

# “WELDSIGHT-3D” VISION SYSTEM FOR ROBOTIC WELDING APPLICATIONS

## INDUSTRIES

- Automotive

Robot end of arm tool  
(vision & welding tool combined)



Axiom’s WeldSight-3D (WS-3D) vision system allows a welding robot to adapt to a fuel tank’s irregularities or imprecisions. The objective of the system is to scan a “Region of Interest” (ROI), in this case a weld pad, and to dynamically adjust the position and orientation of the welding tool. This results in the component being both centered and parallel to the weld pad. In addition, the system can detect surface irregularities, hole and weld pad diameter and concentricity, foreign matter detection and potentially “scrap” a shell that has an out-of-tolerance weld pad

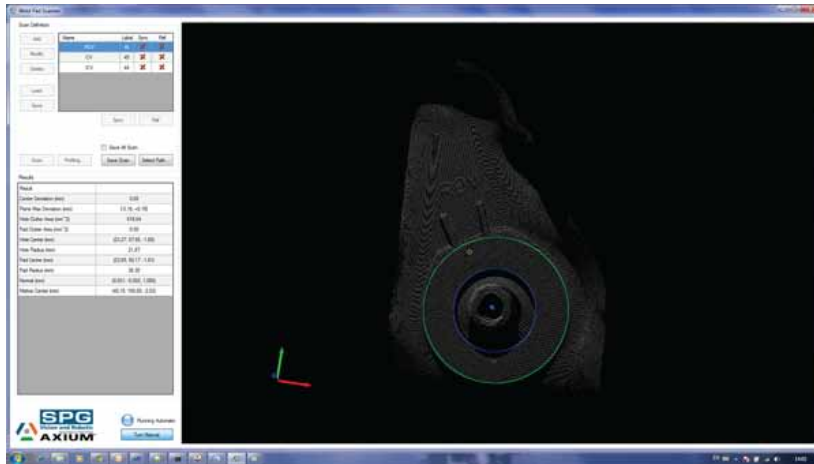


MAIN FEATURES	BENEFITS
Non-contact 3D scan	Improved quality
High Resolution	Improved cycle time (parallelism reduces welding times)
Not affected by ambient light	Easy installation on existing or new applications
Precision adjustments (position & orientation) for robotic fabrication	Better quality for welding operations, reduced scrap
Planning and correction of robot trajectories	Accurate positioning on surfaces with variations
Geometry and dimension control	Validation of surfaces dimensions, concentricity and flatness
Missing or defective matter detection	Quality validation
Inspection and quality assurance	

Axium's WeldSight-3D vision system consists of a 3D scanner (camera and laser on a mobile axis) combined to a software with operator interface that communicates with a robot controller (brand and model independent) to correct the position and orientation of the welding tool to adapt to each surface irregularities.

## WELDSIGHT-3D VISION SOFTWARE AND GRAPHICAL USER INTERFACE

The 3D vision system software running the algorithms also includes a Graphical User Interface (GUI) that enables an operator to visualize the scanning process and see the results live while the data is being transferred to the robots. It also enables an operator to easily configure the system for different part shapes.



The vision tool can be mounted on a robot as a standalone unit or in combination with another tool like a hot plate welding tool.

## TYPICAL SYSTEM PRECISION

Linear precision: 0.06mm  
Angular precision: 0.01 degrees

## FLATNESS DEVIATION MEASUREMENT

The system measures the maximum deviation points above and below the plane surface of the weld pad.

