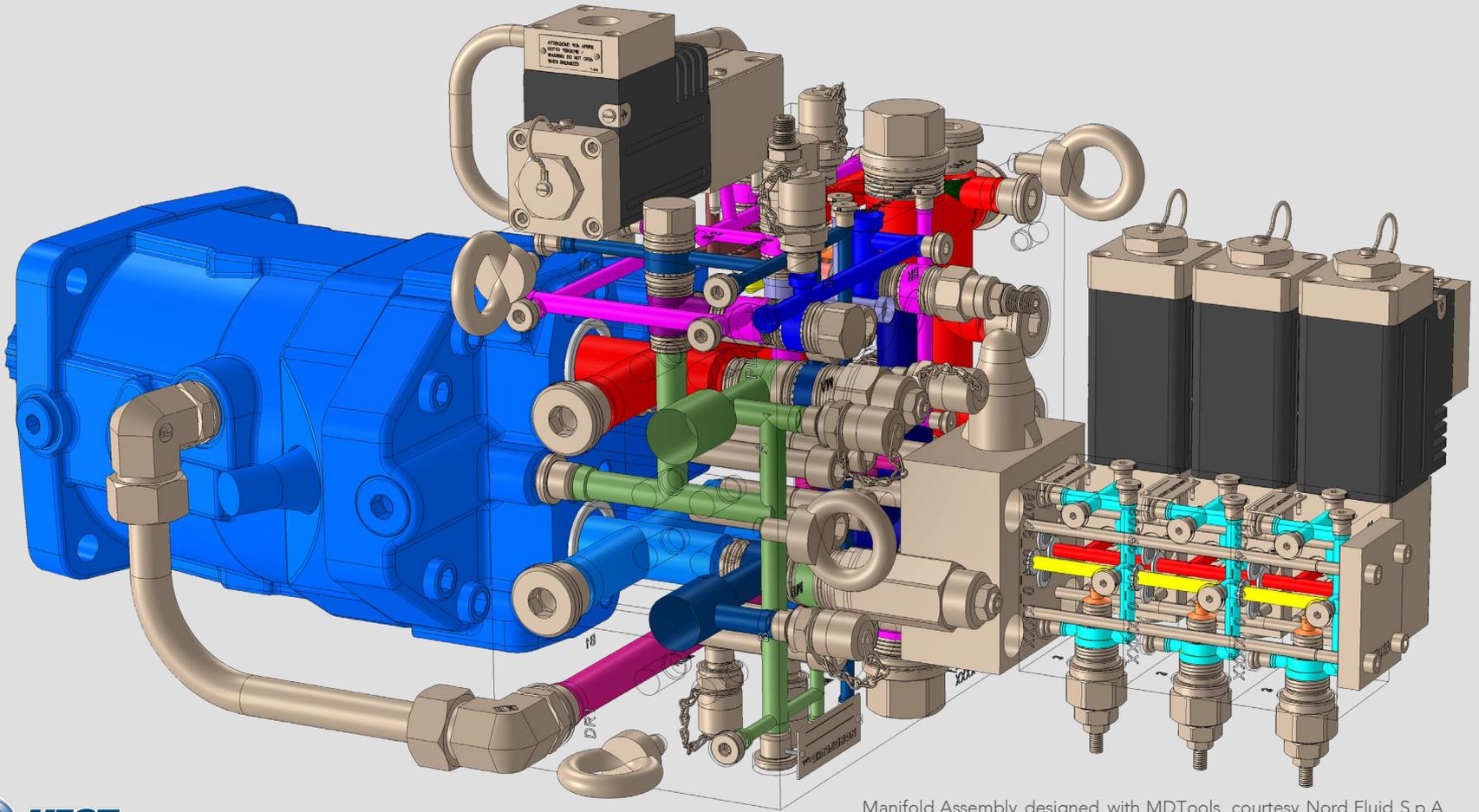


MDTools® 780

What's New



Manifold Assembly designed with MDTools, courtesy Nord Fluid S.p.A.



MDTools® 780 What's New

Performance Improved

Improved Speed in Feature Mode

New Use of Inventor Features

Single Hole Feature

Large Manifold Color Options

Performance Optimized

Large Manifold Color Settings

Recommendation

Miscellaneous

Stretch and Incline Drill Options

Clearance from SF/CB to Working Area

Cavity Count and Design Mode Display

Precisely Position Engravings

Auto Scale Drawing Views

Balloons Placed Optimally

Assemble Valve using Bolt Holes Pattern

Autodesk Viewer Compatibility

Appendix

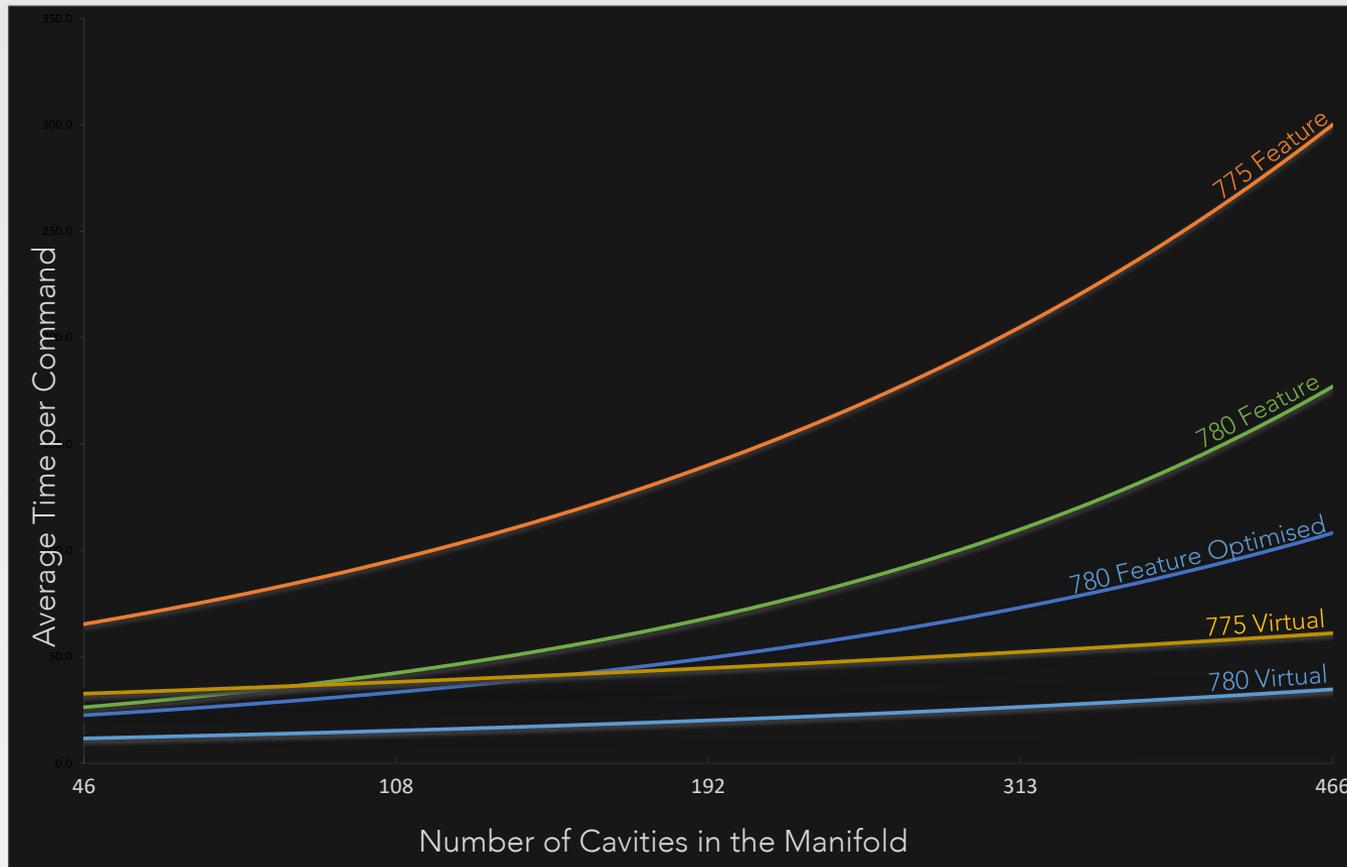
Performance Test Specifications

Caution



Performance Improved

Manifold Design is now two to three times faster

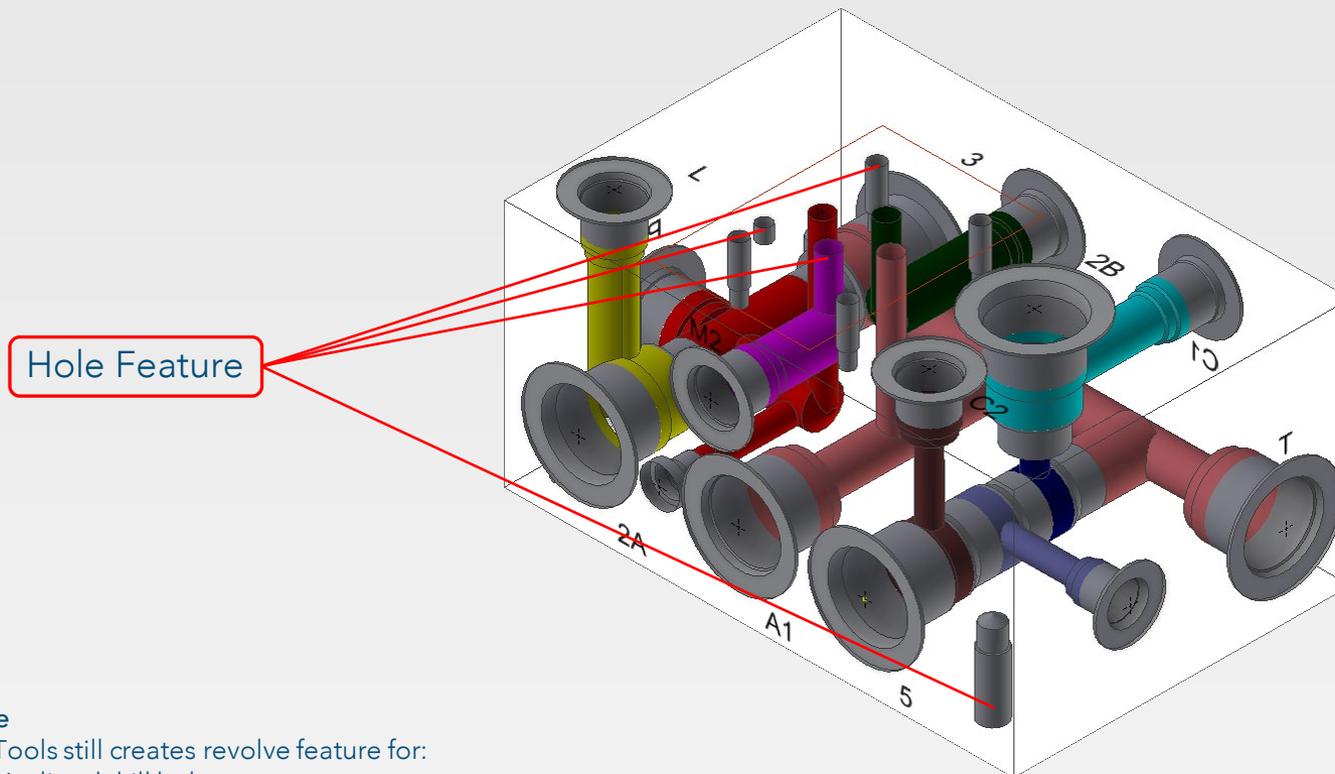


Improved Speed in Feature Mode

All aspects of Inventor® and MDTools® leveraged
to achieve significant speed enhancement

New Use of Inventor® Features

Inventor Hole feature introduced to simplify the model and speedup commands



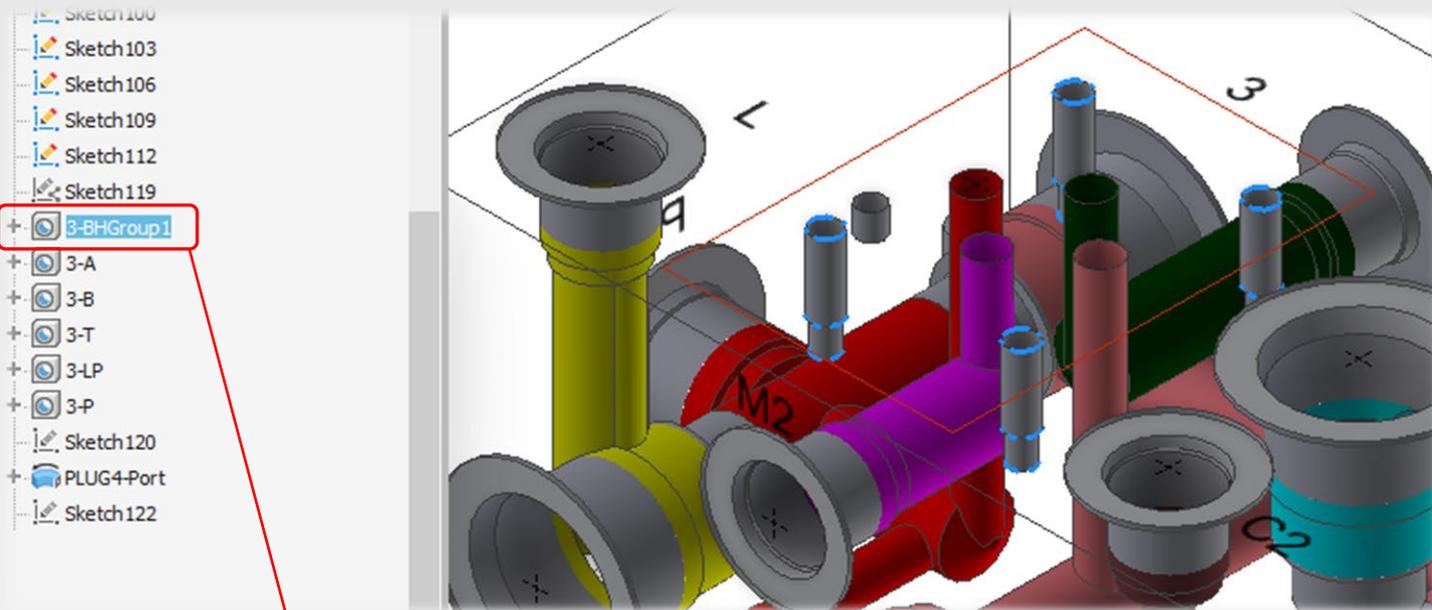
Note

MDTools still creates revolve feature for:

- Inclined drill holes
- Drill holes with multiple steps
- Cavities with more than two steps

Single Hole Feature

Identical bolt holes in a footprint now uses a single Inventor Hole Feature to simplify feature complexity of the model



All four bolt holes as a single grouped Hole Feature

Note

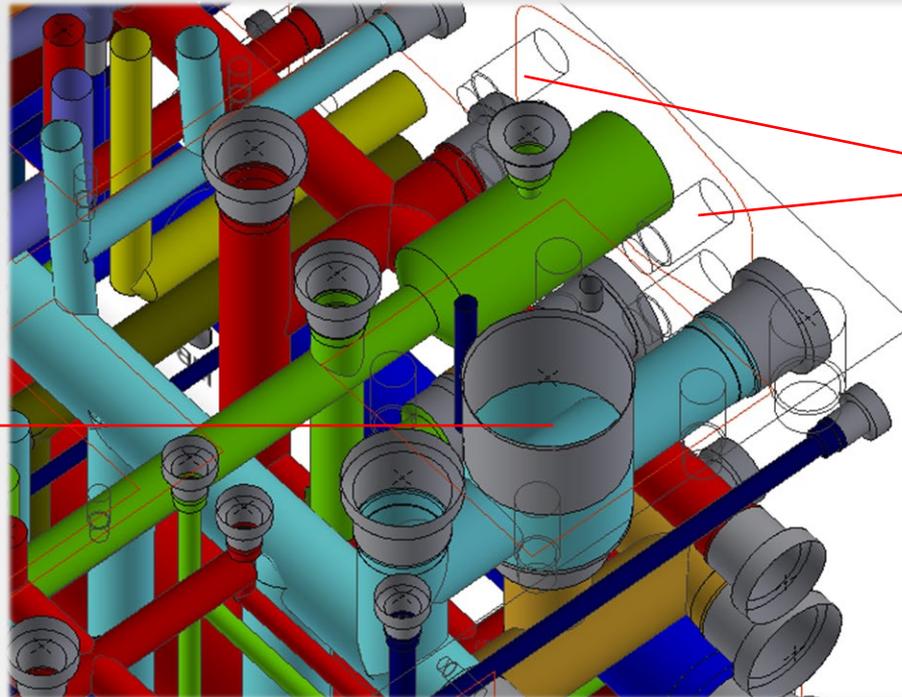
Any modification in bolt hole dimensions, automatically modifies all the related bolt holes, unless otherwise specified.

Large Manifold Color Options

MDTools 780 introduces new visual options that can expedite the design of large manifolds within Feature Mode. These options sacrifice minor graphic details for enhanced performance.

Performance Optimized

Large Manifold Design options introduced



1

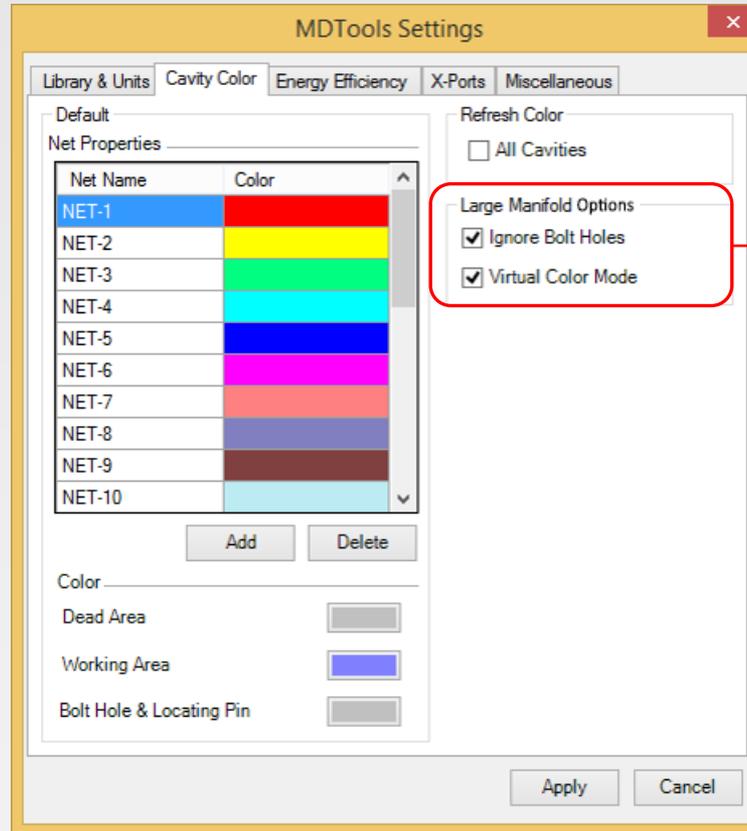
Cavities are colored using virtual color, to enhance speed

2

Bolt Holes are not colored, to enhance speed

Large Manifold Color Settings

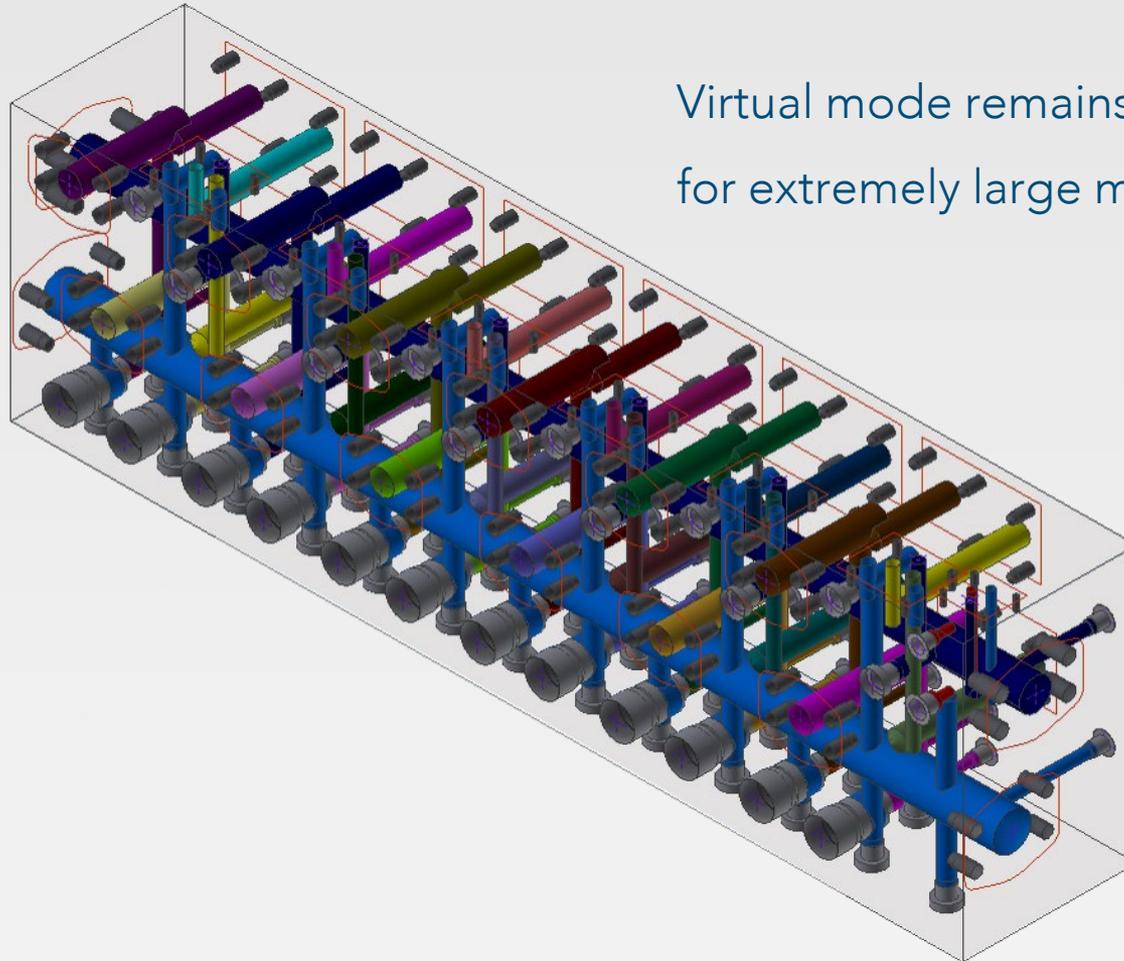
MDTools Settings > Cavity Color > Large Manifold Mode



Recommended when
designing manifolds in
excess of 300 holes

Recommendation

Designing large manifolds in Feature mode is now viable!



Virtual mode remains available for extremely large manifolds.

Miscellaneous

....in addition to the main thrust to improve speed,
some new capabilities added



Stretch and Incline Drill Options

Control Stretch Drill settings

MDTools Settings

Library & Units | Cavity Color | Energy Efficiency | X-Ports | Miscellaneous

Cavity Machining ID
 Same as Component ID

Angle Hole
 Simple Angle Only

Drill Depth
 Full Diameter Tip

Browser
 Loaded/Unloaded
 Load on Startup
 Group Cavities by Face
 Show Engraved Text

Suppressed Cavities
 Display as Circles

Assembly
 Automatic Update on Open

Base View
Front

Auto-Connect
 Use Diameter from Tool Library

Design Mode
 Virtual Cavity Cavity as Feature

MDTools Mini-Toolbar
 Show Hide

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

O-ring Groove ID
 Independent of Parent ID

Drawing
 Automatic Update on Open

Stretch Drill
 Allow Inclination of Straight Holes
 Allow Inclination of Angled Holes

Apply Cancel

Stretch Drill

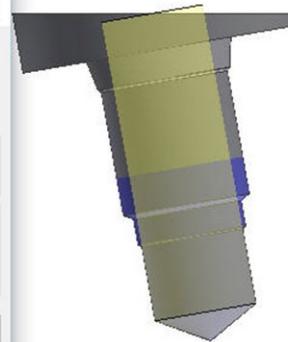
Select
Cavity

Diameter 0.25
Depth 0.75
 Depth to Tip

Stretch up to
Cavity Port

Inclination
 Allow Change
Beta 10 Alpha 90
 Simple Angle Only

Reset OK Cancel



Stretch Drill

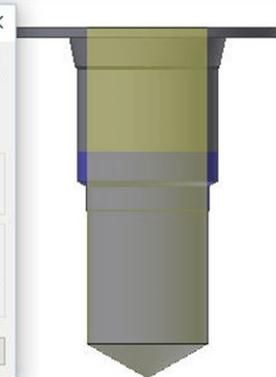
Select
Cavity

Diameter 0.375
Depth 1
 Depth to Tip

Stretch up to
Cavity Port

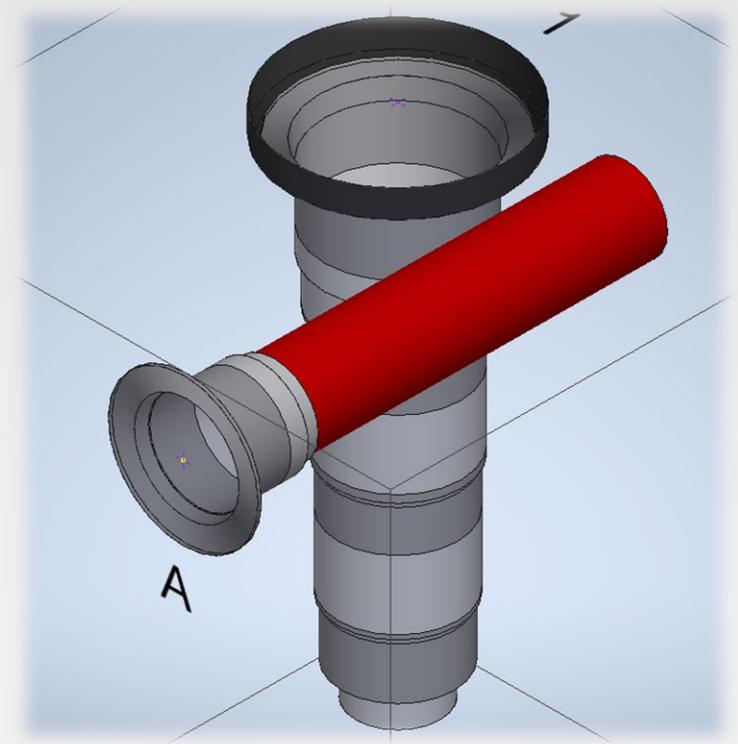
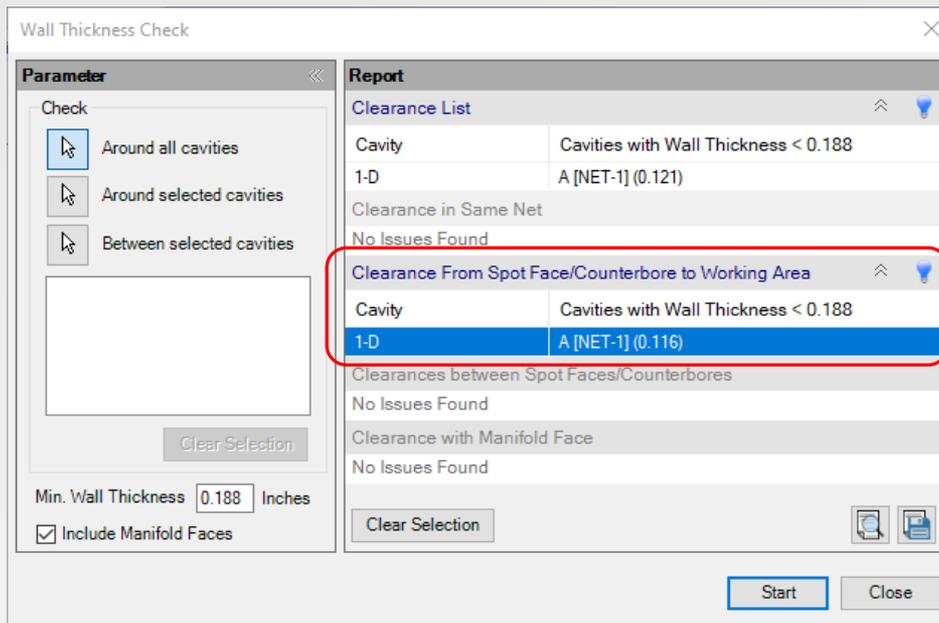
Inclination
 Allow Change
Beta 0 Alpha 0
 Simple Angle Only

Reset OK Cancel



Clearance from SF/CB to Working Area

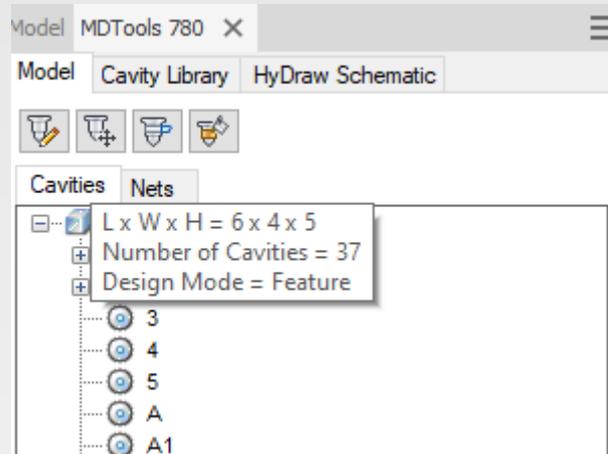
Min. Wall Thickness from Spot Face/Counterbore to Working Area listed in a separate section



NEW

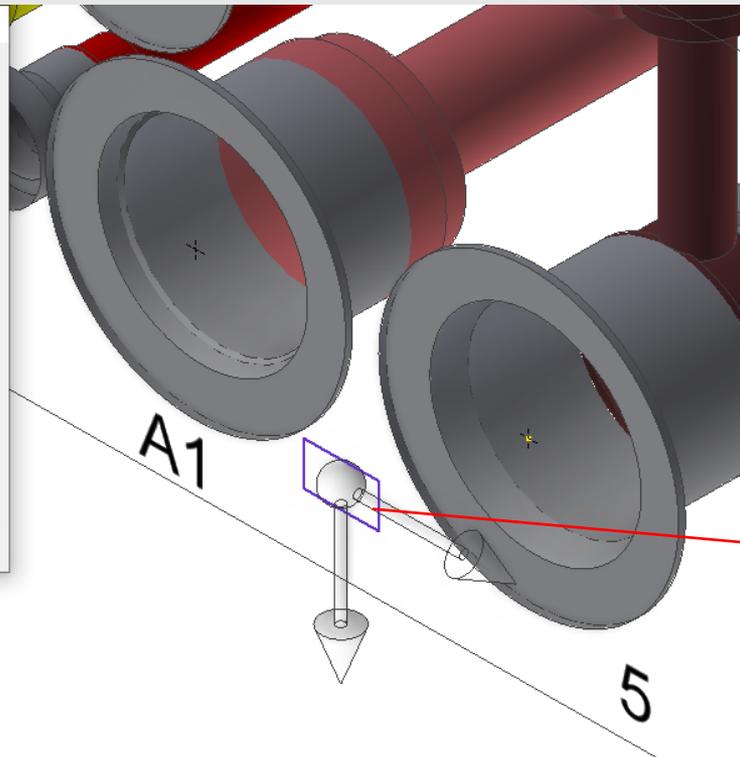
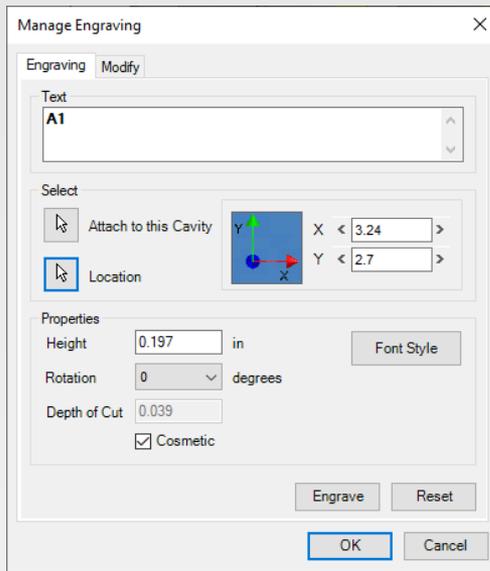
Cavity Count and Design Mode Display

Number of Cavities and the current Design Mode listed in Part File



Precisely Position Engravings

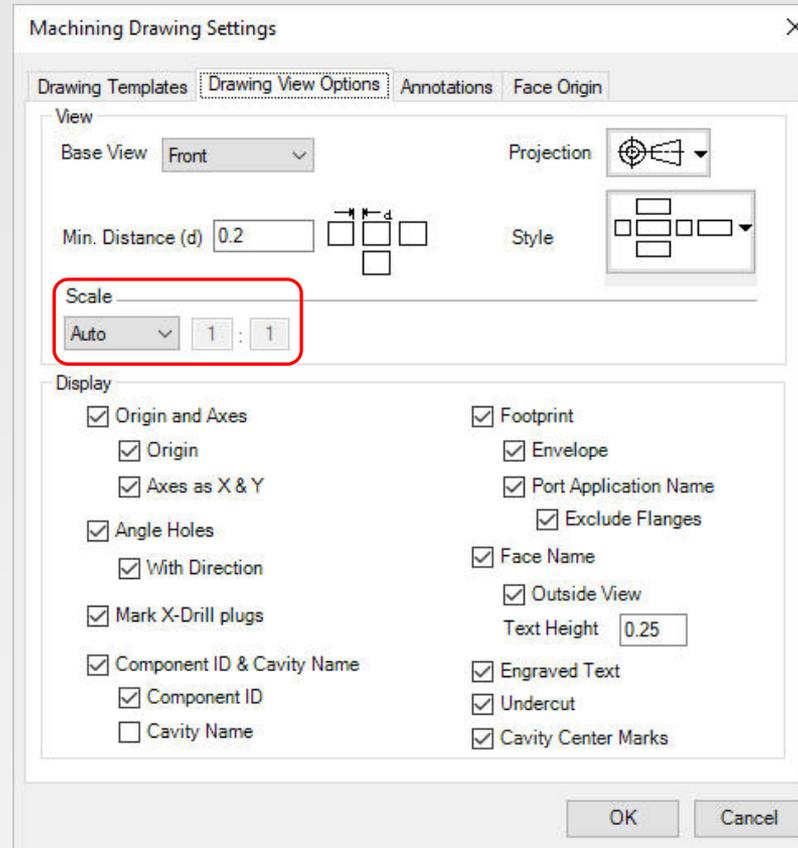
Drag and relocate engravings



Preview of the new engraving position displayed within a purple box.

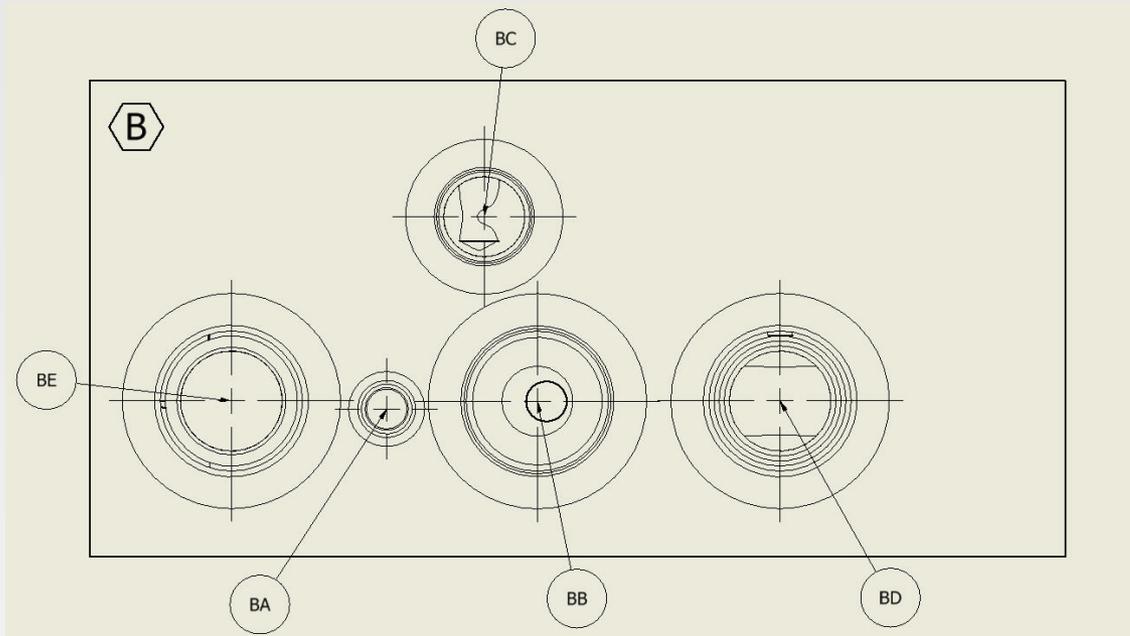
Auto Scale Drawing Views

Option to automatically scale the view to the drawing size



Balloons Placed Optimally

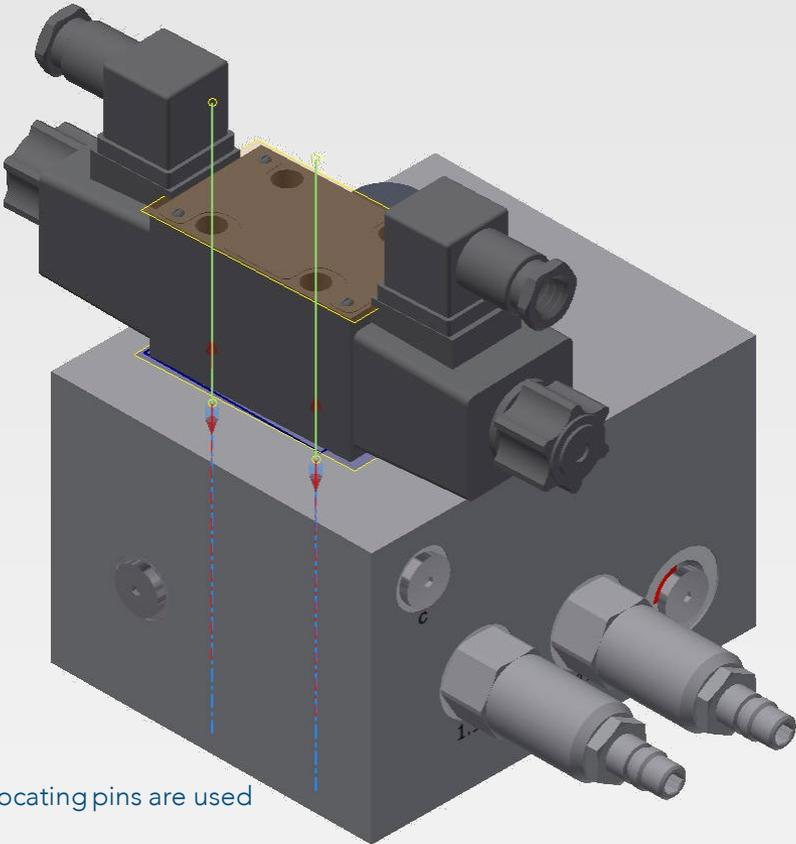
Balloons placed outside the face boundary with reduced overlapping





Assemble Valves using Bolt Hole Pattern

Valves located* using BH1 and BH2 as axis

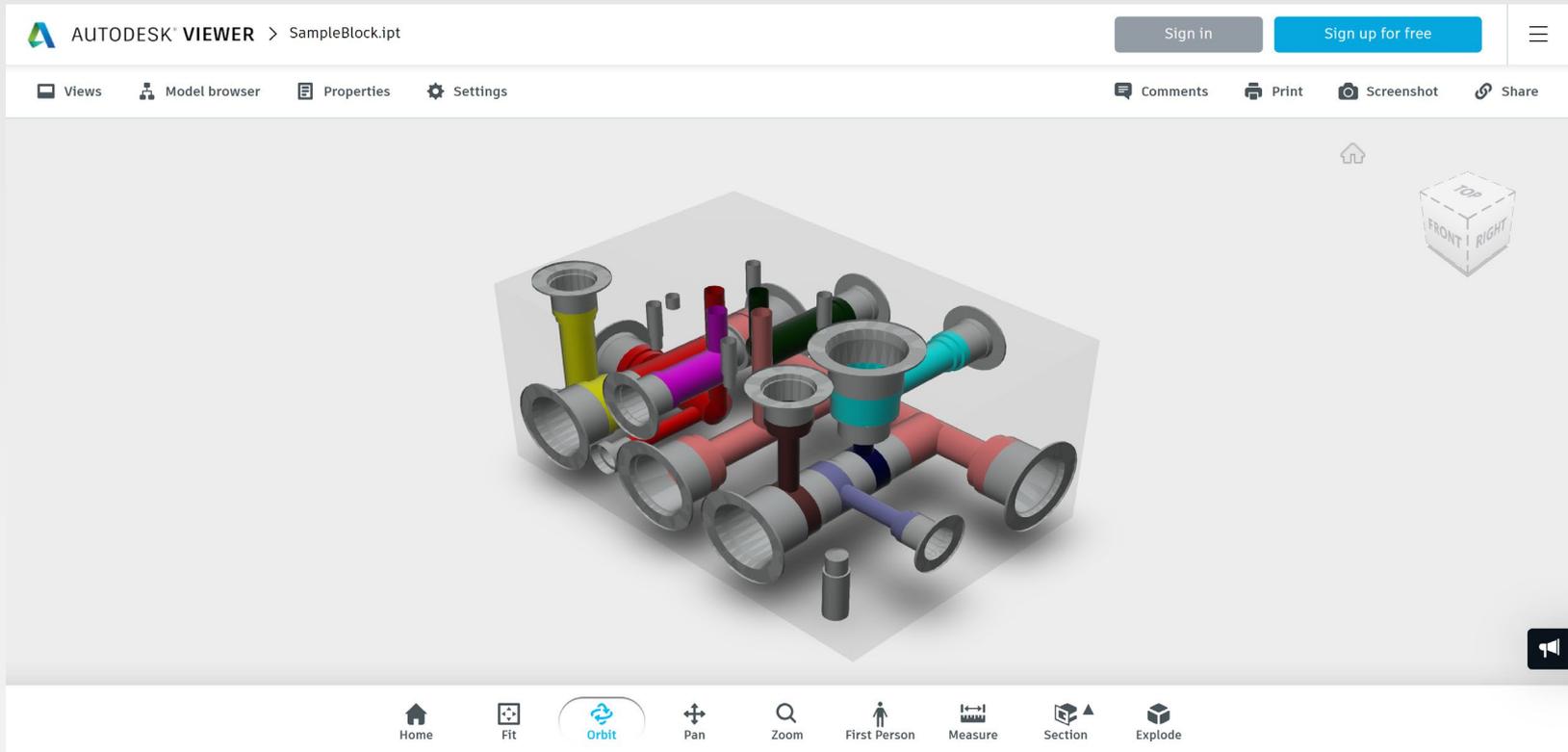


*irrespective of whether locating pins are used



Autodesk® Viewer Compatibility

Manifold net colors visible, when shared online
in the Autodesk Viewer



Appendix

....performance test specifications and a note of caution

Performance Test Specifications

Manifolds used

| Sample Block | CVs | Ports | BHs | DHs | Total |
|------------------------------------|-----|-------|-----|-----|-------|
| Industrial Manifold - 99 Cavities | 7 | 38 | 36 | 18 | 99 |
| Industrial Manifold -192 Cavities | 22 | 64 | 62 | 44 | 192 |
| Industrial Manifold - 313 Cavities | 12 | 64 | 164 | 73 | 313 |
| Industrial Manifold - 466 Cavities | 22 | 141 | 190 | 113 | 466 |
| Mobile Manifold - 46 Cavities | 14 | 30 | 2 | - | 46 |
| Mobile Manifold -108 Cavities | 25 | 65 | 4 | 14 | 108 |
| Mobile Manifold -180 Cavities | 11 | 137 | 17 | 15 | 180 |

Commands used

- Insert #6 SAE, C10-2, 1/2 Flange & D03
- Change Face C10-2 & 1/2 Flange
- Move Port, CV cavity, Flange
- Increase Manifold Length
- Color All Cavities

System Specification

- Inventor® 2020
- Windows® 10 Pro 64-bit
- 16 GB Memory
- Intel® Core™ i5-9400 CPU @ 4.1GHz

Industrial Manifold
with 313 Cavities

Caution*

MDTools® 780* designed manifolds are not compatible with all previous versions of MDTools.

*If needed, export the MDTools 780 design in the MBXML format and then import into a previous version.

MDTools® 780

premier 3D manifold design software

USA: +1 (248) 649-9550 sales@VESTusa.com

Europe: +39 328 695 7001 carlo.molon@VESTusa.com

