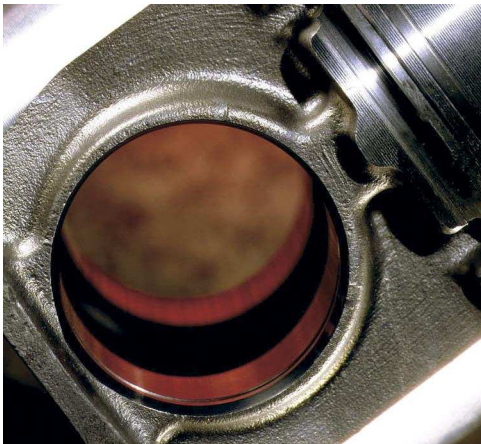


## Automotive Products Application



### Typical Hardware for This Application

- Checker 201 – CKR-201-001
- Mounting bracket – CKR-200-BKT
- SensorView 350 – SV-350-000

### Reference Information

- Checker Reference Guide
- Checker Solutions Brochure
- Checker Product Guide

## Verifying Threads in Hole

### Problem

An automotive part manufacturer was experiencing low production output due to missing threads in holes on a machined part. Automated assembly operations on the line could not be completed due to improperly threaded holes. Photoelectric sensors checking for presence of threads in the holes gave inconsistent results due to variations in part position at the inspection point. Fixturing the part at inspection for more reliable results was expensive and still resulted in low throughput.

### Solution

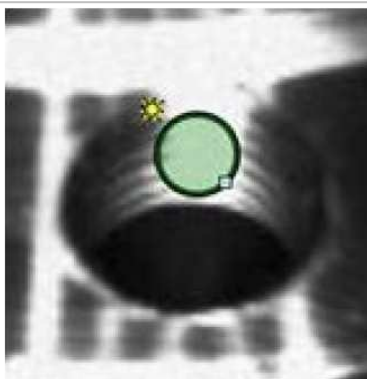
A Checker® vision sensor was installed. Checker's part finding sensor identifies a reference feature on each part. The reference feature is used to locate a point where hole threads should be visible. Checker then uses its brightness sensor to inspect that point for presence of the threads. Use of the part finding sensor to locate the inspection point provides consistent and reliable readings even when position of the part varies.

### Results

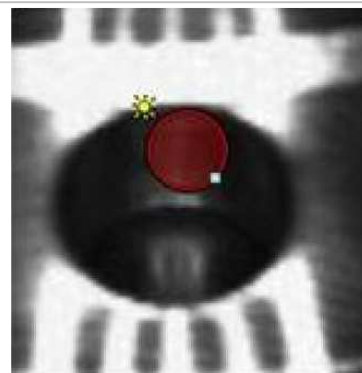
Scrap and rework costs were reduced by reliably identifying unthreaded holes prior to attempting automated assembly operations. Yields and line throughput were increased by tighter control of the hole tapping process. Fixturing and setup time requirements were reduced by Checker's part finding capability.

### Sensors Used

- Part Finding Sensor – Not shown in image
- Brightness Sensor – Circle in image



Thread Present



Thread Missing

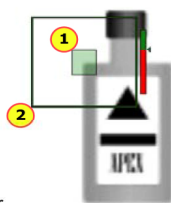
## Automotive Products Application Verifying Threads in Hole

### Sensors Used in this Application

X

#### Part Finding Sensor

A Part Finding Sensor detects and locates your part in the image. You create a Part Finding Sensor by drawing a box around a feature of part that is present on both good and bad parts.

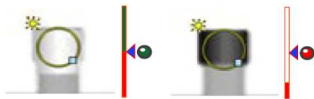


1. The feature Checker is looking for.
2. The Search Region (where Checker looks for the feature).

X

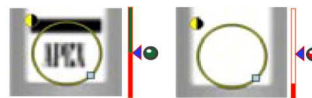
#### Brightness Sensor

Use when the feature of a good part is much lighter or much darker than the same feature of a bad part.



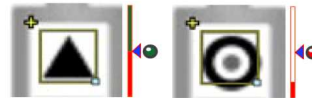
#### Contrast Sensor

Use when the feature of a good part has more or less distinct dark and light areas than the same feature of a bad part.



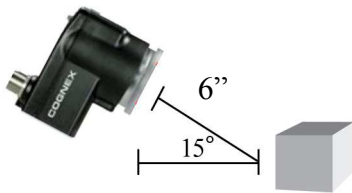
#### Pattern Sensor

Use when the feature of a good part has the shape you want and the same feature of a bad part does not, or when inconsistent lighting conditions cause Brightness or Contrast sensors to fail.



### Application Setup

#### Mounting (Approximate)



Lens: 5.8mm standard lens supplied with Checker

Lighting: Internal lighting from Checker – no need for external lighting in this application

#### Input / Output

This application uses the standard I/O ports available on Checker

- The Part Finding Sensor is Output 0
- Brightness Sensor is Output 1

The outputs may be sent to a PLC.

Output 0 verifies that Checker located the part and this used as a trigger for other devices.

Output 1 represents the result of the Brightness Sensor indicating absence/presence of the threads

SensorView allows users to view jobs and images without a PC.