Non-Contact 3D Inspection

3D Infotech’s Metrology Automation Systems allows you to easily teach measurement and inspection routines. Once a program is created, an operator can simply place a part in the measuring area and run the program. The robot or motion control system scans the part and compares it to CAD to generate dimensional analysis reports.

The analysis can include:
- CAD deviation color maps
- Soft gauging including virtual calipers
- Geometric dimensioning and tolerance (GD&T)
- Multi-part variability
- Statistical process control

High-end mathematical algorithms are used to process large amounts of point cloud data rapidly. The quality reports can be utilized across the enterprise with suppliers, customers and internal departments.

Powered by Streamline

3D Infotech’s automation software platform. Optimize the scanning and inspection workflow by using Streamline’s simple, touchscreen user interface for robot teaching, playback, scan data analysis and reporting.

Large Volume Measurements

Streamline allows real-time data collection using the MetraSCAN 3D™ R-Series by tracking the scanner in a large measurement volume. The C-Track™ optical tracker is used to accurately synchronize the position of the scanning head.
High Level Workflow

3D Infotech configures inspection routines for the required parts. The operator will control the system using an on/off switch, an emergency stop mechanism is available for safety.

When powered on, the system waits for a part to be positioned on the rotary table. The operator selects the part to be measured and enters a serial number. Simply pressing the green scan button will initiate the inspection routine. Once the system has completed its tasks, the software will perform the necessary calculations, archive part quality data, and display the appropriate quality report.

Any operator or manager is able to drill down into a detailed metrology report as needed.

Robot Specifications

<table>
<thead>
<tr>
<th>Payload</th>
<th>3 kg / 6.6 lbs</th>
<th>5 kg / 11 lbs</th>
<th>10 kg / 22 lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach</td>
<td>500 mm / 19.7 in</td>
<td>850 mm / 33.5 in</td>
<td>1300 mm / 51.2 in</td>
</tr>
<tr>
<td>DoF</td>
<td>6 rotating joints</td>
<td>6 rotating joints</td>
<td>6 rotating joints</td>
</tr>
<tr>
<td>Temp</td>
<td>0-50°C</td>
<td>0-50°C</td>
<td>0-50°C</td>
</tr>
<tr>
<td>IP class</td>
<td>IP64</td>
<td>IP54</td>
<td>IP54</td>
</tr>
<tr>
<td>Weight</td>
<td>27.5kg/60.5 lbs</td>
<td>37kg/81.4 lbs</td>
<td>47.4kg/104.3 lbs</td>
</tr>
</tbody>
</table>

Seamless 3D Scanning

With the Creaform HandySCAN 3D™ or the MetraSCAN 3D™ R-Series users can scan at high speeds in real-time using up to 14 lasers simultaneously. Measurements can be complemented in the same setup by using a single line scan to reach into deeper pocket areas. 3D Infotech’s spline based robot path teaching, allows continuous scanning motion across the part. This replicates human motion, taking advantage of the collaborative robot’s capabilities.

During the scanning process, data is aligned together automatically using photogrammetric targets located on a holding fixture or the part itself.

Automatic Reporting

Streamline software synchronizes all the components of the automated metrology solution to produce inspection reports quickly. A mesh is generated and compared to CAD geometry in an existing inspection template. The report is exported to a PDF or Excel file format.

Enterprise Database Integration

Monitor your factory production processes by visualizing key statistical data on your desktop. Realtime dashboard can be created to integrate shop floor data into existing PLM and ERP systems.