OPTI-SCAN3D

Portable 3D White Light
Scanning System

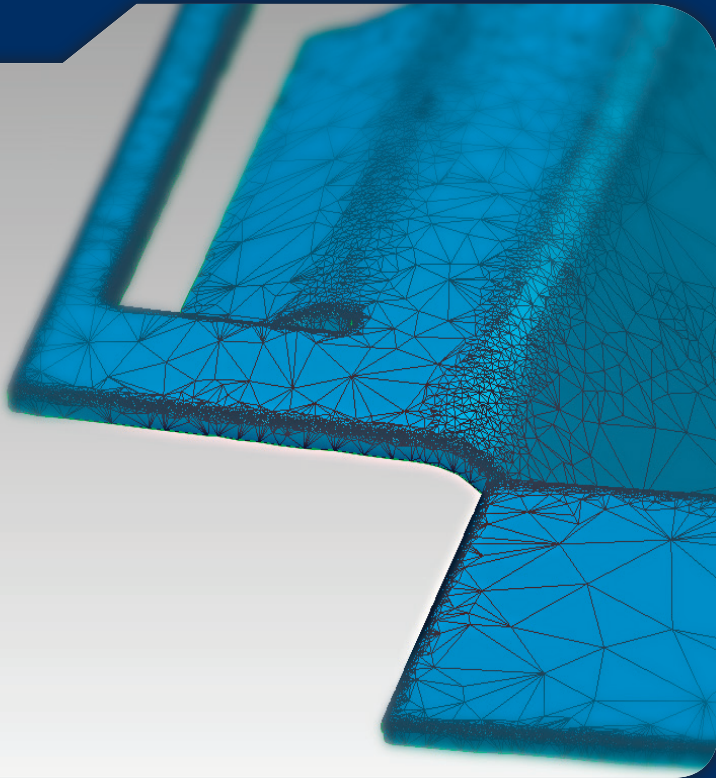# 3D INSPECTION & REVERSE ENGINEERING

Accuracy in every dimension

INSPECVISION WHITE LIGHT SCANNING TECHNOLOGY

The Opti-Scan is a non-contact white light scanning system consisting of a projector and a high resolution camera mounted side by side. Scans are achieved by projecting a series of stripes onto the part. These stripes are then captured with the camera and the images analysed to produce a 3D point cloud of the scanned surface.

Each point cloud is made up of millions of individual measurement points or (x,y,z) coordinates and directional or normal data (i,j,k). The Opti-Scan outputs the ultra high resolution point clouds into a number of different file types, which can be used in virtually any 3D inspection or reverse engineering software package.

The InspecVision OptiScan systems use our patented technology to create both surface and edge measurements achieving unprecedented levels of accuracy.

INSPECTION & REVERSE ENGINEERING

Once a component has been scanned and the point cloud generated, the data can be used to quickly inspect critical features, or to accurately reverse engineer the part.

There are a variety of software packages available that allow the user to:

- Compare the measurements to the nominal CAD solid model and create a colour coded deviation map of the errors in 3D
- Measure and compare the size of 2D and/or 3D positions of geometric entities such as holes, slots, cylinders etc, against CAD nominals
- Measure bend angles in sheet metal parts and lengths of folded tabs etc
- Create and analyse cross sections of the part
- Perform GD&T analysis
- Create customised formatted inspection reports
- Reverse engineer free-form surfaces and geometric entities from the point cloud data back to a variety of native CAD formats

SOFTWARE COMPATABILITY

Opti-Scan is software neutral. It outputs a variety of universally compatible file formats that can be used by any 3D inspection or reverse engineering software packages such as:

- Geomagic Qualify
- Polyworks

TYPICAL WORKFLOW

SET UP OPTI-SCAN3D EQUIPMENT + SCAN TEST OBJECT >

MEASURE EDGES WITH BACKLIGHTING

Other 3D scanning systems can scan surfaces, however they cannot effectively measure edges. Therefore they cannot measure parts, for example sheet metal components, whose shape is defined by their edges rather than their surfaces.

InspecVision are specialists in edge measurement and hold the patent for edge measurement using a backlight. With the Opti-Scan it is possible to measure both the surfaces and edges in 3D using the following configurations

- Opti-Scan standalone system with backlighting hardware

- Opti-Scan module fitted to one of our Planar systems (see Planar brochure for more information)
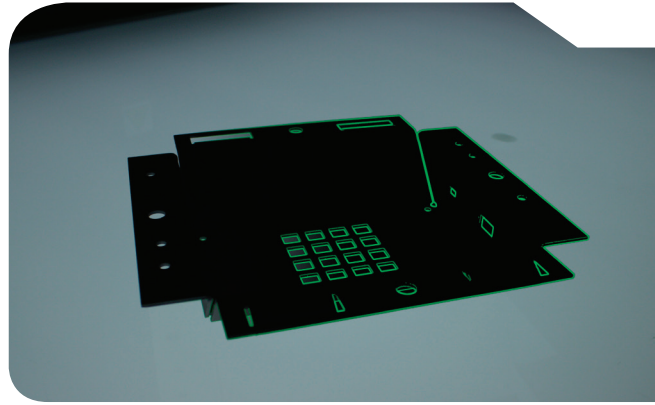
AUTOMATION AS STANDARD

With the Opti-Scan automation comes as standard. A part can be measured and inspected with the click of a button or the scan of a bar code. Within 4 minutes the system can automatically:

- Convert bar codes into CAD file location

- Scan the part from multiple viewing angles within the viewing hemisphere

- Output the scan data as point clouds

- Align the point clouds to the CAD model

- Create and print a color coded deviation map

- Create and print an inspection report containing GD&T data and user defined critical dimensions

INTEGRATED 3D SCANNING AND TOUCH PROBING WITH OPTI-PROBE

The Opti-Scan can measure surfaces and edges, but what about features that are hidden from view?
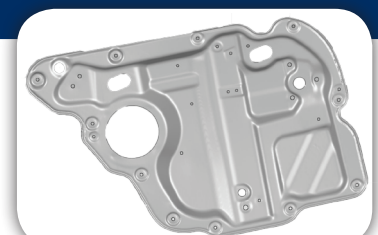
With the addition of the Opti-Probe hand-held wireless device, hidden features can be quickly measured by touch probing. The OptiScan camera is then used to calculate the position of the Opti-Probe in 3D by tracking retro-reflecti e markers mounted onto the probe hardware.

Integrating these two systems creates a very powerful all-in-one measurement system that is both contact and non contact.
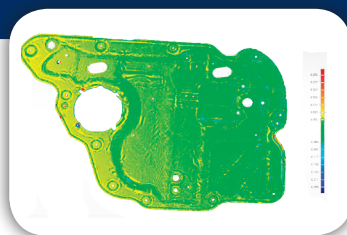
INSPECT AGAINST CAD   +   REVERSE ENGINEER

COMPARISON WITH COMPETITION

	InspecVision Opti-Scan	Competing Products
Certified Accuracy	All of our systems quote volumetric and single point accuracy figu es. We also provide a verification kit to certify the accuracy.	Do not quote accuracies, only point spacing! Occasionally mention "up-to" accuracy figu es but at an unknown measuring volume.
Camera resolution	Greater than 10 Mega pixel.	Typically 5 Mega pixel or less.
3D Edge Measurements	Opti-Scan can use InspecVision's patented edge detection technology to acquire accurate edge measurement data	No competing systems have this capability. InspecVision holds the patent for this type of edge measuring technology
Operating Environment	Designed specific y for factory floor condition	Designed for use in an office or la .
2 Axis CNC repositioning based on optical markers	1 or 2 axis available on all models. Accuracies are achieved through optical markers not sensitive mechanical systems.	Typically no repositioning or single axis turntable only. CNC accuracy relies on sensitive mechanical systems.
Touch probing	Opti-Scan can be fully integrated with our Opti-Probe wireless CMM device. This allows for full 3D surface scanning and touch probing of hidden features on the same system	Typically not available.
Models & flexibilit	The modular design of InspecVision products allows you to add 3D touch probing or 2D scanning to your 3D scanner. We also have a wide range of scanning sizes and accuracies.	Limited range of scanning sizes, very few or no additional measuring options.
Texture Capture	Standard on all systems.	Typically not available.
Cost	Very competitively priced	Typically much more expensive for comparable system.

INDUSTRIES

The Opti-Scan is both flexible and modular. Consequently it can be used in a wide variety of industries:

- Aerospace
- Automotive/Transport
- Plastic parts
- Sheet-metal parts
- Machined parts
- Energy and power
- Metal castings
- Research and development

TYPICAL APPLICATIONS

- Scan parts and compare directly to CAD
- Measurement without CAD
- First article inspection
- Verification of test pa ts against master components
- Tool certificatio
- Complete reverse engineering of virtually any part back to native CAD formats