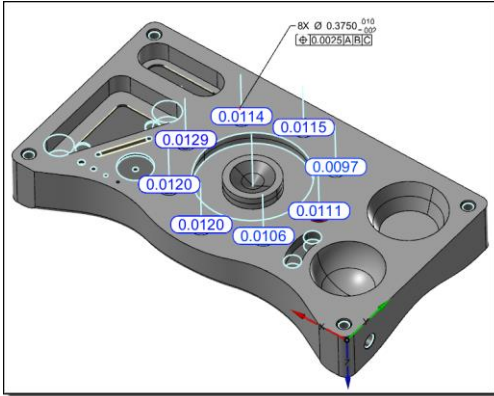


Tech Tip - Best Fit a Hole Pattern

When verifying a Hole Pattern to a Positional GD&T Tolerance it can be very useful to utilize Best Fit to achieve the best possible Positional result when a CAD Model is being used as the Inspection media.

The use of Best Fit is only possible when CAD Nominal information exists, as the Best Fit process requires the use of nominal CAD data for the nominal Hole locations.

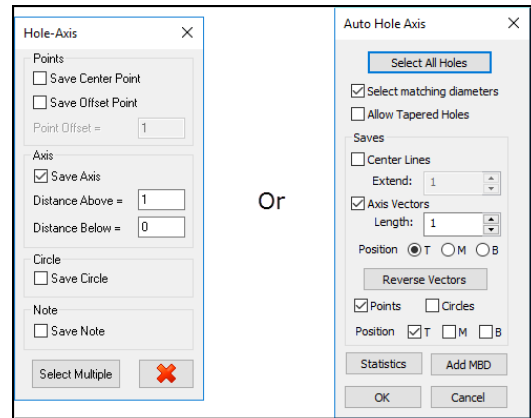
Before the Best Fit



Best Fit the Holes

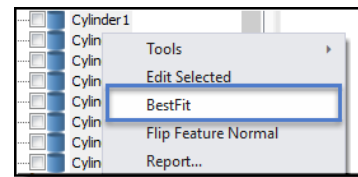
When Best Fitting holes the use of Hole Axis for projecting will yield the best Positional results, if the Hole pattern does not have Hole Axis use the **Verisurf Hole Axis** or **Auto Hole Axis Tool** (shown right) found on the Verisurf Tools Ribbon Bar menu prior to beginning the Best Fit process. In the **Verisurf Hole Axis** or **Auto Hole Axis** tool be sure to select to **Save Axis** or **Axis Vector**.

After correctly setting the **Project To** settings, select the measured Holes in the Measure Manager Data Tree and using a right mouse click access the speed menu and select **Best Fit**, the Best Fit dialog will open (for more details on Best Fit see the Analysis Reference Guide):

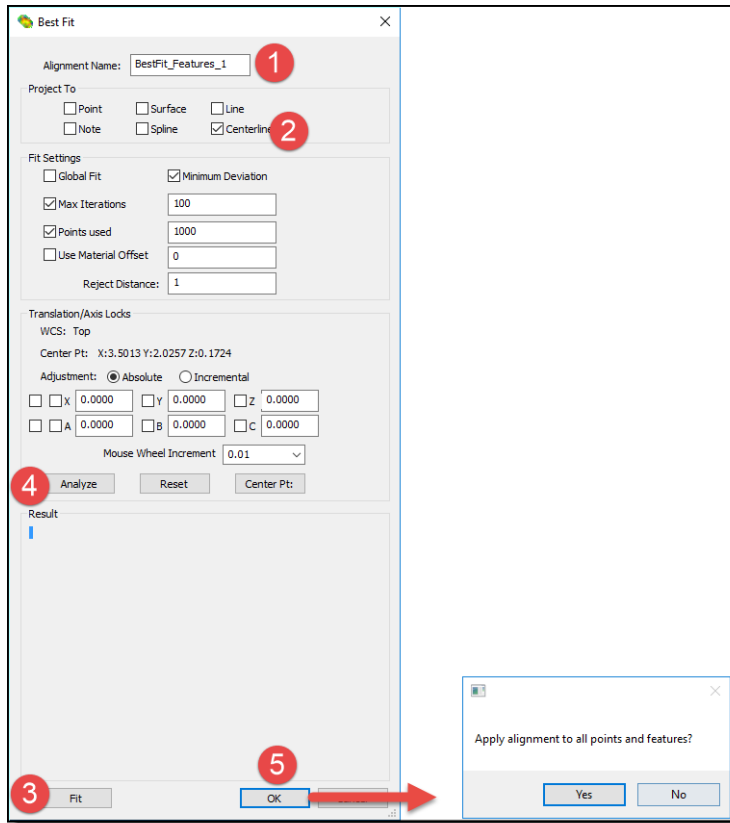


In the Best Fit dialog (next page) enter an **Alignment Name** (1), select to **Project To Centerline** (2), select the **Fit** button (3) to run the Best Fit process, when completed select to **Analyze** (4) the results will now be displayed in the Graphical screen, select **OK** (5) to save Alignment.

The operator will then be prompted to **Apply Alignment to All Points and Features** - when Best Fitting for hole patterns, the operator should select **NO**, and then go to the Data Tree, select the Holes and using the speed menu choose **Alignment** and **Connect** the Best Fit to the selected Hole Pattern. In this way,

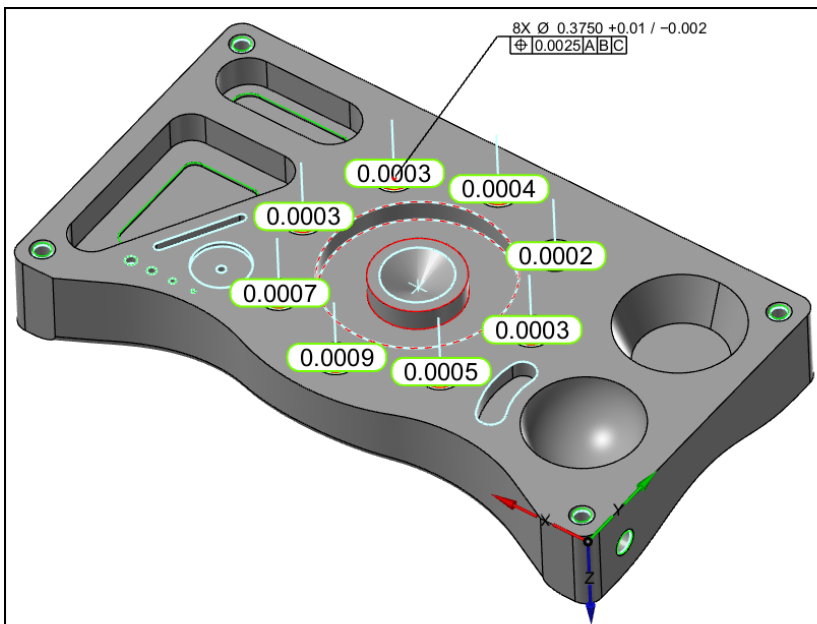


ONLY the holes are connected to the Best Fit Alignment and not all the Points and Features in the Data Tree.



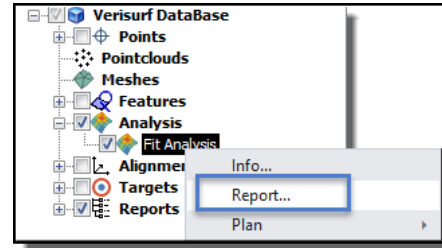
After the Best Fit

Shown in the illustration below is the result AFTER the Hole Pattern has been **Best Fit and Analyzed**:



Report the Hole Pattern Position

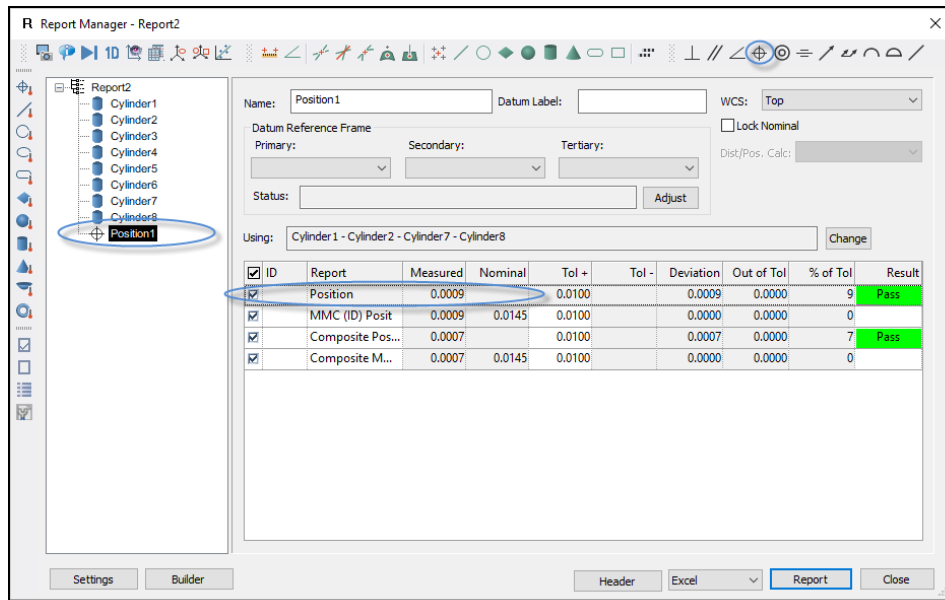
The operator has multiple options for reporting the Position of the Hole Pattern, if ONLY the Positional Error of the eight holes is required the operator may select the Analysis Fit object in the Data Tree and select to **Report**, this will give the operator one Group in the Report Manager displaying ONLY the Measured Positional Deviations.



Verisurf Inspection Report							
Date:	11/09/18	Time:	15:04:56				
Serial Number:		Part Name:					
Work Center:		Shift:					
DWG #:		Part ID:					
Work Order #:		Inspector:					
Measurements							
Fit Analysis	Measured	Nominal	Tol +	Tol -	Dev	OOT	Graph
CP Cylinder1 Profile	.0005		.0100	-.0100	.0005		
CP Cylinder2 Profile	.0003		.0100	-.0100	.0003		
CP Cylinder3 Profile	.0003		.0100	-.0100	.0003		
CP Cylinder4 Profile	.0003		.0100	-.0100	.0003		
CP Cylinder5 Profile	.0003		.0100	-.0100	.0003		
CP Cylinder6 Profile	.0004		.0100	-.0100	.0004		
CP Cylinder7 Profile	.0002		.0100	-.0100	.0002		
CP Cylinder8 Profile	.0003		.0100	-.0100	.0003		
Total Points	OOT	MinDev	MaxDev	TP			
Summary	8	.0000	.0002	.0005	.0009		

Or if the measurement task requires reporting the information about each individual hole in the Hole Pattern inspection the operator may select all eight Holes in the Data Tree and using a right mouse click select **Report**.

Once in the **Report Manager** (below) the operator must select all eight holes and then select to Report **Position** from the **GD&T Toolbar** in the **Report Manager**.



When generating the Report from the **Report Manager** the operator may control the details of the report for the holes. For more information on how to Report information see the Measure Manager Help file.

