

Ring Counting Machine



Client

Our client is an American developer, manufacturer and supplier of products for automotive, commercial, aerospace, marine, rail and off-road vehicles and power-generation applications. With over 53,000 employees, they are ranked 3rd among their top 10 competitors.

Problem Faced

To pack the stack of rings, the counting of the piston rings has to be done. And it is a tedious and time-consuming process. Also, the accuracy for lesser thickness can go down due to human errors.

Technology introduced by Qualitas

“Sherlock”, a rule-based image processing software developed by Teledyne Dalsa, had been introduced. The images are compared to a predefined set of parameters and based on whether the images fit in those parameters, the product is classified as either PASS/FAIL. Two area scan cameras were also implemented to ensure that the images were captured from all the angles necessary.

Solution



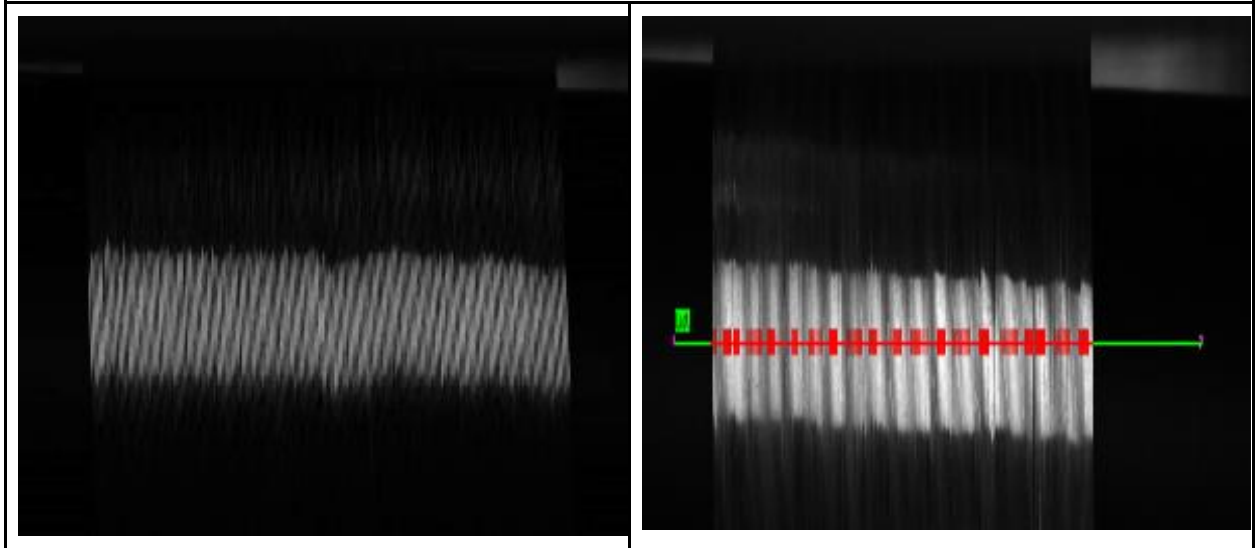
Since coverage of Field Of View (FOV) of 310 mm corresponding to the maximum stack length is required, the complete stack lengths are divided into two and two cameras are placed to cover the entire FOV. The solution provided the counting for 14 different models having a different coating on their respective surfaces.

The operator has to place the rings from both sides and then trigger the camera (through software) to capture the image. The images are further processed in an industrial PC which shall be placed inside the control panel box and the results showing the standard count and the PASS/FAIL gets displayed on the screen.

Images

<i>Captured Image</i>	<i>Annotated Image</i>
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Results

The test images set were trained and the results were extremely accurate and thus our client's problem was resolved.

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