



MEASURE

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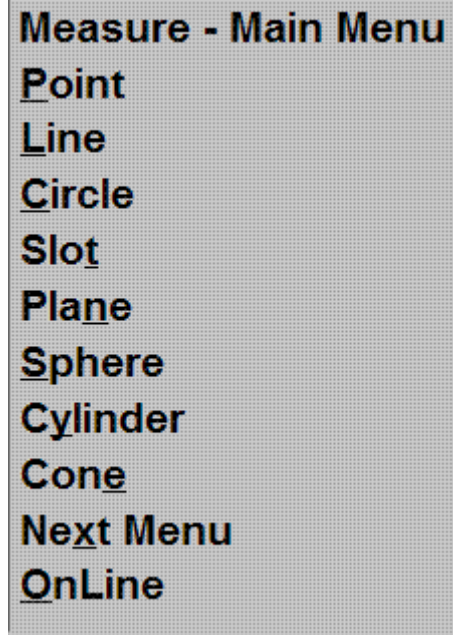
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About Verisurf Measure

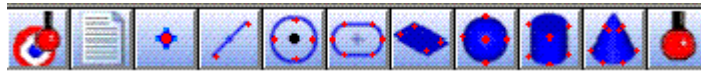
Verisurf Measure product is composed of a basic set of dynamic geometry creation commands. When working “On Line”, many of these commands require that your data collection device be connected to your Verisurf computer. All geometry is created dynamically, as you measure your work piece.

Main Menu

Here is the **Measure - Main Menu** and the **Next Menu**. This reference manual explains the use of these commands.

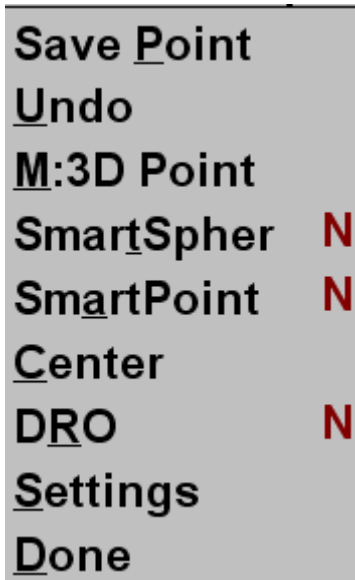


THE MEASURE ICONS



Point Measurements

Point MAIN MENU



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Types of Point

M: (Mode of point type)

This command provides you with many different methods of creating a point in your database. In this example a 3D point is selected, this selection is modified by pressing the M key on the keyboard or clicking on the M:. Here are the descriptions of each option:

3D Points

All points generated by the data collection device are created in 3D relative to the current device alignment, regardless of the current construction plane and Z settings.

2D Points

All points generated by the data collection device are created in 2D relative to the current device alignment. however the point will be "SQUASHED" to the current construction plane and Z setting.

Fit Point

A quantity of points is sampled from the data collection device and the centroid of the sampled data is created as a fit point. Trigger the number of sample points desired, press D at the keyboard or click Done when finished collecting sample points.

Sphere Center

A quantity of points is sampled from the data collection device. A sphere is calculated to a "best fit" condition through the sampled points. The center point of the calculated sphere is created. The number of sample points desired can be adjusted in Settings.

Circle Center

A quantity of points is sampled from the data collection device. A circle in the current construction plane is calculated to a "best fit" condition through the sampled points. The center point of the calculated circle is created. The number of sample points desired can be adjusted in Settings.

Midpoint

A quantity of points is sampled from the data collection device. A midpoint is calculated through the sampled points.

Intersection

Four points are sampled from the data collection device. A line is calculated through the first two points and a line is calculated through the last two points. A point is created at the intersection of the two lines. **3 Planes**

Three planes are measured and intersected to create the 3D point. The first prompt is to measure points to define a plane, measure the points desired, press Done to continue with the next plane and the third plane.

Smart Point and Smart Sphere

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected. Smart Sphere will allow the continuous pickup of points on a sphere to average the points together and return a point.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Point Settings

Trigger Method

Meas Points

Trigger Method

☒ Single Point

☐ Avg Point Num

☐ Continuous Points

Min Distance:

☐ Filter All Points

☐ Num of Points:

Report ID

Point Name:

Start Value:

☐ Prompt for Number

Save

☒ Points ☐ Probes

☐ Vectors ☐ Lines

☐ Notes ☐ Spline

Note Height =

☐ Auto Comp - X, Y, or Z

☐ Keep Original Points

☐ DRO

☐ Save to Report

Single Point (Button/Pedal) This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired

Avg Point Num

Used in conjunction with Smart Point this method will pick up the preset number of points and average the values together to return one point. This can be used when picking up nested points on a tracker to return a very stable reading.

Continuous (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Number of Points

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure - Input Menu**.

Report ID**Point Name**

This string of characters is inserted at the beginning of the text created for saved notes. It serves as a label to describe the number that succeeds it.

Start Value This integer value is the number that is placed after the base name in the first note. It serves as a way of consecutively numbering the notes. With the creation of each new note, its value will be incremented by "1". If the value is set at "0", no numbers are added to the note base.

Prompt For Number

If this check box is selected, Verisurf will prompt you for the note number (value) each time a note is to be saved.

Save**Save Points**

When this check box is activated, Verisurf will create a point entity in the database. This point will be saved with the current main attributes such as color, level etc.

Save Vectors

Select this check box to create a line entity in the database. This line represents the direction of the probe shaft or laser beam direction. This line will be saved with the current main attributes color, level etc.

Save Notes

Select this check box to cause Verisurf to save note entities at the point locations.

This note will be saved with the current main attributes color, level etc.

Save Probes

This option draws a circle at the measured point. The radius of this circle is equal to the probe radius. The circle will be saved with the current main attributes color, level etc.

Save Lines

This connects lines between the measured points, as each new point is measured. This line will be saved with the current main attributes color, level etc.

Save Splines

This option creates a spline thru each of the measured points as each new point is created. This spline will be saved with the current main attributes color, level etc.

Misc Settings

Auto Comp X,Y OR Z

Check this box to subtract the radius from or add the probe radius to a measured point. **Probe compensation is determined by the direction in which you pull the probe away from the measured surface.** This Setting must be used with care in the single point collection mode as the compensation direction will be orthogonal or perpendicular to the current alignment and retraction must be carefully executed.

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Save to Report

With this box checked the points will be saved to Report Manager.

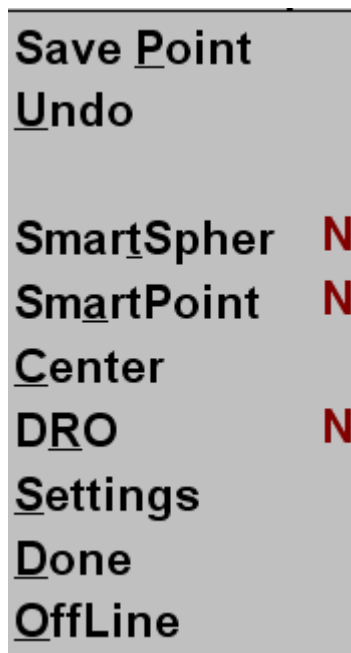
OK button

Clicking the **OK** button will begin the measuring process.

LINE Measurements

A Line is created by measuring or selecting two or more points. If more than 2 points are used, a **Least Squares Best Fit** is calculated for the line fit. When measuring multiple lines around a part, the lines can be automatically trimmed. Lines are measured in 2D, 2D depth is controlled by the current construction plane (CPlane) and Z depth setting.

Measure Line Menu



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Smart Point and Smart Sphere

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected. Smart Sphere will allow the continuous pickup of points on a sphere to average the points together and return a point.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Line Settings

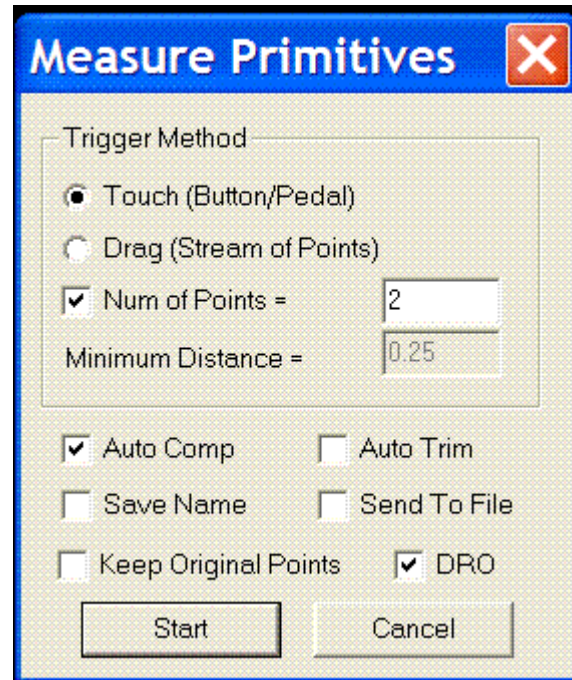
Trigger Method

Single Point (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired.

Continuous (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device.



Number of Points

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Misc Settings

Automatic Compensation

Check this box to subtract the radius from or add the probe radius to a measured point. **Probe compensation is determined by the direction in which you pull the probe away from the measured surface.**

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Auto Trim

When this box is checked the created lines will automatically trim to the intersect point, after point collection select Done on the Measure Line Input Menu.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

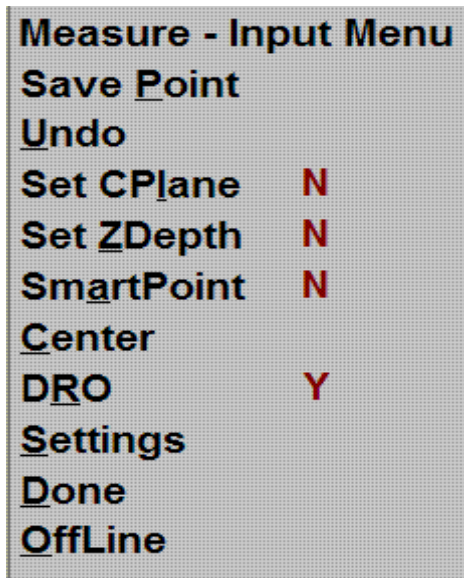
By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

Offline

By selecting this you “turn off” the collection device and enable Verisurf to construct a line from existing points in the graphics.

CIRCLE Measurements

A Circle or Arc is created by measuring or selecting three or more points. If more than 3 points are used then one of the three **Fit Method** routines is calculated for the circle fit. Circles can be measured in 2D or 3D. This is controlled by the current construction plane (CPlane) and Z depth.



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Set CPlane

Select this to change from N to Y to enable the measurement of a construction plane prior to measurement. This is important if the entity being measured does not lie on the current construction plane. If the current construction plane is not where you are measuring the graphic and report output will not be correct.

Set ZDepth

Select this to change from N to Y to enable the measurement of a new Z-level prior to measurement. Unlike the Set CPlane, this command assumes that the CPlane is correct but the entity being measured is at a different Z-level.

Smart Point

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Circle Settings

Trigger Method

Touch (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired.

Continuous (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device.

Number of Points

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Fit Method

Selecting the option here determines how to compute the data collected. **Best fit** calculates a least squares fit. **Inscribe** calculates the maximum inscribe circle. This is useful if you want the biggest pin size that will pass through the hole. **Circumscribe** calculates the minimum circumscribe circle. This is useful if you want the smallest ring size that will fit over a pin.

Coordinates

Selection determines the output format preferred. Polar for radial and angular locations or Cartesian for X - Y- Z coordinate output.

Coordinates

Choosing between Cartesian and Polar will force output to the BOTTOM of the Verisurf graphics screen to be in the specified coordinates. However, they will not be forced to REPORT MANAGER in Polar.

Save

Circle

This creates a full circle from the fitted points.

Arc

This creates an arc from the fitted points. The sweep angle is determined from the first point to the last in a CCW direction. If four points are collected in a crisscross pattern, a full circle is created.

Vector

Select this check box to create a line entity in the graphics. This line represents the vector at the normal direction of the circle and is located at the center point.

Center Point

Saves the center point of the circle in the graphics.

Prompt for Nominal

The option causes the **Nominal Circle** box to be displayed after each circle is measured. This feature is useful for reporting true position because you can enter nominals as you measure the points.

Misc Settings**Automatic Compensation**

Check this box to subtract the radius from or add the probe radius to a measured point. **Probe compensation is determined by the direction in which you pull the probe away from the measured surface.**

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

DRO

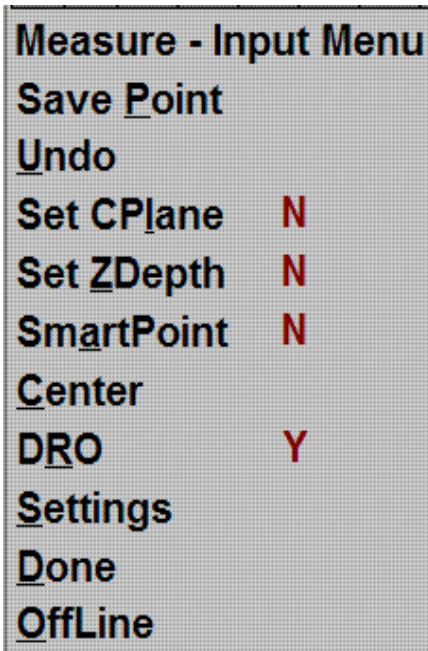
With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Offline

By selecting this you "turn off" the collection device and enable Verisurf to construct a circle from existing points in the graphics.

SLOT Measurements

Points are collected from the “arc” at one end of the slot. A second set of points is then collected from the “arc” at the opposite end of the slot. Two arcs and two lines are created to represent the slot. Once the slot is created, Verisurf displays the XY coordinates of the slot centerpoint, the width, and the length of the slot.



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Set CPlane

Select this to change from N to Y to enable the measurement of a construction plane prior to measurement. This is important if the entity being measured does not lie on the current construction plane. If the current construction plane is not where you are measuring the graphic and report output will not be correct.

Set ZDepth

Select this to change from N to Y to enable the measurement of a new Z-level prior to measurement. Unlike the Set CPlane, this command assumes that the CPlane is correct but the entity being measured is at a different Z-level.

Smart Point

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Slot Settings

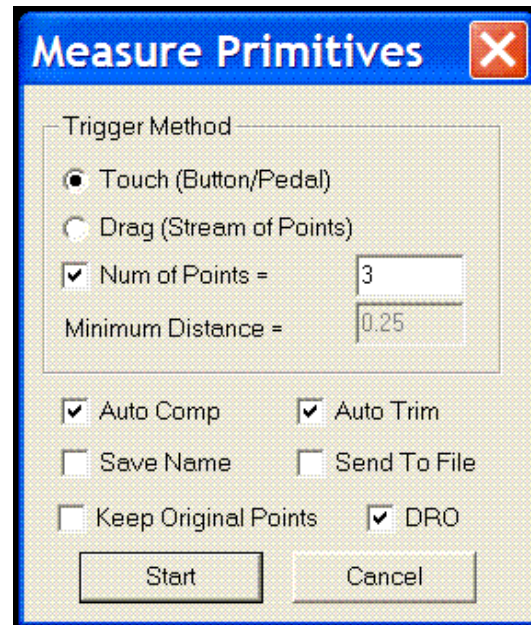
Trigger Method

Touch (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired

Drag (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device



Number of Points

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Misc Settings

Automatic Compensation

Check this box to subtract the radius from or add the probe radius to a measured point. **Probe compensation is determined by the direction in which you pull the probe away from the measured surface.**

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Auto Trim

N/A for Slot.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

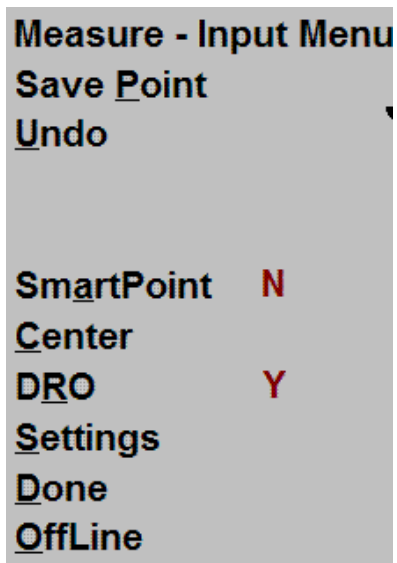
By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

PLANE Measurements

A quantity of points is sampled from the data collection device. A plane is calculated to a “best fit” condition through the sampled points. Note that this command is not affected by the construction plane. Once the plane is created, Verisurf reports the XYZ coordinates of the plane centerpoint, the normal vector of the plane, the total flatness of the plane, and the angle of the plane relative to the XY plane.



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Smart Point

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Plane Settings

Trigger Method

Touch (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired.

Drag (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device

Measure Planes

Trigger Method

☒ Touch (Button/Pedal)

☐ Drag (Stream of Points)

☒ Num of Points = 4

Minimum Distance = 0.25

Save

☒ Surface ☐ Center Point

☐ Vector ☒ Set CPlane

☒ Auto Comp ☒ Auto Trim

☐ Save Name ☐ Send To File

☐ Keep Original Points ☒ DRO

Start Cancel

moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device

Number of Points

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Save

Surface

Select this option to create the surface of the calculated plane. If **Surface** isn't checked, only the collected points and results will be displayed.

Vector

Draws a vector to the surface normal of the plane at the centerpoint.

Center Point

Draws a point at the calculated center of fitted plane.

Set Cplane

When the **Set Cplane** switch is active, Verisurf will set the current working construction plane and Z depth to be equal to the measured plane.

Misc Settings

Automatic Compensation

Check this box to subtract the radius from or add the probe radius to a measured point. **Probe compensation is determined by the direction in which you pull the probe away from the measured surface.**

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Auto Trim

When this box is checked the created planes will automatically trim to each other and create lines at the planes intersections. After point collection select Done on the Measure Line Input Menu.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

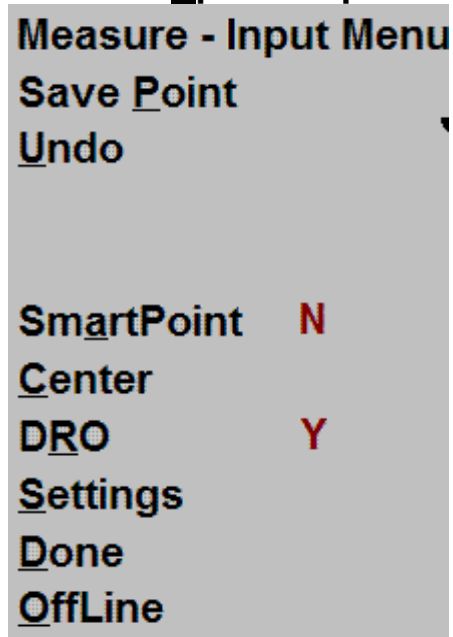
Offline

By selecting this you “turn off” the collection device and enable Verisurf to construct a plane from existing points in the graphics.

SPHERE Measurements

A quantity of points is sampled from the data collection device. A sphere is calculated to a “best fit” condition through the sampled points. Once the sphere is created, Verisurf displays the XYZ coordinates of the sphere center point and the sphericity of the sphere.

Measure Sphere Input



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Smart Point

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Sphere Settings

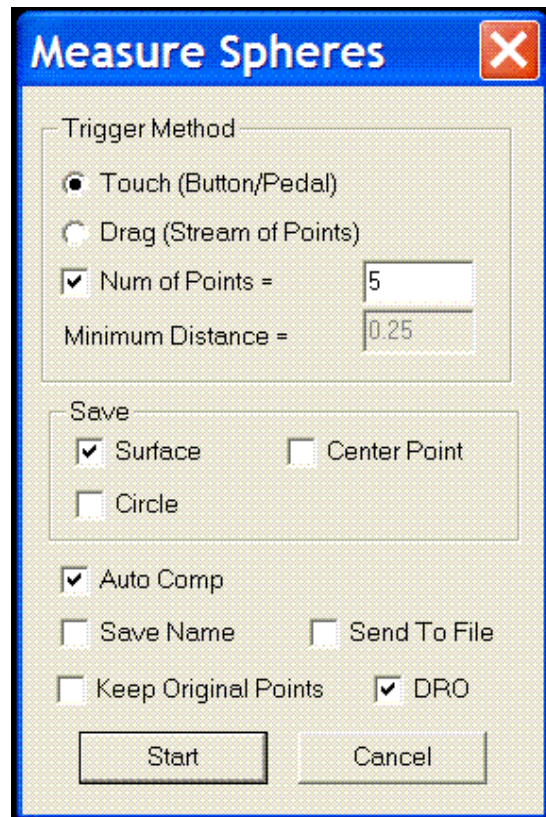
Trigger Method

Touch (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired

Drag (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device



Number of Points

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Save

Surface

Draws the surface of the sphere.

Circle

Draws a full circle that represents the circumference of the sphere.

Center Point

Draws a point at the calculated center of the sphere.

Misc Settings

Automatic Compensation

Check this box to subtract the radius from or add the probe radius to a measured point. *Probe compensation is determined by the direction in which you pull the probe away from the measured surface.*

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

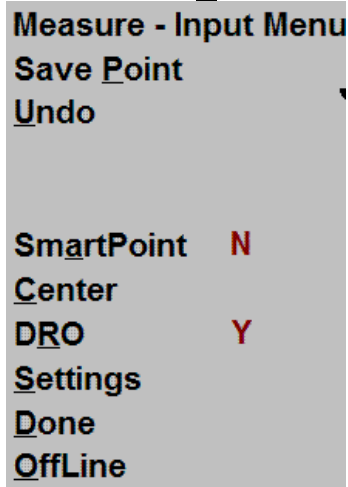
Offline

By selecting this you "turn off" the collection device and enable Verisurf to construct a sphere from existing points in the graphics.

CYLINDER Measurements

A quantity of points is sampled from the data collection device. When measuring on-line, you will be prompt to take points at each end of the cylinder. A cylinder is calculated to a “best fit” condition through the sampled points.

Measure Cylinder Input



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Smart Point

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Cylinder Settings

Trigger Method

Touch (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired

Drag (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device

Number of Points

Measure Cylinders

Trigger Method

☒ Touch (Button/Pedal)

☐ Drag (Stream of Points)

☒ Num of Points = 6

Minimum Distance = 0.25

Save

☒ Surface ☐ End Points

☒ Line ☒ Pierce Points

☒ Auto Comp

☐ Save Name ☐ Send To File

☐ Keep Original Points ☒ DRO

Start Cancel

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Save

Surface

Draws the surface of the cylinder.

Line

Draws the axis of the cylinder .

End Points

Creates points at the ends of the axis.

Pierce Points

Creates a point where the cylinder pierces a surface.

Misc Settings

Automatic Compensation

Check this box to subtract the radius from or add the probe radius to a measured point. *Probe compensation is determined by the direction in which you pull the probe away from the measured surface.*

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

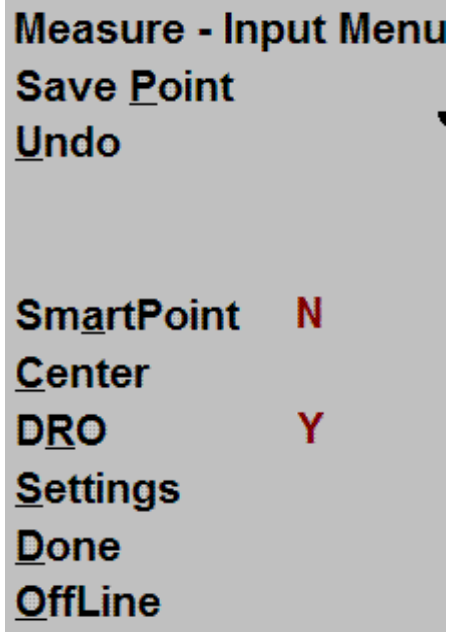
Offline

By selecting this you “turn off” the collection device and enable Verisurf to construct a cylinder from existing points in the graphics.

CONE Measurements

A quantity of points is sampled from the data collection device. When measuring on-line, you will be prompted to take points at each end of the cone. A cone is calculated to a “best fit” condition through the sampled points.

Measure Cone Input



Save Point

Clicking this option or pressing the P key on the keyboard will collect a point at the current location of your data collection device .

Undo

Use this feature to remove the last collected point. Continued use of this option will remove other points, in the reverse order in which they were created. If a feature, such as a circle has been drawn from the collected points, **Undo** will only erase the last drawn feature.

Smart Point

The **Smart Point** button enables special routines that are intended to assist with data collection while using a data-collection device that does not have a trigger or buttons, such as a Laser Tracker.

Smart **Point** will collect a large number of observations from a stationary probe and average the values collected.

Center

This command repositions the graphics screen with the current data-collection device position at the center of the screen.

This can be useful for larger CAD models where you work with smaller areas and you do not have the entire model on the screen.

Simply press the 'C' key, or click on the menu item with the mouse and Verisurf will perform the repositioning of the screen.

DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Cone Settings

Trigger Method

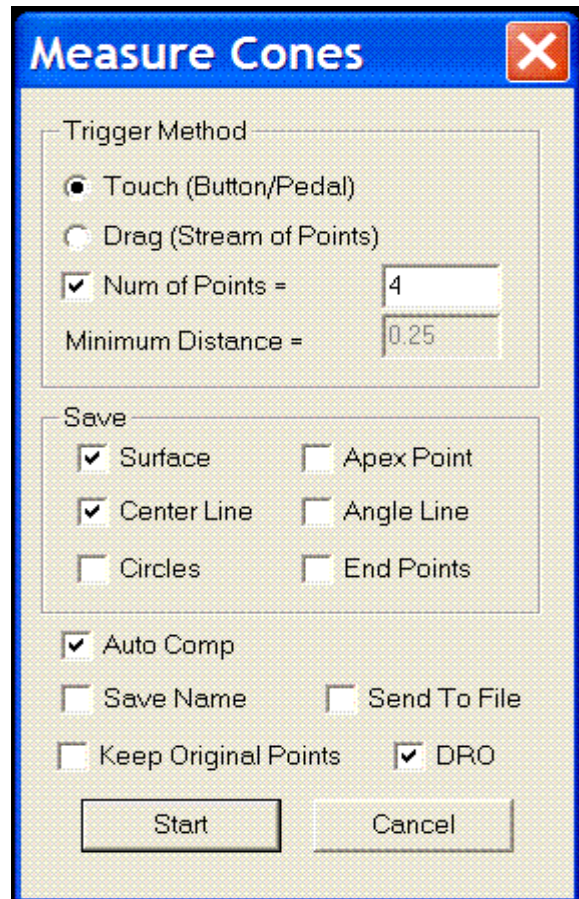
Touch (Button/Pedal)

This trigger method indicates to Verisurf that your data-collection device has some type of switch that you will press or activate when you want to collect a point. For example, a standard probe has a switch built-in. Deflection of the probe causes Verisurf to collect a point at that position. Most of the articulating arm data-collection devices have a button near the probe, which the operator can press when point collection is desired

Drag (Stream of Points)

Most data-collection devices have the ability to output a constant stream of positional data to the Verisurf computer. Verisurf can constantly read the positional data and record points, each time the data collection device moves the distance specified with **Minimum Distance** setting. This type of trigger method is most commonly used where a solid or hard probe is attached to the data-collection device

Number of Points



The screenshot shows the 'Measure Cones' dialog box with a blue title bar and a red close button. The 'Trigger Method' section has two radio buttons: 'Touch (Button/Pedal)' (selected) and 'Drag (Stream of Points)'. Below these are two checked checkboxes: 'Num of Points =' with a text box containing '4', and 'Minimum Distance =' with a text box containing '0.25'. The 'Save' section contains four checkboxes: 'Surface' (checked), 'Apex Point' (unchecked), 'Center Line' (checked), and 'Angle Line' (unchecked). Below these are two more checkboxes: 'Circles' (unchecked) and 'End Points' (unchecked). At the bottom, there are three checkboxes: 'Auto Comp' (checked), 'Save Name' (unchecked), and 'Send To File' (unchecked). Finally, there are two checkboxes: 'Keep Original Points' (unchecked) and 'DRO' (checked). At the very bottom are 'Start' and 'Cancel' buttons.

This setting indicates to Verisurf the number of points to collect for the current measurement session. Check this box and use the corresponding text box to enter the desired number of points. This feature works for both the trigger and drag methods of data collection. If the switchbox is not checked, Verisurf will continue to collect points for the current definition until you select **Done** from the **Measure Line Input Menu**.

Minimum Distance

While in Drag Mode Verisurf will automatically filter the points so that no one point will be within the distance specified from any other point.

Save

Surface

Draws the surface of the cone.

Center Line

Draws axis of the cone.

Circles

Creates 2 circles at the ends of the axis on the cone.

Angle line

Creates 2 lines along the taper of the cone

End Points

Creates points at each end of the axis and one at the apex.

Misc Settings

Automatic Compensation

Check this box to subtract the radius from or add the probe radius to a measured point. **Probe compensation is determined by the direction in which you pull the probe away from the measured surface.**

Keep Original Points

With this box checked, the locations of the collected points will remain on the screen after the feature is calculated.

Send to File

This automatically sends measured results to the report file. The report file is specified with the **Setup File** option in the **Measure - Input Menu**.

Save Name

By checking this, you will get a note created at the center of the measured geometry that describes it's primitive type and the consecutive number of each entity created.

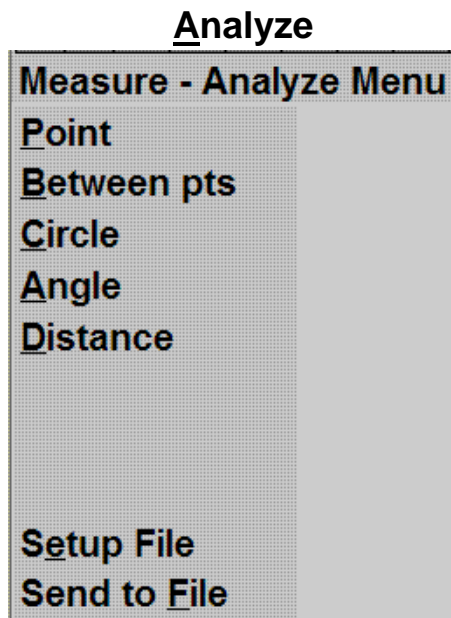
DRO

With this feature enabled, a Digital Read Out of the probe location is displayed in its own window. The DRO can be activated from the settings dialog box or the Measure Input window.

Offline

By selecting this you "turn off" the collection device and enable Verisurf to construct a cone from existing points in the graphics.

Analyze



The **Analyze** menu provides several methods of analyzing the geometry in your database. Though not provided with the Design system, these functions can enhance the standard functions in many ways.

Point

Reports the coordinates of points selected with the point entry methods.

Between Points

Reports the distance between points selected with Design's point entry methods.

Circle

Reports the diameter and position of a circle

Angle

Reports the angle between two selected planar entities or two lines. If the planes or lines are parallel then the distance between them is shown.

Distance

Reports distance between two selected planar entities. If the planes are not parallel, the angle between them is shown.

TTrue Position

Next Menu

Measure - Next Menu
AAnalyze
TTrue Position
GD&T

Smart

Ellipse
Set CPlane
Set ZDepth

TTrue Position input

Select entities for True Position

Unselect
Chain
Window

Area
Only
All
Group
Result
Done

Select Entities

The **True Position** feature allows you to select circles that have been measured with a data-collection-device and circles that have been created using CAD features. After data selection click Done or press D on the Keyboard.

After this dialog box appears, you may enter the nominal data and select options for the calculations.

Nominal Data

You may change the nominal information for whichever data point is highlighted in the data display area. This information is retrieved from the database. Changing the data here will affect the reported results, but not the database.

Diameter Tolerances

These are the values that Verisurf uses to determine the total deviations that are displayed on the report.

#	Diameter	X	Y	Dia Error
1	1.5000	2.5000	2.5000	
	1.4956	2.4974	2.5049	
	-0.0044	0.0026	-0.0049	0.0111
2	0.5000	1.5000	3.5000	
	0.4986	1.4979	3.5046	
	-0.0014	0.0021	-0.0046	0.0101
3	0.5000	3.5000	3.5000	
	0.4981	3.4983	3.5046	
	-0.0019	0.0017	-0.0046	0.0098
4	0.5000	3.5000	1.5000	
	0.4981	3.4978	1.5042	
	-0.0019	0.0022	-0.0042	0.0095
5	0.5000	1.5000	1.5000	
	0.4983	1.4976	1.5046	
	-0.0017	0.0024	-0.0046	0.0104

Nominal		Diameter Tolerances	
Dia =	1.5	Upper (+) =	0.01
X =	2.5000	Lower (-) =	-0.01
Y =	2.5000	Conditions	
<input checked="" type="radio"/> Cartesian <input type="radio"/> Polar		<input type="radio"/> MMC <input type="radio"/> LMC <input checked="" type="radio"/> RFS	
List		Excel	
Close			

Conditions

The three available conditions, Maximum Material Condition (**MMC**), Least Material Condition (**LMC**), and Regardless of Feature Size (**RFS**), provide the inspection process a possible “bonus” tolerance for each measurement, depending on the size of the measured circle.

Cartesian

Displays measurements in a Cartesian coordinate system. X and Y measurements will be displayed.

Polar

Displays measurements in a Polar coordinate system. Radius and Angle measurements will be displayed.

GD&T Menu

This is now obsolete. All GD&T is handled in the REPORT MANAGER.