

Inspection Manager is a Windows PC-based software tool which allows the re-measurement and analysis of any measurement image captured by a Waygate Technologies VideoProbe. The tool allows you to move measurement cursors, add measurements, or completely clear out previous measurements and begin a new measurement process. If the measurement image was captured with a 3D-Stereo or 3D-Phase process, this tool also allows full point cloud viewing and manipulation.

3D Phase Measurement :

Using patented structured-light technology, 3D Phase Measurement enables inspectors to locate, measure, and analyze an indication using the same tip optic. The wide field of view and large depth of field allow for measuring with the same tips used for inspecting, thus eliminating the extra steps required to back out, change the tip, and then relocate the indication. 3D Phase Measurement provides accurate measurement “on-demand” while saving time and increasing overall inspection productivity. 3D Phase Measurement employs structured light patterns projected from the tip to create a 3D surface scan of the viewing area and can measure all aspects of surface indications.

Benefits of 3D Phase Measurement :

1. View and manipulate a 3D point cloud for detailed assessment of surface shape and measurement correctness.
2. Full-screen viewing of measurement image for greater resolution
3. Navigate, inspect and measure without changing probes or tip optics
4. Available on 6.1 mm diameter probes
5. Green side view tip provides ability to measure larger areas and at distances up to 4.7 inches
6. Measurements can be refined by moving cursors within the point cloud

3D Stereo Measurement:

3D Stereo Measurement utilizes the same optical tips as traditional Stereo Measurement, but employs more advanced calibration and processing algorithms to generate a full 3D point cloud representation of the target surface that can be viewed, manipulated, and analyzed.

Benefits of 3D Stereo Measurement:

1. More accurate, precise measurement compared to traditional or manually matched stereo measurement
2. Provides better matching capabilities than Stereo Measurement on horizontal and repeating indications

3. View the camera image and 3D point cloud side-by-side for highly efficient measurement analysis
4. Measure effectively on shiny (or highly-reflective) surfaces which include detail, especially when using Image Brightness and Dark Boost
5. Measure on surfaces with some minor movement present
6. Available on 4.0, 6.1, 6.2 working channel and 8.4 mm probe diameters

Length Measurement type:

Measures the straight-line distance between two selected cursor points

Example Applications of Length Measurement:

1. Simple measurement of features or components
2. Indication length measurement (i.e, cracks)
3. Measurement of component size migration through expansion or erosion/corrosion/wear
4. Determining the remaining size of wear indicators
5. Measuring location/zone of indications on a part

Best Practices to Improve Length Measurement Accuracy:

1. Length is a straight-line measurement. It is not suitable to measure the distance across a curved surface.
2. When measuring a distance from an edge, adjust the cursor positions such that the light blue 3D Surface Mask appears along the edge rather than at an angle to the edge.
3. This will minimize error caused by measuring diagonally. Point to Line may also be a better option in such cases
4. Move the tip closer to make the target area as large in the center of the screen as possible, while keeping the cursor point areas in focus
5. Watch for orange advisory indicators to ensure the measurement distance is within the confidence interval
6. The zoom window can be helpful for accurate placement. It is important to start with a crisp image so that the cursors can be placed accurately on the indication.
7. Use a Measurement Plane when red areas prevent proper cursor placement or 3D noise may be affecting the result.

Point to Line measurement type :

Measures the perpendicular distance between a line (defined by two points), and a selected point.

Example Applications Point to Line measurement:

1. Turbine blade edge damage
2. Estimate missing corner area using multiple point-to-line measurements
3. Gap or groove width
4. Weld width

Best Practices to Improve Point to Line Measurement Accuracy:

1. Review the 3D point cloud to ensure your cursors are located correctly
2. Space the first two cursors far apart along the reference edge. If possible, place them on opposite sides of the indication being measured. Placing them close together can cause error by tilting the reference line in 3D space
3. Check the point cloud to verify that the reference line is not tilted with respect to the reference edge on the part. This is especially important when both reference line cursors are on the same side of and away from the third cursor
4. Also check the point cloud to be sure the measured distance is not at a diagonal, which can give a higher-than-actual result
5. Use a Measurement Plane when red areas prevent proper cursor placement or 3D noise may be affecting the result. See the Measurement Plane section for details
6. Use a Measurement Plane when measuring distance from a rounded edge to determine the perpendicular distance from the edge. Position the reference cursors such that the light blue 3D Surface Mask appears along the outer face of the rounded edge.

Depth measurement type:

Measures the distance from a reference plane (defined by three selected points) to a fourth selected point above or below the plane

Example Applications Depth measurement:

1. Blade tip to shroud gaps
2. Pits or dents from corrosion, erosion, or FOD impact
3. Pipe inside diameter
4. Weld height
5. Stator vane rock
6. Gap width