

A FULL-SERVICE MANUFACTURER

TSM is a full-service manufacturer of custom components for automotive powertrain, driveline, and chassis applications.

Plantwatch provides GM required traceability from Tier 1

Plantwatch keeps a collection of data for each part from the moment it is marked.

Before a part is worked on a camera reads it's unique ID to the PLC who then asks Plantwatch if this is a good part that should be worked on at this cell.

Plantwatch checks its data and tells the PLC if it is OK to proceed with that part.

Plantwatch then collects all of the data from the PLC as it processes the part.

One Plantwatch manages 11 PLCs with a total of 14 cells

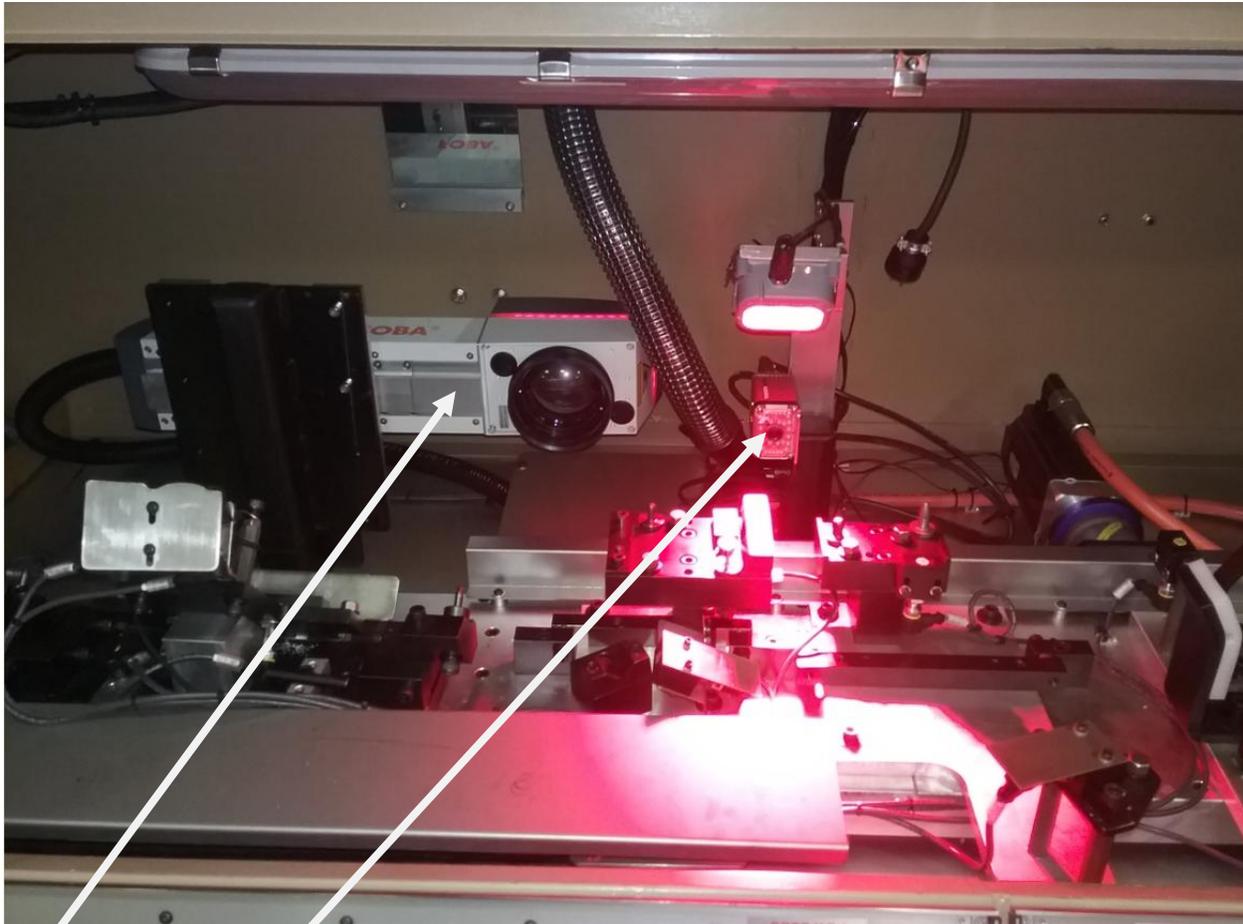
System

TSM machines and assembles primarily automotive parts, in this case aluminum castings. Once machined they begin the assembly process by having a 2D bar code , Data Matrix etched into the part. The marking machine was supplied by HTE and marks 5 different parts.

Marking Machine



Marking Machine interior



Laser / Verification camera

The Plantwatch system collects data from the marking machine for each unique part.

After the parts are marked they are checked for good mark quality and decode content. Each part is uniquely identified and the data is associated with the part is logged to Plantwatch. Latter this data will be used to verify that the mark quality was good before any work is done with the part.

The marked parts are then taken to the assembly area where they are processed in one of 4 lines, each line has 3 to 6 cells.

One PC based Plantwatch system error proofs and collects data from the 4 lines during the assembly process.

Data

Cameras - There are about 18 cameras spread out in the 11 cells. Some read the marked castings while others read barcodes on parts being added to the assembly. The cameras communicate over Ethernet IP to the PLC.

Data Points – There are about 250 data points collected thru the cells.

Leak test

Final Pressure

Torque

Total degrees

Peak Torque

Final Torque

Press

Peak Pressure

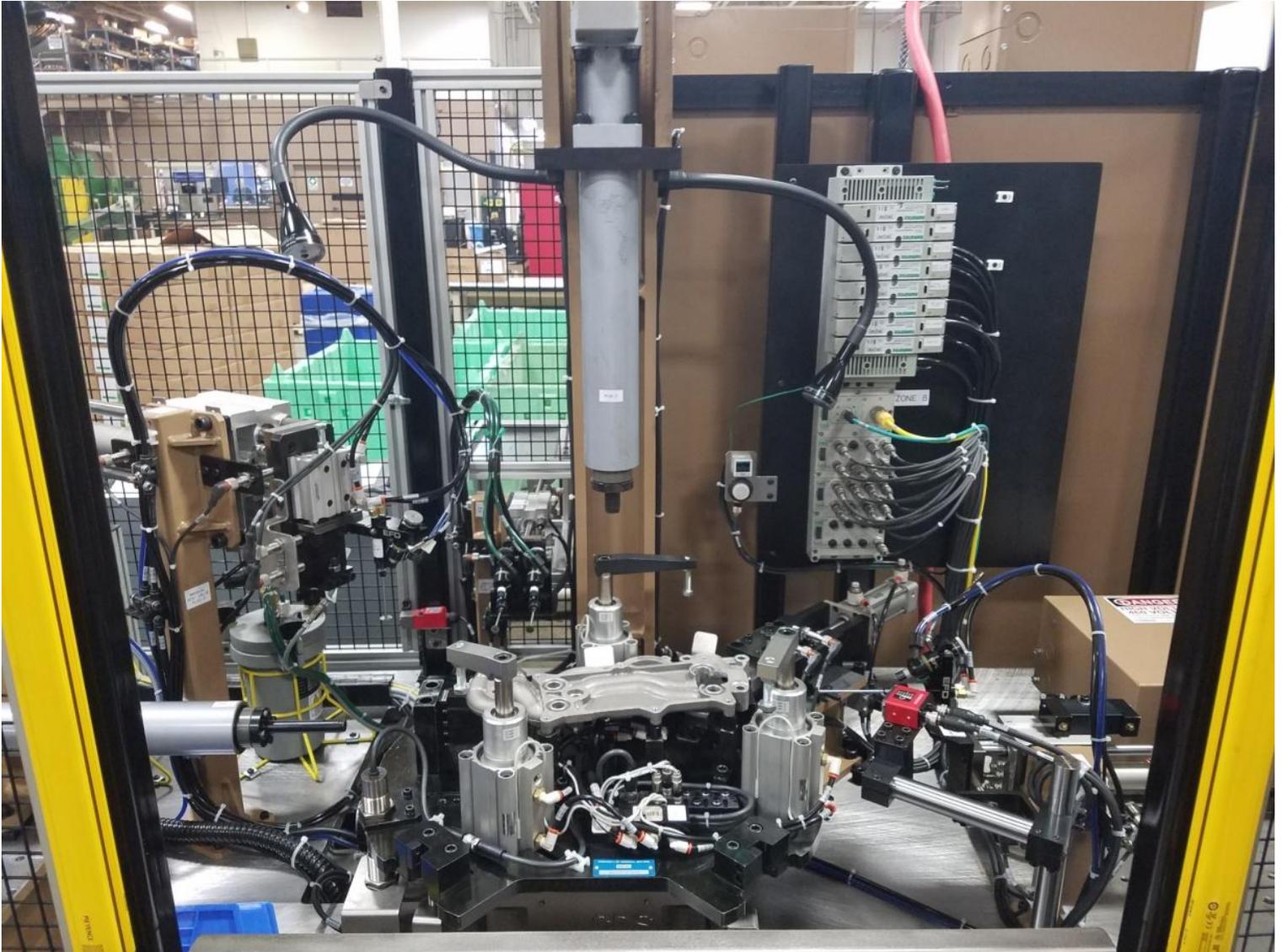
Final Pressure



Assembly line

Oil Cooler line with 5 cells

In assembly the marked parts are read by Omron Microscan cameras so the historical data for each part can be checked. If all required tests have not passed, the machine is disabled. As long as all tests passed, the machine will process.



As the machine processes, all of the data from the torque guns and presses is recorded. By the time an assembly is completed there will be in excess of 100 pieces of information associated with the part.