"Power-to-Design" Manifolds

MDTools[®] 760 What's New







MDTools 760 What's New?

Improved User Interface

Show and Hide MDTools Mini-Toolbars

Improved Auto Dimension Interface

Group Cavities by Face & Show Engraved Text in MDTools Browser

Compare Manifolds

Compare Two Manifolds and List the Difference

Pressure Rating

Validate Construction Port Pressure Rating per Net Operating Pressure

Machining Drawing

Automatic Machining Drawing (AutoCAD .dwg support)

Placement of Machining IDs without overlapping cavities & Control Text Height

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Improved User Interface







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Group Cavities by Face & Show Engraved Text in MDTools Browser



Note: Same options is already available in Miscellaneous tab of MDTools Settings.

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Compare Manifolds





Compare Two Manifolds and List the Difference

Location In MDTools Ribbon

Create	
i Shrink Wrap	
🙀 Export	
🎲 Import	
🎼 Manifold Quote	
🐒 Compare Manifolds	
Block	

Differences are listed in the Report

	Compare M	anifolds								
Manifolds										
Manifold A										
F:\Models\Manifold	F:\Models\Manifold_A.ipt									
Manifold B										
F:\Models\Manifold	_B.ipt									
Parameters										
Compare										
 Cavity Geometry 	etry	Engravings								
Cavity Name										
Component II	D	🔿 Machining ID								
Report										
Block Details										
Block Details	Manifold A	Manifold B								
Block Details Dimension (LxWxH)	Manifold A 5.45 x 3.77 x 2.72	Manifold B 5.45 x 3.77 x 2.72								
Block Details Dimension (LxWxH) Material	Manifold A 5.45 x 3.77 x 2.72 Aluminium	Manifold B 5.45 x 3.77 x 2.72 Aluminium								
Block Details Dimension (LxWxH) Material Mounting Face	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material Mounting Face New Cavities	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material Mounting Face New Cavities T2	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material Mounting Face New Cavities T2 Deleted Cavities	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material Mounting Face New Cavities T2 Deleted Cavities L	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material Mounting Face New Cavities T2 Deleted Cavities L Renamed Cavities	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material New Cavities T2 Deleted Cavities L Renamed Cavities Component ID	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								
Block Details Dimension (LxWxH) Material Mounting Face New Cavities T2 Deleted Cavities L Renamed Cavities Component ID	Manifold A 5.45 x 3.77 x 2.72 Aluminium Bottom	Manifold B 5.45 x 3.77 x 2.72 Aluminium Bottom								





Pressure Rating







Validate Construction Ports Pressure Rating per Net Operating Pressure

Location In MDTools Ribbon



Note: 1. MDTools will also validate construction ports at the time of connection.

2. Change construction port pressure in the MDTools Edit Cavity command and Net operating pressure in MDTools Connectivity browser.



Machining Drawing







Automatic Machining Drawing (AutoCAD .dwg support)

	Machining I	Drawing Se	ettings	
Prawing Templates	Drawing View Options	Annotations	Face Origin	
Template				
Directory C:\Pro	ogramData\VEST\Auto[)rawingTempla	tes	Browse
Sheet	Templa	te	N Top Bott	fargin om Left Right
Drawing View	Template.dwg	~	0.25 0.2	5 0.25 0.25
Machining Chart	Template.dwg	¥	0.25 0.2	5 0.25 0.25
Miscellaneous Cha	Template.dwg	~	0.25 0.2	5 0.25 0.25
_ Create Machinin ✔ Create Single Do	g Chart on At Drawing occument	View Sheet)K Canci

(.dwg) as templates for Automatic Machining Drawing







Placement of Machining IDs without overlapping cavities & Control Text Height















New Drawing Layout Option

	Create Views ×	
Select any view as Base View	Drawing View Model G:\Shared\MDTools760 WhatsNew\SampleN V Browse Scale 1 : 1 Projection	Face Name
Define position of base view manually	Position × Base View Front × Style	inside of the view
Display UnderCut and Angle Hole	 Cavity Center Mark ✓ InderCut Outside View ✓ Angle Hole ✓ Show Direction OK Cancel	Face Name outside of



Undercuts



MDTools[®] 760 What's New





Show/Hide Undercuts in Drawing

PF	o Place	Views Annot	ate Sketch T	Fools Manage N	/iew Environments	Get Started Au	todesk 360 MDTools	760 🛋 🕶		
		🐨 Show	→	Machining ID	Footprint	All Engraved Text	↓ ^{ab} Machining Callout	Cavity List	Layers	
Cre	eate Views	O* The	Auto Dimension	Construction P	ort & Origin & Avis	ondercut	Be Machining Chart	Engraved Text Chart	Gran License	
	View	Internal Details	Dimension	Construction P	Display		d≣ Machining chart		Settings	
	VIEW								Jettings	
		<	B>	_				Тор	view of	undercut
			(\oplus)	$+(\bigcirc)$						
			\downarrow	∇						
					+					
					\rightarrow					
			\square	<hr/>						
			$(\bigoplus$	+ $($						
			\downarrow				((+))	ナー		
							\square			
								!		
					Title (ANSI) Tweek Trail (AN	en)	Continuous	0.020 in	8	
				\rightarrow	UnderCuts		Dashed	0.014 in	200	
					Visible Narrow (ANSI)	Continuous	0.014 in	¥ ×	
Note: Undercuts	s will be	placed o	n a separa	ite layer.	Add new layers t	o standard				
									Done	
										i



Machining Chart







Enhanced Machining Chart Interface

Create Machining Chart
Format
MDToolsDefaultInch
Cavity ID
Machining ID Component ID
✓ Title Machining Chart Range
Face
All All All All All All All All
Export - Insert into Drawing Cancel

Formats MDToolsDefaultInch MDTaoloDefaultInch	Selected Format Columns Miscellar	eous				Control
IND TOOSDOI BUILININ	Property	Display Name	Alignment	Width		والإلوانيين وتومينيا والو
	Cavity ID	Name	Left	1.500 🦳		column width
	Operation	Operation	Left	1.500		
	Diameter	Diameter	Left	1.500		
	Depth	Depth	Left	1.500		
	Face	Face	Left	1.500		
MDToolsDefaultInch	Meet List : Cavity	Meet List : Cavity	Left	1.500	X	
			0	К	Cancel	

	Edit Machining Chart For	mats	
Formats MDToolsDefaultInch MDToolsDefaultMM	Selected Format Columns Miscellaneous		Control
	Text Height 0.125 Row Gap 0.05	✓ Leading Zeros ✓ Trailing Zeros	row gap
	Precision Depth 3.123 ✔ Loca	tion 3.123 V Angle 0 V	
MDToolsDefaultInch	Cavity Naming Format None	Meet List Format	
× Ø 🗅	 [Alphabet][Number] [Number][Alphabet] 	MEETS AA, BB AND CD (Intersection Details)	
	Depth Full Diameter Depth		
	 Depth to Tool Tip (For STE Depth to Tool Tip (For STE 	P0 & STEP12) P0 to STEP12)	
		OK Cancel	





Machining Chart created as Inventor Table

Machining Chart created as Inventor table for easy modification

Name	Op	eration	Diameter	Depth	Face	Meet List : Cavit
101A	TA	P DRILL	5/32	0.700	A	
	TA	Р	#10-24	0.500		
101B	TA	P DRILL	5/32	0.700	A	
	TA	P	#10-24	0.500		
101C	TA	P DRILL	5/32	0.700	A	
	TA	P	#10-24	0.500		
101D	TA	P DRILL	5/32	0.700	A	
	TA	P	#10-24	0.500		
102	DR	ann -	11/64	0.175	A	
104	DR	лц	0.25	2.279	A	401
105	DR	III.	0.250	1.616	A	205, 602
	C1	0-2	1.344	0.031		
106	DR	TLL	1/4	0.836	A	603
107	DR	au.	1/4	0.783	A	202
108	DR	111	1/4	1.819	A	601
109	DR	au.	0.438	2.331	A	203
	FO	RM	#6 SAE	0.031		
	TA	p	9/16-18	0.531		
110	DR	111	5	0.642	Δ.	
110	FO	RM		0.012	<u></u>	
	100	RT	#6 SAE	0.031		
	TA	p	9/16-18	0.531		
2		11.	0.375	1.892	8	401, 501
	Repeat F	Pan	al luc	0.031		
-	Сору		Ctri+C	0.495		
7	Delete		0.500	1.520	B	107
-				1.510	-	107
	Edit			0.031		
	Table		•	Split Table		
	Detete	m 1	0/16	Up and the To	- 	09 401 604
ŕ.	Rotate		3/10 P	Un-split la	able	03, 401, 004
-	Edit Tabl	e Style	0.625	3.014	B	105 501 502
4.00	Luit Tabl	e geylen	1 244	0.125		103, 301, 303
-	Zoom		0.202	0.125	6	
10.004	Pan		1/4.30	0.008	L.	
	Lan .		0.202	0.500	6	
3000	Find in B	rowser	1/4 20	0.688	L	
-	Previous	View	F5	U.SUU		104 301 303
401	How To.		0.500	2.640	D	604
_	PO	RT RT	#8 SAE	0.031		
	TA	Р	3/4-16	0.593		
	O-I GR	RING	1-7/16	0.050		
501	DR	TLL	0.250	3.138	E	201, 205
	FO	RM	#4 SAE	0.031	-	,
	TA	0	7/16-20	0.495	-	
	10	r i	1710-20	0.403		

		Mac	thining Char	τ	
Name	Operation	Diameter	Depth	Face	Meet List : Cavity
101A	TAP DRILL	5/32	0.700	A	
	TAP	#10-24	0.500		
101B	TAP DRILL	5/32	0.700	A	
	TAP	#10-24	0.500		
101C	TAP DRILL	5/32	0.700	A	
	TAP	#10-24	0.500		
101D	TAP DRILL	5/32	0.700	A	
	TAP	#10-24	0.500		
102	DRILL	11/64	0.175	A	
104	DRILL	0.25	2.279	A	401
105	DRILL	0.250	1.616	A	205, 602
	C10-2	1.344	0.031		
106	DRILL	1/4	0.836	A	603
107	DRILL	1/4	0.783	A	202
108	DRILL	1/4	1.819	A	601
109	DRILL	0.438	2.331	A	203
	FORM	#6 SAE	0.021		
	PORT	*0.70E	0.031		
	TAP	9/16-18	0.531		
110	DRILL	.5	0.642	A	
	FORM	#6 SAE	0.031		
	TAD	9/16-18	0.531		
Mama	Operation	Mac	Dooth	1 5969	Mont List - Cavib
Name	operation	Diameter	Depth	Face	MORE LISE : CAVICY
201	DKILL	0.375	1.892	в	401, 501
	PORT	#4 SAE	0.031		
	TAP	7/16-20	0.485		
202	DRILL	0.500	1.520	В	107
	FORM	#6 SAE	0.031		
	TAP	9/16-18	0.531		
203	DRILL	9/16	1.944	в	109, 401, 504
	C10-2	1.344	0.031	-	
205	DRILL	0.625	3.014	в	105, 501, 503
- + #	C10-4	1 344	0.125		,
301A	TAP DRILL	0.203	0.688	c	
	TAP	1/4-20	0.500	~	
301B	TAP DR1U	0 203	0.688	C	
	TAP	1/4-20	0.500	-	
401	DRILL	0.500	2.640	D	104, 201, 203,

FORM PORT TAP

O-RING

TAP

GROOVE DRILL FORM PORT #8 SAE

3/4-16

1-7/16

0.250

#4 SAE 7/16-20 0.031

0.593

0.050

3.138

0.031

0.485

201, 205



Machining Callout







Machining Callout Position Retained

Retain the location of existing callouts when updating the machining callouts





Autodesk Vault Server









Assign CAD Models from Autodesk Vault Server

MDTools Assembly Settings					
CAD Model Library					
Location					
🔿 Local File System					
Vault Server					
Log In Details 🔗					
Authentication : Vault Account					
User Name : Administrator					
Password :					
Server : VaultServer					
Vault : Vault					
\$\CAD Models					
Apply Cancer					
Selected CAD Model					

Option to use Autodesk Vault Server

				Assemble Com	ponent		×
CAD Model Libra	ary \$\CAD Models						
Component ID	Cavity Name	Status	^	Component ID		CAD Model	
10A	C10-2		1	11	D1VW-C-AC-P.ipt		
10B	C10-2						
11	D03	0					
12	C10-4						
C1	#6 SAE						
C2	#6 SAE						
GP	#4 SAE						
L	#6 SAE						
MBolt2	1/4"-20 UNC						
MBolt3	1/4"-20 UNC						
orf	5/16"-24 UNF						
Р	#8 SAE						
			~	Et Cham All			
	▼ Sele	ct CAD File	es	Show All		Assemble Car	ncel .:



Miscellaneous



MDTools[®] 760 What's New





Select Drill Depths in Settings

MDToo	ols Settings ×
Library & Units Net Color Energy Efficien	ncy X-Ports Internet Miscellaneous
Cavity Machining ID Same as Component ID Angle Hole Simple Angle Only Drill Depth Full Diameter Tin	Auto-Connect Use Diameter from Tool Library Insert from HyDraw Use Cavity Data from MDTools Library HuDraw Schematic
Browser Caded/Unloaded Caded Nunloaded Group Cavities by Face Show Engraved Text	Design Mode Virtual Cavity Cavity Cavity as Feature MDTools Mini-Toolbar Show Hide
	Apply Cancel
Select Drill Depth preference in Set	n ttings

			Edit	Lavity	
Comp	onent ID :	1		Preview	
Mach	ining ID :	1			
Footp	rint Name	: Vickers C-10-	2		T
Cavity	Dimension	IS			
Step	Diamete	r Depth	Angle		-
0	1.188	0.031	90		-
12	0.56	2.67	59		•
Port In	formation				
	- Classes	Time	Net Name		
Port	FIOW	туре	1202200000000		
Port 1	FIOW	Pressure	NET-2		
Port 1 2		Pressure Pressure	NET-2 NET-4		
Port 1 2		Pressure Pressure	NET-2 NET-4		- 0.56

Note: You can override the Drill Depth settings locally while using the relevant commands.





Control Text Height of Annotations in a Drawing



Note: Option to define text height is also available for Show Component ID and Show Footprint commands.





Modify Component ID of Parent Cavity while inserting Orifice Plug

	Insert Orifice Plug	×				
Library Path C:\VEST\MDTool	s Library\					
Library Name	Footprint/Cavity Name					
Duplomatic Eaton EPS Flanges Expander Plug Ports Hawe SICV Cavities Hawe Valve Interface Hydac HYDAC 2way Ball Valves HYDAC Filters HydraForce Integrated Hydraulics Metric Ports-ISO 6149-1 Miscellaneous Moog NPT Ports Olmsted Flanges Office Plugs	1/4"-28 UNF 5/8"-18 UNF 5/8"-18 UNF 7/16"-20 UNF 9/16"-18 UNF	Net Name Port 1 NET-1				
 Merge with Cavity 	Component ID	12-Orifice				
		OK Cancel				
Modify the Component ID of a parent cavity when merged with an orifice						

		Edit C	Cavity	×
Component Machining I Footprint N Cavity Dimer Step Dia 0 1.14 12 0.2	ID : [12-Onfice D : ? ame : #8 SAE-5/16''-2 nsions meter Depth 38 0.031 7 2.59	Angle 90	Preview	
Maximum I Port Informat	Depth to Drill Diameter: 0.266) Tip		
Port Flow	Туре	Net Name		
1		NET-1		
2	Pressure	NET-5		
Change Ir	Edit /	All Parameters	OK Car	icel



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Select Drill Depths in Settings

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MDTools[®] manifold design software





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