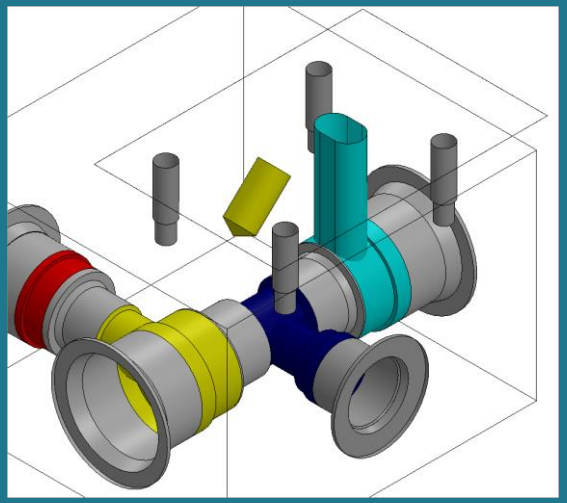
Connection created using Slot



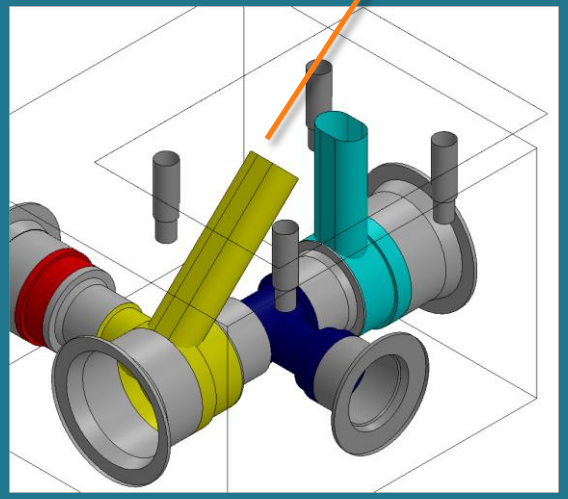
Note: Orientation automatically selected per connecting cavity.

Add Slot to Inclined Cavities



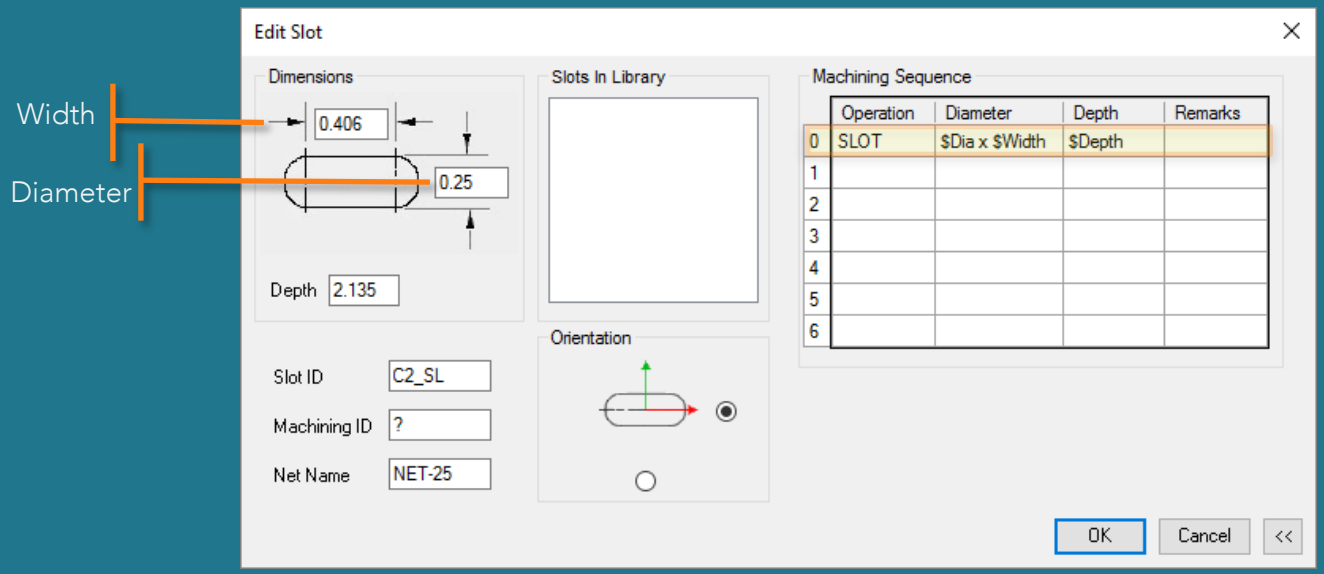


Inclined Slot added



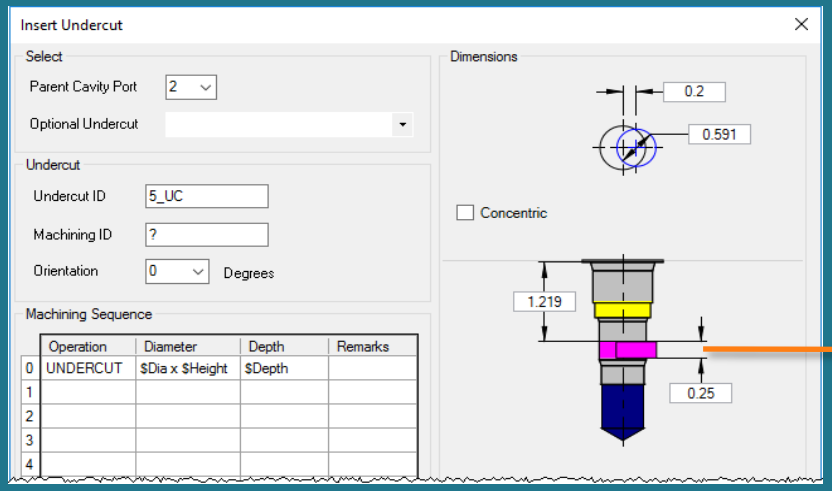
Note: For inclined cavity, **Connect Slot to** option is disabled.

Manage Slot Machining sequence



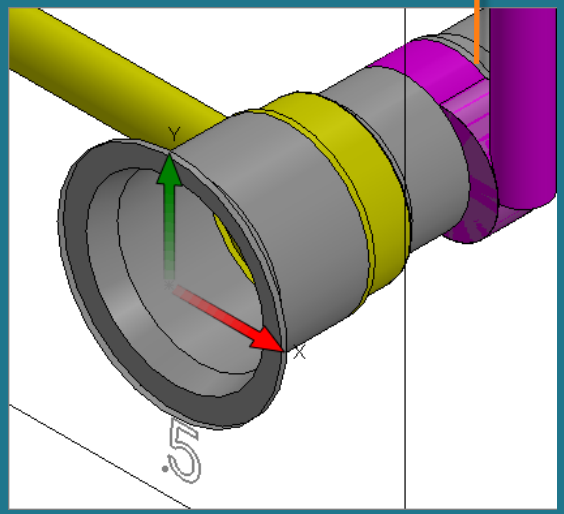
Machining Chart				
Name	Operation	Diameter	Depth	Remarks
C1	DRILL	0.438	1.971	
	FORM PORT	#6 SAE	0.031	
	TAP	9/16-18	0.531	UNF-2B
C2	DRILL	0.250	0.845	
	FORM PORT	#8 SAE	0.031	
	TAP	3/4-16	0.593	UNF-2B
C2_SL	SLOT	0.25 X 0.406	2.135	
L	DRILL	0.438	2.000	
	FORM PORT	#6 SAE	0.031	
	TAP	9/16-18	0.531	UNF-2B

Preview Undercuts

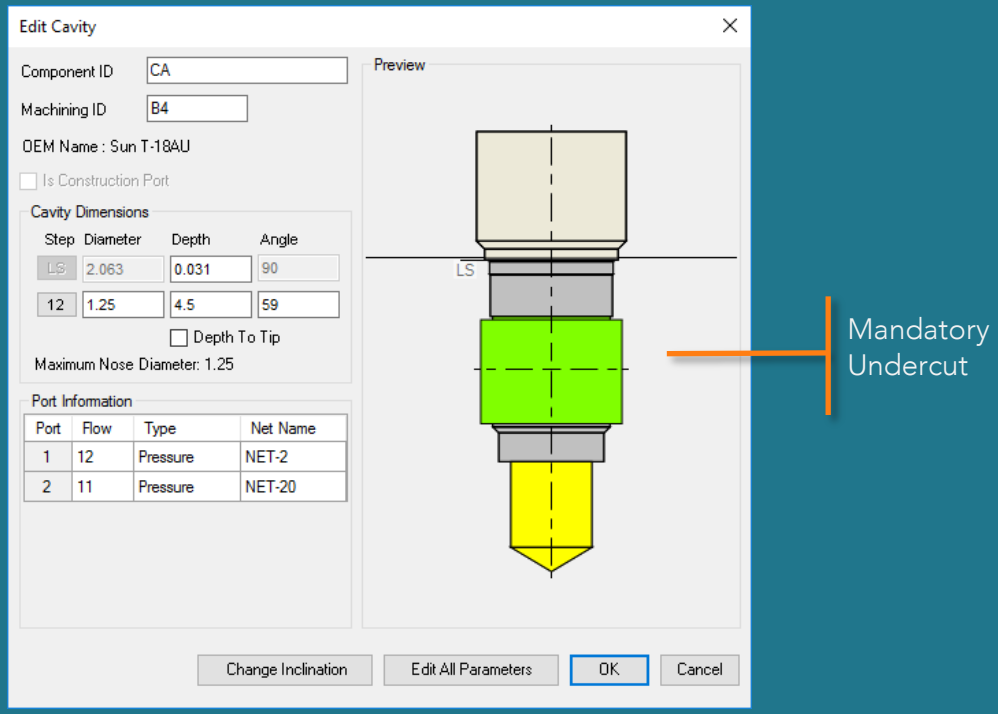


Preview of Undercut in dialog box

Preview of Undercut in model



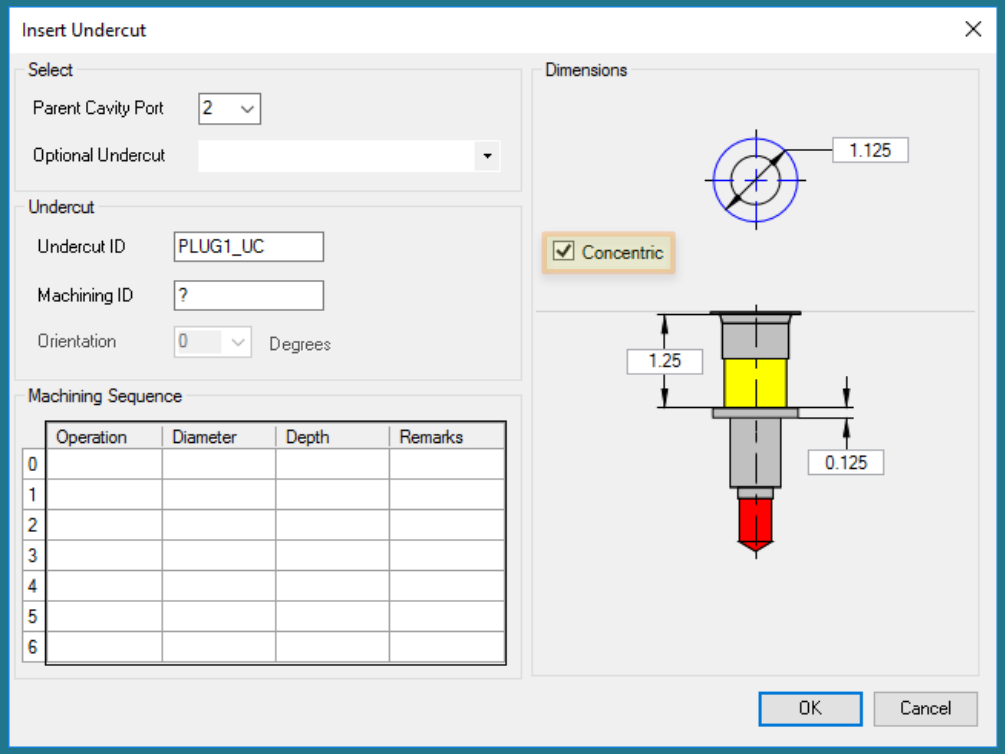
Preview Mandatory Undercuts

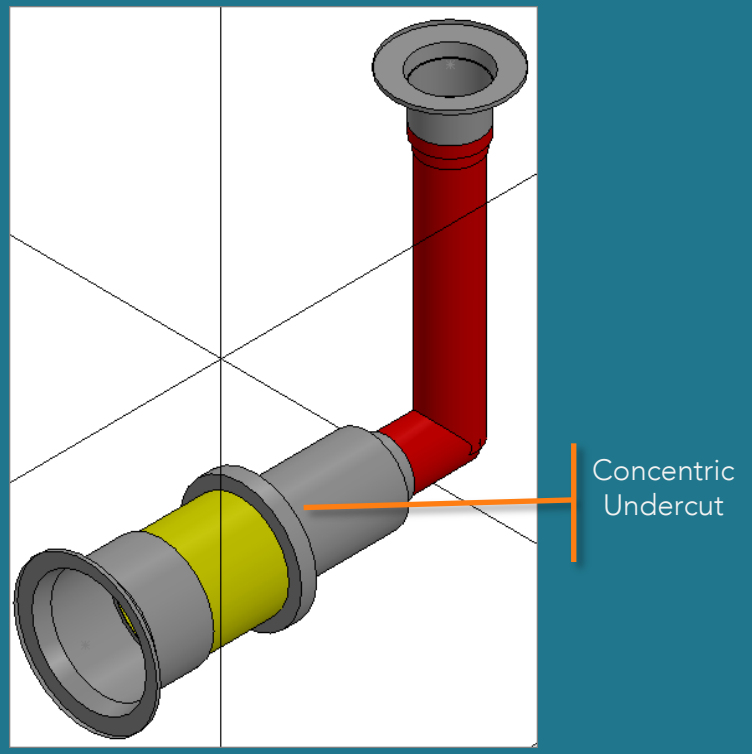


Mandatory Undercut preview in **Edit Cavity** dialog box.

Note: All Mandatory Undercuts displays in cavity cross-sectional preview.

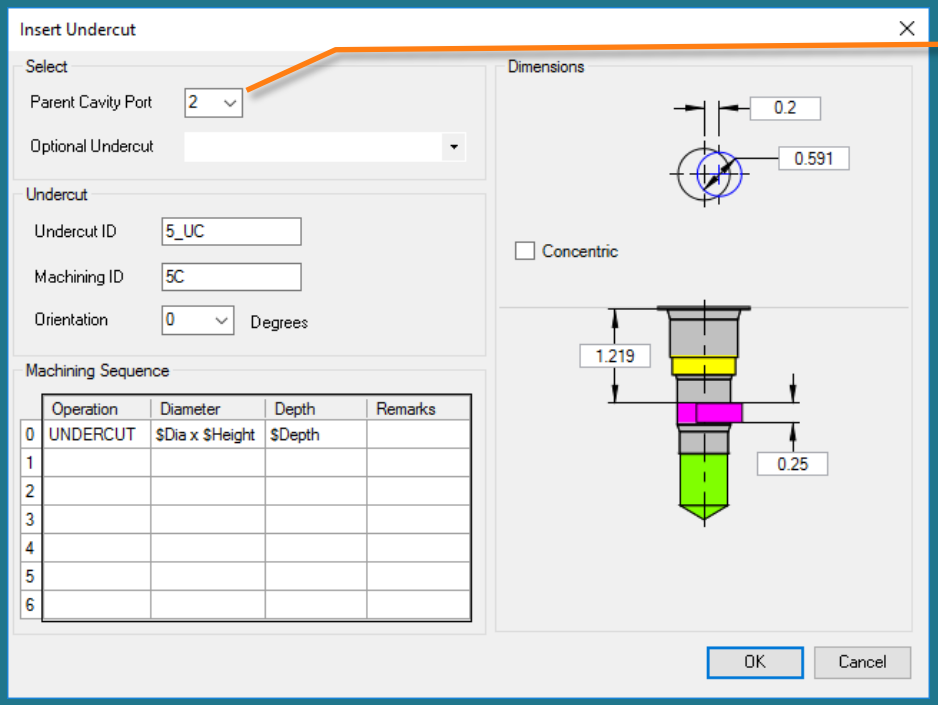
Create optional Concentric Undercuts



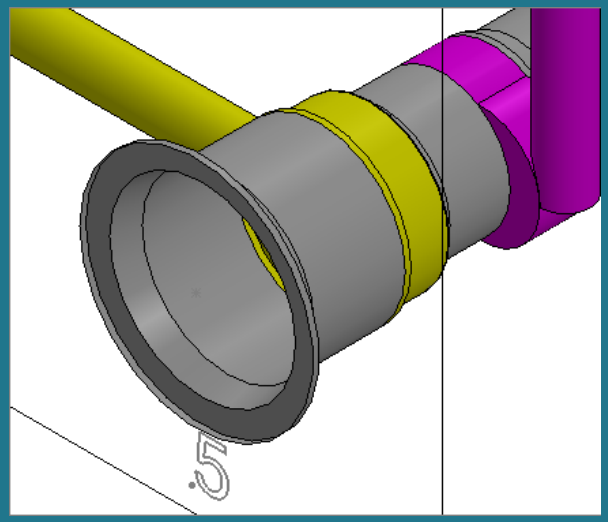


Note: Only Concentric Undercuts can be created in dead area of the parent cavity.

Undercut's Net info auto assigned



Undercut Net information updates automatically per parent cavity port

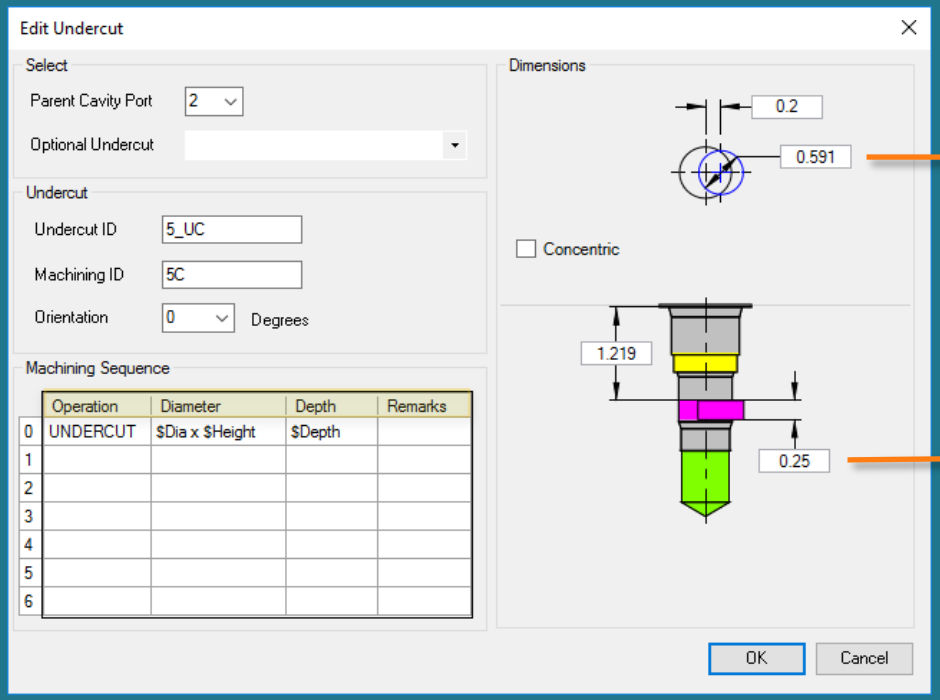


Note: 1. If an undercut lies fully or partially in a cavity port then MDTools assigns parent cavity port net for undercut.

2. If an undercut lies in dead area then MDTools assigns dead area color for undercut.

3. Assign Net command also considers undercuts while assigning nets per connectivity.

Manage Undercut Machining Sequence



Diameter

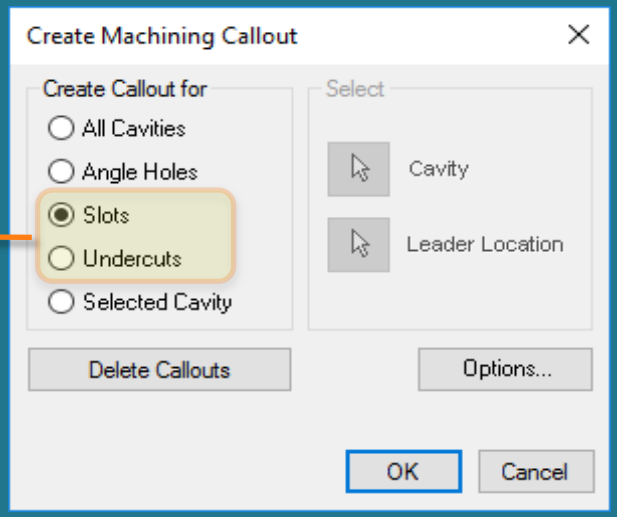
Height

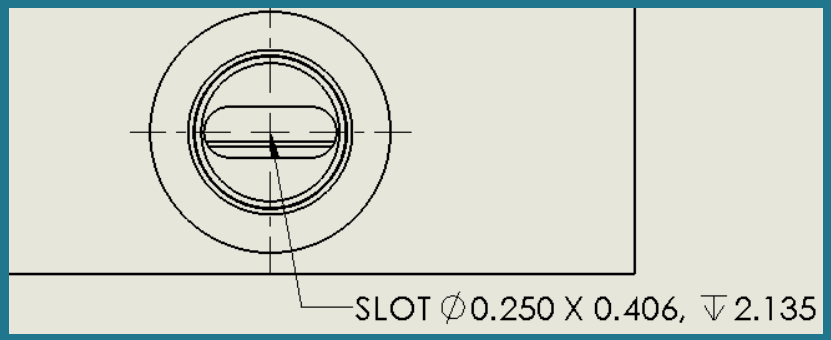
Machining Chart				
Name	Operation	Diameter	Depth	Remarks
2A	DRILL	5/8	2.667	
	C10-2	1.344	0.031	
5	DRILL	0.609	2.579	
	C10-3	1.187	0.031	
5_UC	UNDERCUT	0.591 X 0.25	1.500	

Note: $Depth (in Machining Chart) shows depth of undercut from manifold surface.

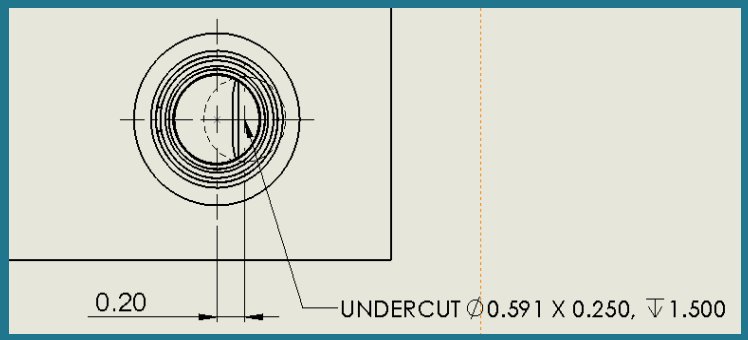
Create Machining Callouts for Slots/Undercuts

Create Machining callouts for slots or undercuts only



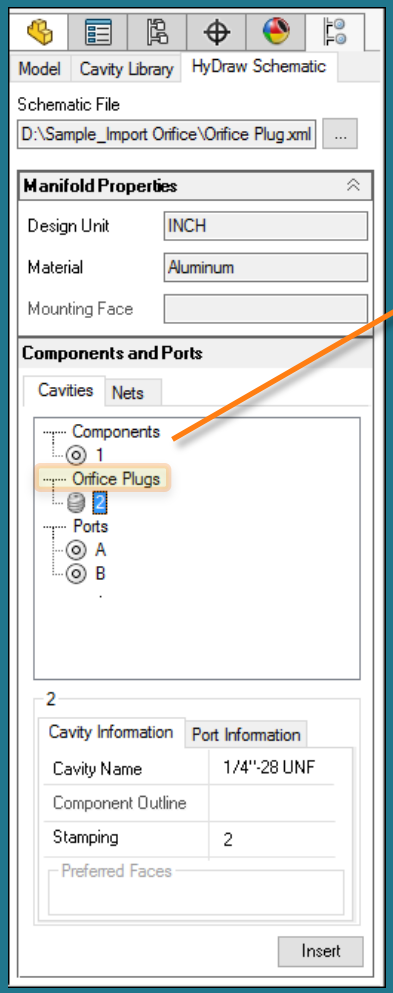


Machining callout created only for Slots

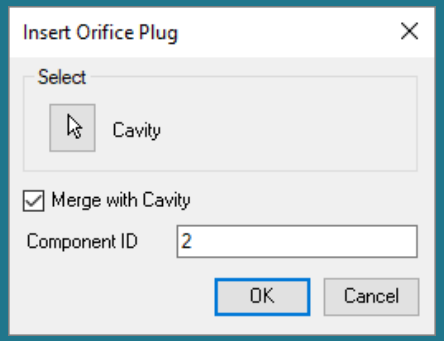


Machining callout created only for Undercuts

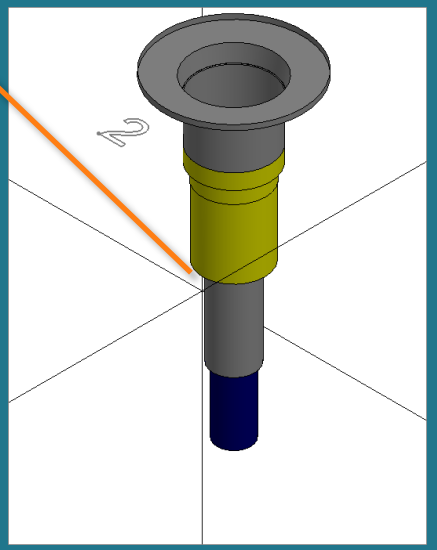
Import Orifice Plugs from HyDraw



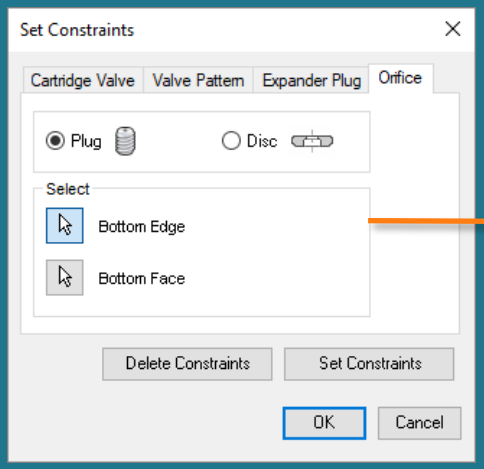
MDTools lists Orifice Plugs separately



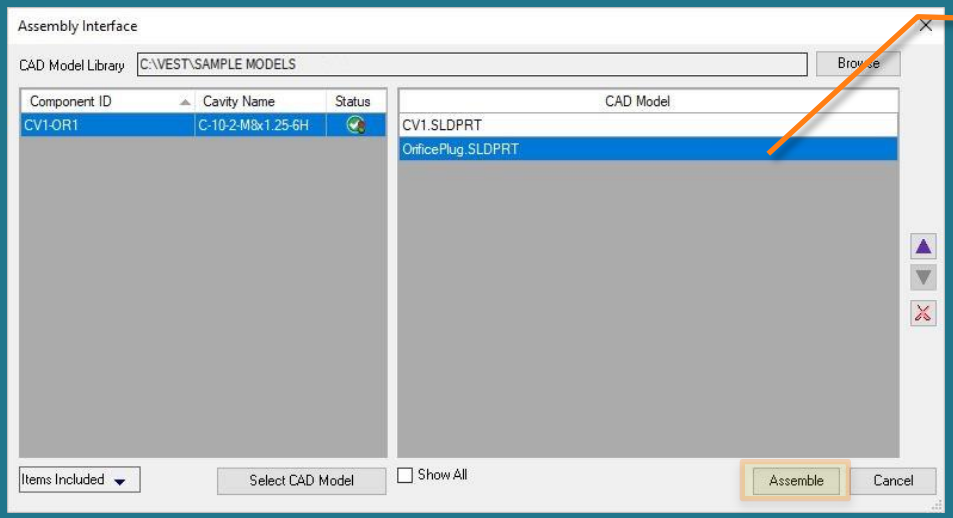
Orifice Plug get inserted to selected cavity



Assemble Orifice Plugs

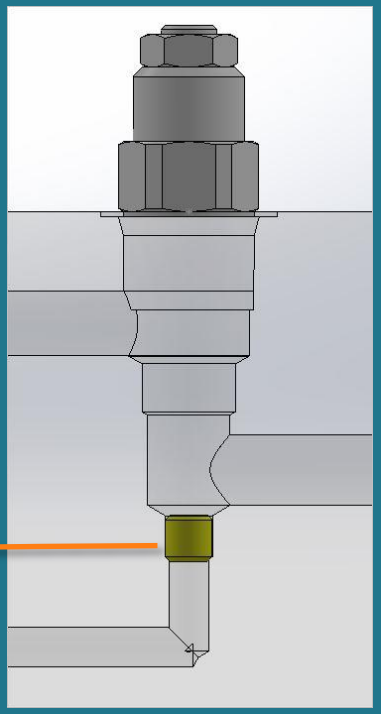


Set constraints for orifice plug CAD model

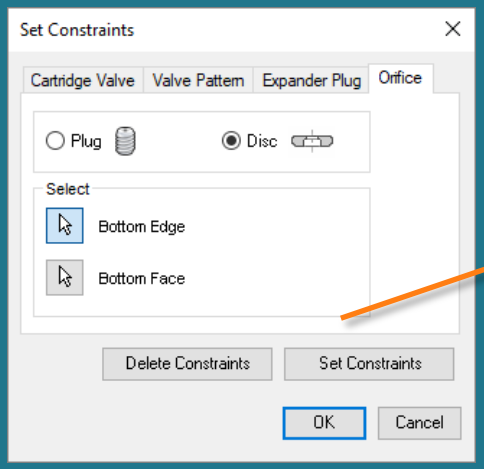


Select Orifice plug CAD model in Assembly Interface and click Assemble

MDTools automatically assembles orifice plug CAD model

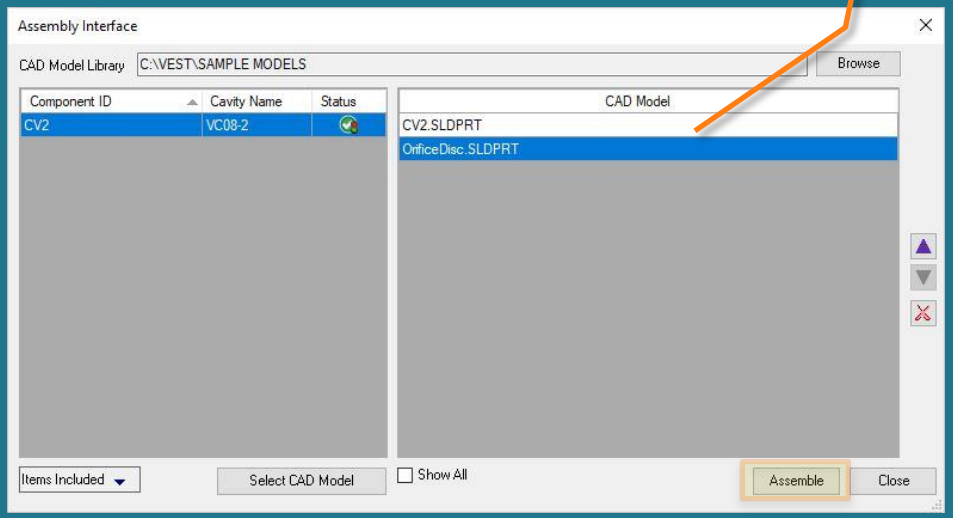


Assemble Orifice Discs

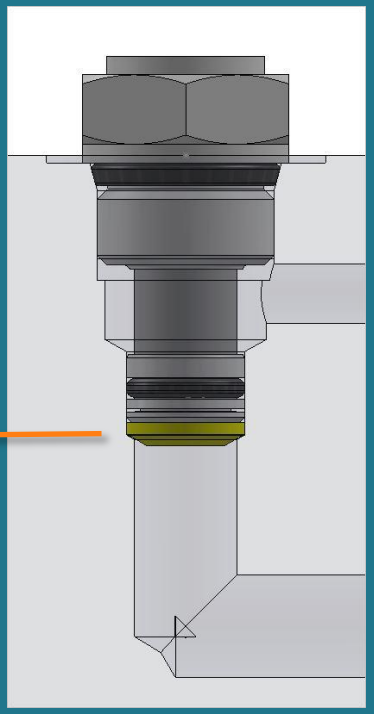


Set constraints for orifice disc CAD model

Select orifice disc CAD model in Assembly Interface and click 'Assemble'

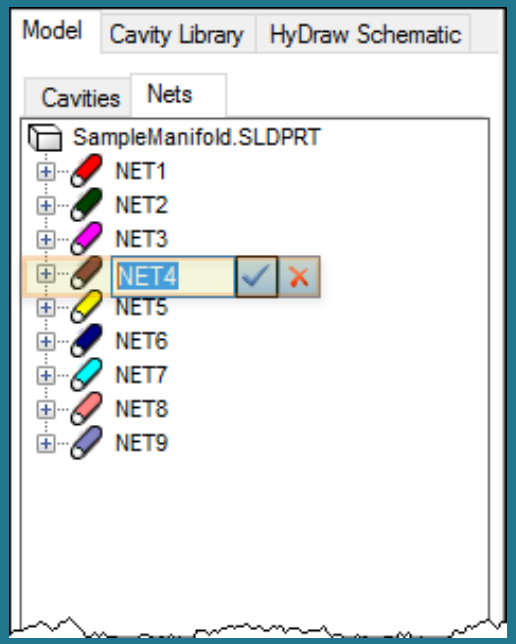


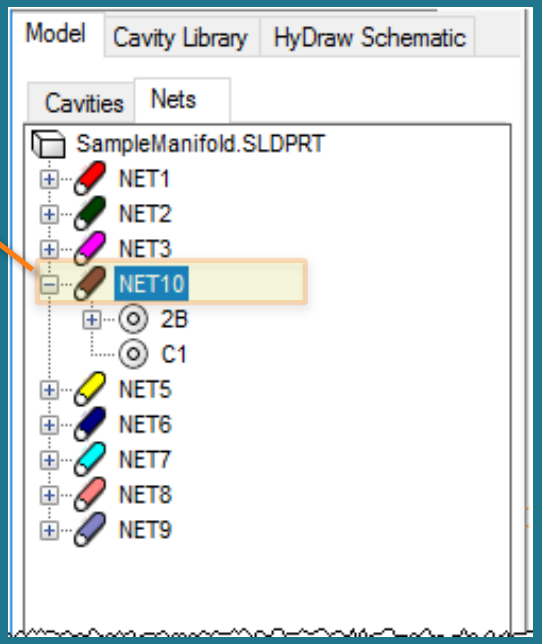
MDTools automatically assembles orifice disc CAD model



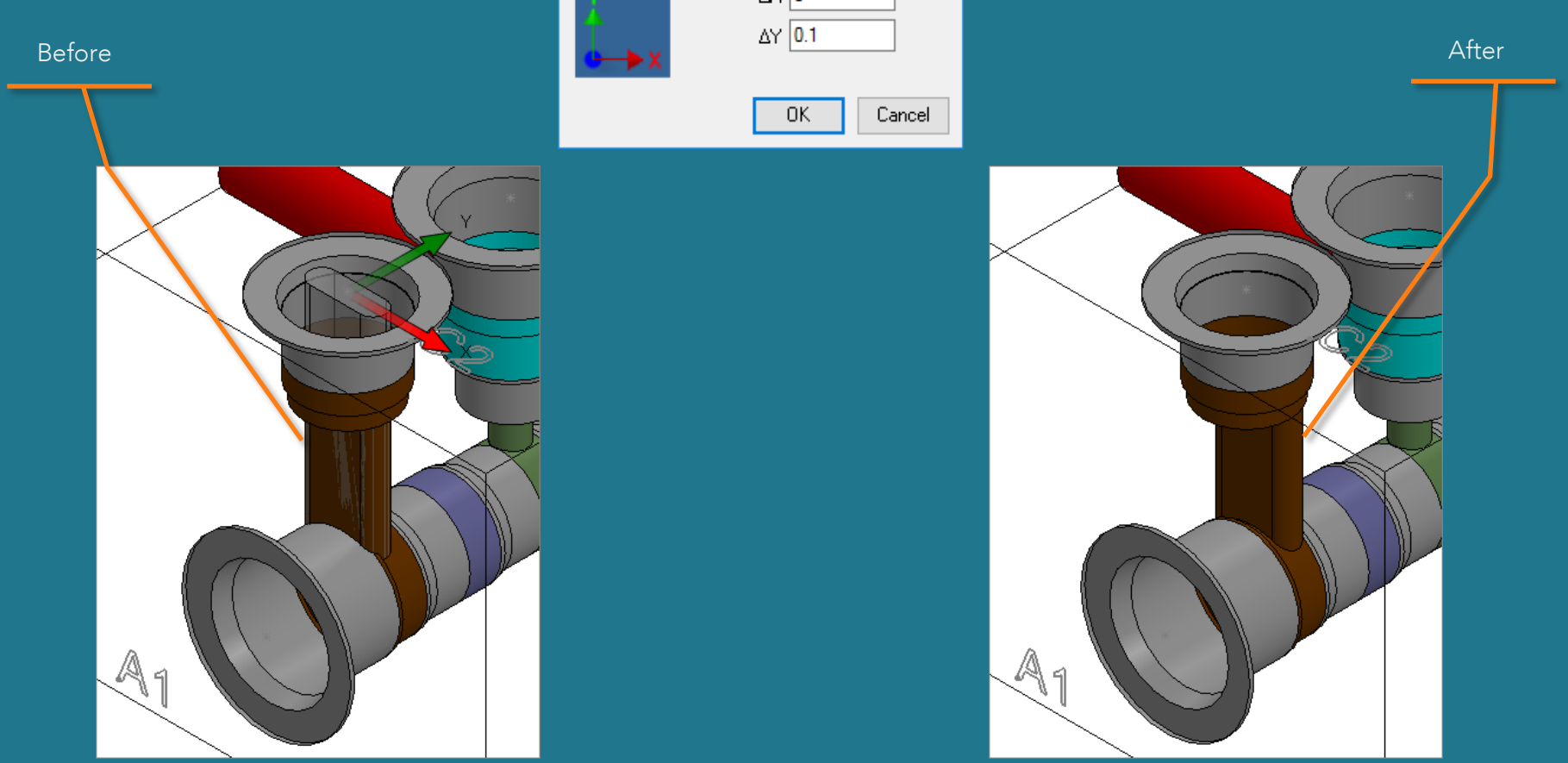
Rename a Net from MDTools browser

NET4 renamed to NET10

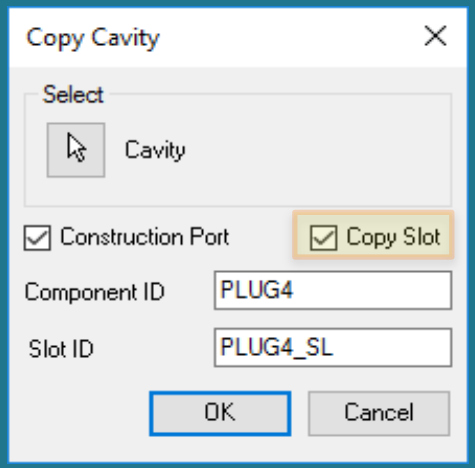




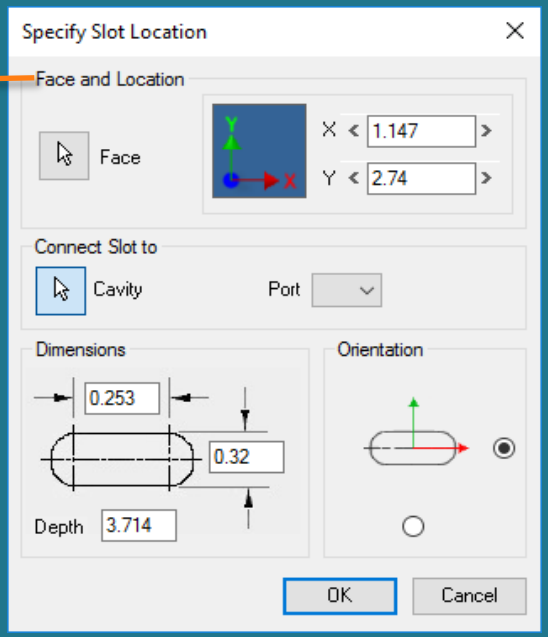
Move a Slot within parent Cavity



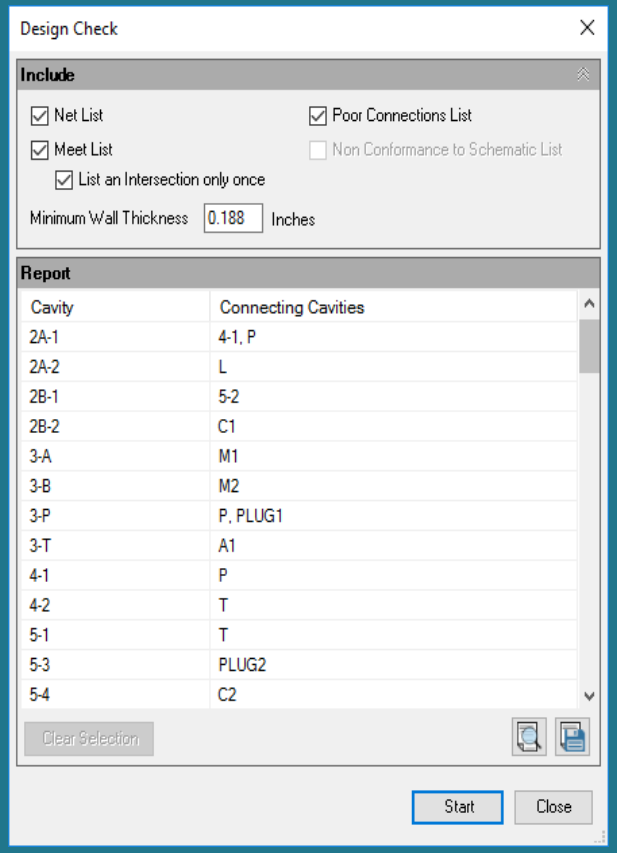
Copy Slot with Cavity



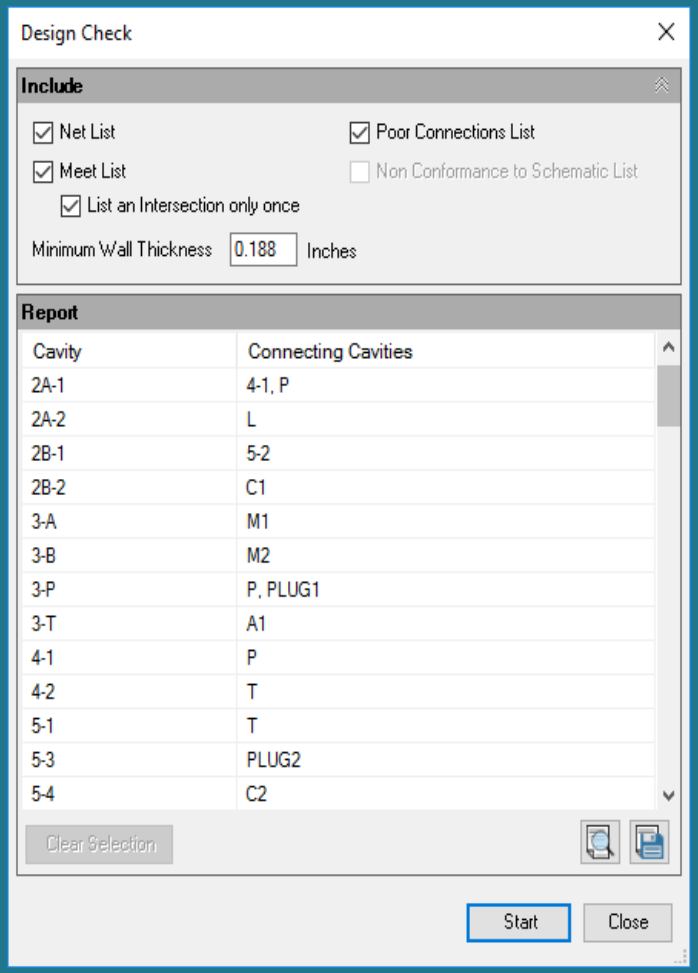
If **Copy Slot** option is selected then **Specify Slot Location** dialog box appears.



NEW GUI made Compatible for Window's 125% scaling



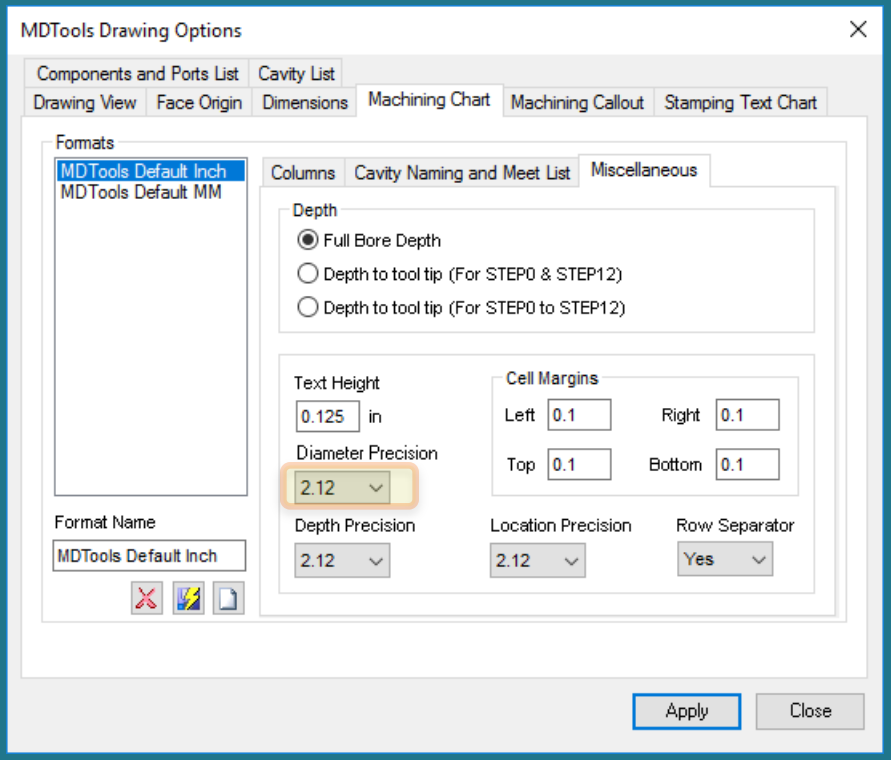
Design Check dialog box in 100% text scaling



Design Check dialog box in 125% text scaling

Note: Presently, MDTools 960 supports 100% and 125% text scaling.

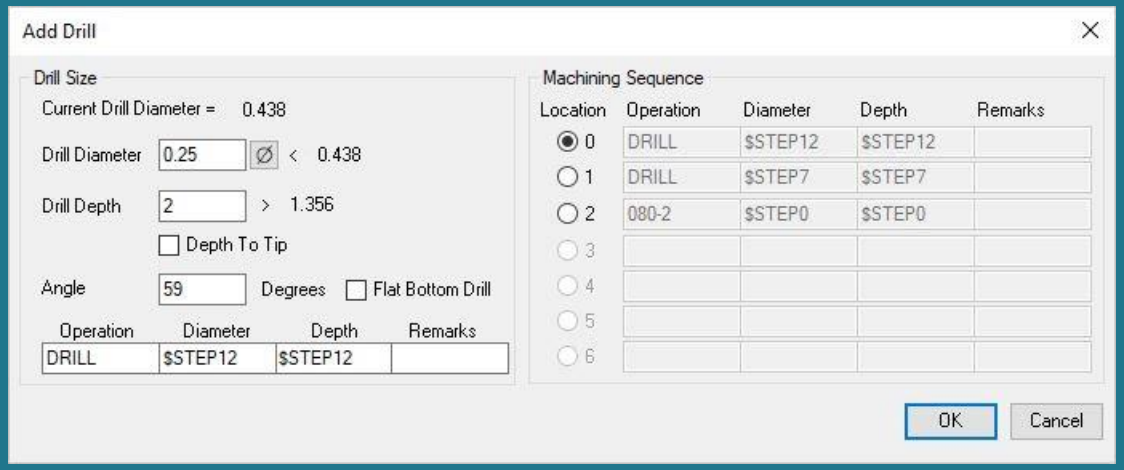
Set Precision for Diameter

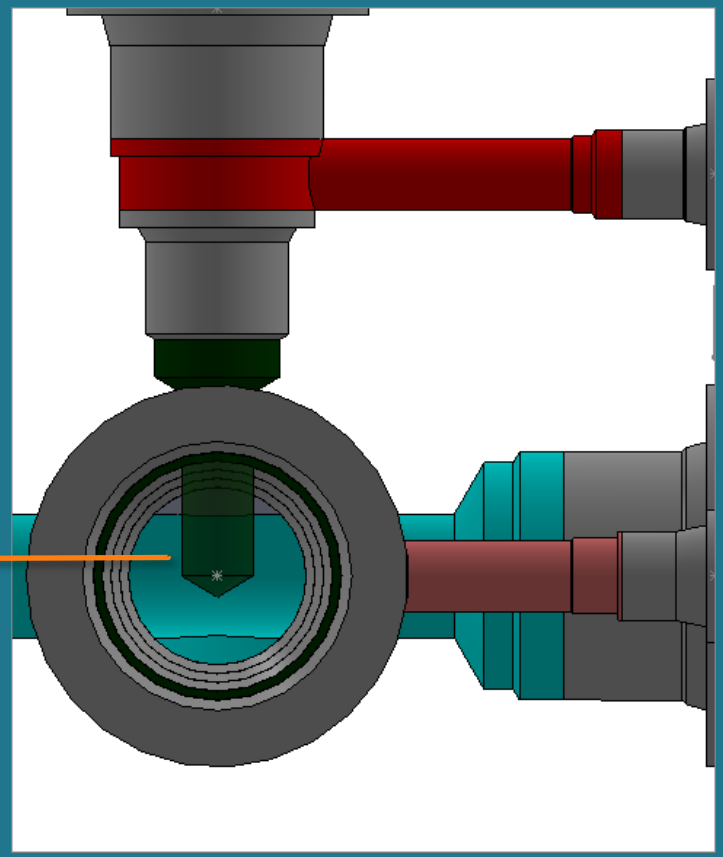


Machining Chart			
Name	Operation	Diameter	Depth
2A	DRILL	5/8	2.67
	C10-2	1.34	0.03
2B	DRILL	0.25	2.00
	C10-2	1.34	0.03
4	DRILL	0.63	2.67
	C10-2	1.34	0.03
5	DRILL	0.63	3.21
	C10-4	1.34	0.03
A1	DRILL	0.44	3.21

Note: You can set precision for diameter in **Machining Chart** tab of **Machining Drawing Options**.

Preview while Adding Drill to a Cavity





Note: Changing dimension automatically updates the preview.

USA: +1 (248) 649-9550 sales@VESTusa.com
Europe: +39 328 695 70 01 carlo.molon@fluidpower.it