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

O Highlight Selected Cavities

Remove Color from Unselected Cavities



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





selected issue.

On double click,

MDTools zooms

into

selected issue



Locate Wall Thickness Errors



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







Locate Broken Nets

Design Check				×
Include				\otimes
Net List		Poor Connections List		
Meet List		Non-Conformance to Schen	natic Lis	st
🖂 List an Inters	ection only once			
Minimum Wall Thick	ness 0 188			
	0.100			_
Report				
Clearance with Spot	t Face			^
Cavity	Cavities wi	ith Wall Thickness < 0.188		
PLUG4-D	R1-D (0.15)			
Clearance with Man	iifold Face			
No Issues Found				
Wrong Connections			8	
Cavity	Connectin	g Cavities		
RM (NET-6)	T (NET-7)			
T (NET-7)	FR-2 (NO N	ET), O (NET-6), R1-1 (NO NET)		
Error in Nets			8	
Broken Nets				
NET-6				
NET-7				¥
Clear Selection				
Tapa	Sex Sitie			
		Start	Close	

Option selected*

Indicate Design Errors

O Highlight Selected Cavities

Remove Color from Unselected Cavities



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



On a single click,

selected issue

On double click,

selected issue





Check Wall Thickness around Undercuts and Slots

Wall Thickness Check		×	
Parameter	K Report		
Check	Clearance List		
Around all cavities	Cavity Cavities with Wall Thickness < 0	0.188	
	T1 [NET-6] C2_SL [NET9] (0.157)		
Around selected cavities	Clearance in Same Net		
Between selected cavities	No Issues Found		
	Clearance with Spot Face		Min. Distance : 0.157
	No Issues Found		
	Clearance with Manifold Face		
	No Issues Found		
Clear Selection Min. Wall Thickness 0.188 Include Manifold Faces	Clear Selection Start		5
			5/
		No issues found for	Not enough clea <u>rance four</u>
		Undercut	between a slot and another d







Through Bolt Holes depth updates automatically

Modify Block × Height ΔH 0.000 ♀ ● Add ○ Remove Cutting plane location 0 > Length ΔL 0.000 ♀ ● Add ○ Remove Cutting plane location 0 > ✓ ✓ ● ✓ ● Add ○ Remove Cutting plane location 0 > ✓ ● ● ✓ ● Add ○ Remove Cutting plane location ● >		Before Resizing	fter Resizing
Update drill depth Find X-Section Dimension increment 0.010 • Apply OK Cancel >>	Resize Manifold Width so updates automatically after resizing the manifold.		6







Move Cavity with reference to another Cavity









O-ring Groove ID independent of the Parent

Edit O-ring Gro Component ID Machining ID	2B O-ring 2C	g	×		dit O-ring Groove ID	Option s	elected [;]	* Oting	Groove ID ndependent of Parent ID		
● Groove Dash #	(ID) Counter Bo	ore Width								
-028	1-3/8	1-1/2	1/16	News	Operation	Disester	Dopth	Neme	Operation	Dismetry	Dopth
-029	1-1/2	1-5/8	1/16	Name	Operation	Diameter	Depth	Name	Operation	Diameter	Depth
-030	1-5/8	1-3/4	1/16	2B	DRILL	0.250	2.000	2B	DRILL	0.250	2.000
					C10-2	1.344	0.031		C10-2	1.344	0.031
					O-RING GROOVE	1.625	0.050	2C 🔪	O-RING GROOVE	1.625	0.050
Operation		er Depth	C.05 0.005 Remarks REFER DET	lf c O- me	option is unselected : ring Groove machinin erges with the parent	ng sequence cavity	Ð	If op MD⁻ sepa	otion is selected: Fools lists O-ring Gro arate item in machinin	ove as a ng chart	
Operation O-RING GROOT	Diamete VE \$STEP	er Depth \$STEP	Remarks REFER DET Cancel	O- me	ring Groove machinin erges with the parent	ng sequence cavity	9	MD sepa	rools lists O-ring Gro arate item in machinii	ové as a ng chart	

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







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









Set Precision for Diameter

Edit Machining Chart Formats		×				Machining	Chart	
Formats	Selected Format			Name	Operation	Diameter	Depth	Location
MDToolsDefaultInch MDToolsDefaultMM	Columns Miscellaneous			2A	DRILL	0.630	2.667	(5.125/ 2.000)
	Decimal Separator System Defa	ault 🗸			C10-2	1.344	0.031	
	Leading Zeros	Trailing Zeros		2B	DRILL	0.250	2.000	(1.750/ 1.971)
	Precision	Row Gap 0.05			C10-2	1.344	0.031	
	Diameter 3.123 V	Depth 3.123 V		3-A	DRILL	0.300	1.000	(3.600/ 1.870)
MDToolsDefaultInch	Location 3.123 ~ Cavity Naming Format	Angle 0 ~ Meet vist Format		3-B	DRILL	0.300	1.000	(3.600/ 2.550)
XØD				3-P	DRILL	0.250	2.000	(4.000/ 2.220)
MDToolsDefaultInch	None International	AA, BB, CD MEETE AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		4	DRILL	0.625	2.667	(5.125/ 0.970)
	(Alphabet]	(Intersection Details)			C10-2	1.344	0.031	
	Depth			C1	DRILL	0.438	1.971	(1.750/ 2.214)
	Full Diameter Depth				FORM PORT	#6 SAE	0.031	
	Depth to Tool Tip (For STE Depth to Tool Tip (For STE	P0 & STEP12)			ТАР	9/16-18	0.531	
	O Depth to Tool Tip (For STE	FU to STEF 12)				-		'
		OK Cancel						

Decimal Precision for Diameter set to three decimal places







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

Formats	Selected Format							
MDToolsDefaultInch	Columns Misce	Columns Miscellaneous						
MD TOOISDEIduitMM	Property	Display Name	Alignment	Width				
	Cavity ID	Name	Left	1.000				
	Operation	Operation	Left	1.500	1			
	Diameter	Diameter	Left	1.500	1			
	Depth	Depth	Left					
	Location	Location	Left	1.500				
00 D								
	Split Locatio	n Column			1			

Note: Split Location Column option appears only when Location column is	5
selected in the Machining chart format.	

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		





Specify Decimal Separator for Machining Chart

Decimal Separator

Formats MDToolsDefaultInch MDToolsDefaultMM	Selected Format Columns Miscellaneous Decimal Separator . (Comma)	×					
	Leading Zeros	Trailing Zeros	Name	Operation	Diameter	Depth	Location
	Text Height 0.125	Row Gap 0.05	2A	DRILL	5/8	2,667	(5,125/ 2,000)
	Diameter 2.12 V	Depth 2.12 V		C10-2	1,344	0,031	
	location 2.12 V	Angle 0 v	2B	DRILL	0,250	2,000	(1,750/ 1,971)
MDToolsDefaultInch	Coult Number Frank	Mark Ital Francis		C10-2	1,344	0,031	
× Ø 🗋	None	AA, BB, CD	4	DRILL	0,625	2,667	(5,125/ 0,970)
	O [Alphabet][Number]	O MEETS AA, BB AND CD		C10-2	1,344	0,031	
	O [Number][Alphabet]	(Intersection Details)	5	DRILL	0,625	3,214	(1,750/ 2,000)
	Depth			C10-4	1,344	0,031	
	Full Diameter Depth Depth to Tool Tip (For STE Depth to Tool Tip (For STE	EP0 & STEP12) EP0 to STEP12)	L.				

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



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Import Orifice Plugs from HyDraw

Schematic File		
G:\Sample Impor	Orifice \Orifice Plug.xml	
Manifold Propert	ies	
Design Unit	INCH	
Material	Aluminum	
Mounting Face		
Components and	External Ports	â
Cavities Nets		
Compone	nts	
Orifice P	ugs	
- @ 2		
Ports		
Ports		
Ports © A © B		
Ports -③ A -③ B		
Ports -③ A -③ B		
Ports A B		
- 0 2 Ports - 0 A - 0 B		2
Ports A B 2 2		×
Ports Ports A B Cavity Informal	ion Port Information	
Ports O A O B Cavity Informal Cavity Name	ion Port Information 1/4*-28 UNF	
- Ports - O A - O B - O B - O Cavity Informal Cavity Informal Cavity Name Engraving	ion Port Information 1/4*-28 UNF 2	
Ports Ports A B Cavity Informat Cavity Name Engraving Component C	ion Port Information 1/4*-28 UNF 2 utline	
2 Cavity Informal Cavity Name Engraving Component C Preferred Fac	ion Port Information 1/4*-28 UNF 2 utline es	

MDTools lists Orifice Plugs separately	
nsert Orifice Plug X	
Select Cavity	
Merge with Cavity Component ID 2	
OK Cancel	







Assemble Orifice Plugs









Assemble Orifice Discs









Autodesk Vault 2018 Compatible

MDTools Assembly Settings	>	MDTools Assembly Set	ings 🛛 🗡
CAD Model Library		Select Vault 2018 and Higher option for Autodesk Vault	
 Local File System Vault Server 		 Local File System Vault Server 	
Log In Details	*	Log In Details	8
Vault Server Version	Vault 2017 and Lower 🗸	Vault Server Ver	sion : Vault 2018 and Higher 🗸 🗸
Authentication :	Vault Account V	Authentication :	Vault Account 🗸 🗸
User Name :	User Name	User Name :	User Name
Password :	*******	Password :	*******
Server :	Vault Server	Server :	Vault Server
Vault :	Vault2016	Vault :	Vault2018
Path	12	Path	
\$\MDTools\CAD Models		Select Vault 2017 and Lower option for Autodesk Vault	Jels
	Apply Cancel		Apply Cancel

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					×	
Drill Size	Machinin	g Sequence				
Current Drill Diameter = 0.438	Index	Operation	Diameter	Depth	Remarks	
Drill Diameter 0.25 Ø < 0.438	• 0	DRILL	\$STEP12	\$STEP12		
	01	DRILL	\$STEP7	\$STEP7		
Drill Depth 2 > 1.356	02	080-2	\$STEP0	\$STEP0		
Depth to Tip	03					
Angle 59 Degrees Flat Bottom Drill	04					
Operation Diameter Depth Remarks	05					
DRILL \$STEP12 \$STEP12	() 6					
				Preview new c	r of Irill	







Move Multiple Cavities using Scroll Bars









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