

Automatic visual inspection system  
for cold forging parts

# IM-5100

## Automate visual inspection system for cold-forged rotational part

To maintain the quality of forgings, all the products require visual inspection by experienced operators. While the parts production would be increasingly anticipated in the future, the needs of automatic inspection process increases as a method expecting better and stable inspection capacity. While the parts production continue to increase, demand on quality are also increasing to urge the automatic inspection system.

SCREEN has developed the world-first "automatic visual inspection system for cold forgings IM-5100" for cold forgings to be used for major parts in automobiles including transmissions. The IM-5100 adopts the SCREEN's unique technology of optical system and high-precision inspection algorithm, which made the system to detect a defect in size of several tens of micro meter within 7 sec\*.

In addition, the IM-5100 removes irregularities on surface of cold forged parts generated by lubricants or rust prevention treatment using the SCREEN's original image processing technology, and controls excessive detections.

Further, with placing multiple optical sensors, IM-5100 can inspect the inner of outer race as the coupling part of obscured constant velocity joint part.

IM-5100 will contribute to the productivity and the quality improvement to the cold forged parts which requires safety. This will be released in fall, 2017.

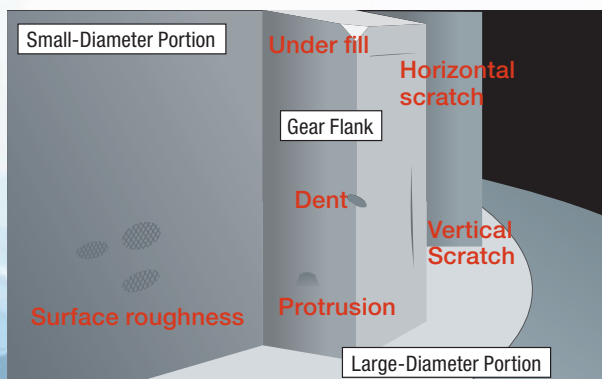
\* An in-company investigation



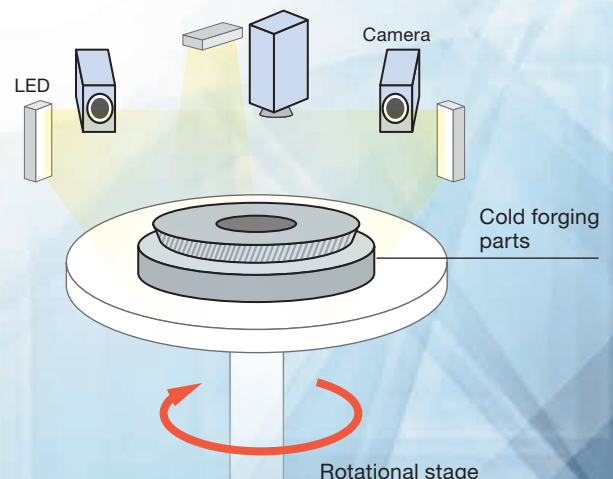
### Applicable defectives (Evaluation Results Base)

- Parking gear** – built-in to AT/CVT
- Clutch gear** – built-in to MT
- Differential gear**
- Outer race** – built-in to constant velocity joint
- Rotationally symmetrical parts** – sheet forging
- Decelerator gear** – built-in to motor

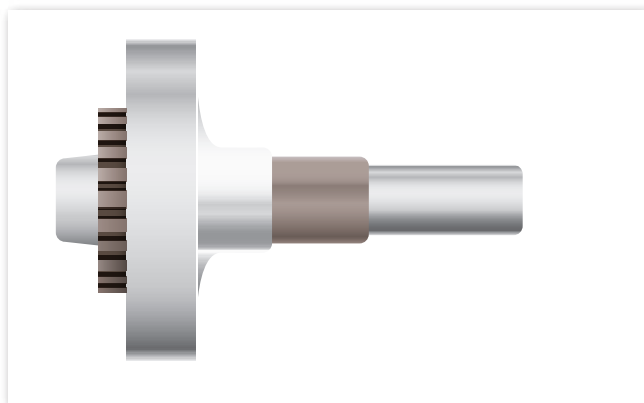
### Module image



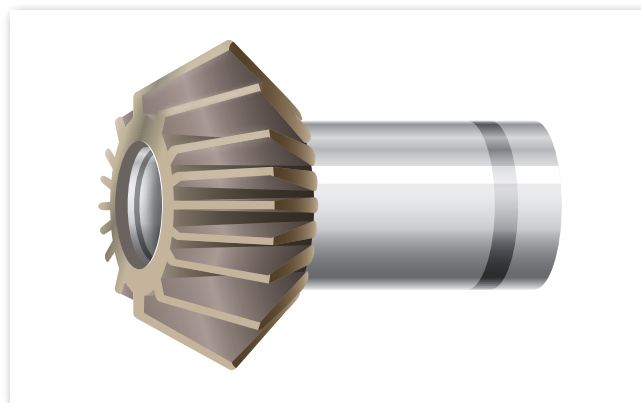
Enlarged view of Cold forging parts



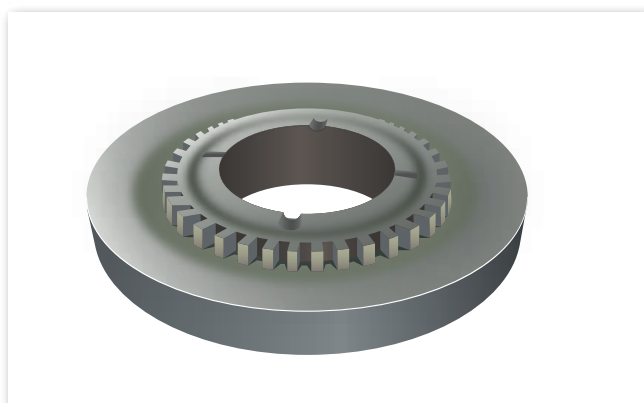
## Example of applicable part for inspection



**Parking gear** – built-in to AT/CVT



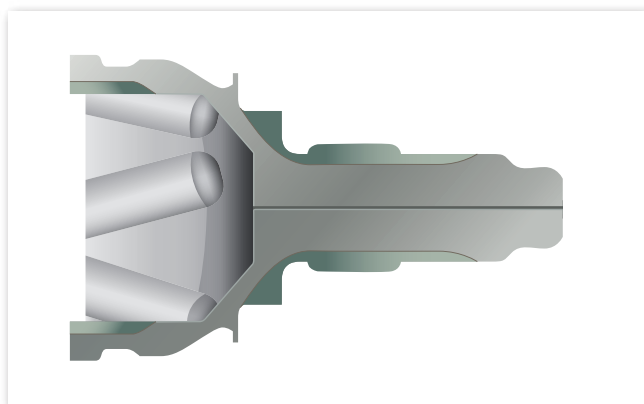
**Differential gear**



**Clutch gear** – built-in to MT



**Rotationally symmetrical parts** – sheet forging



**Outer race** – built-in to constant velocity joint

### IM-5100 specification

Cycle time	7 sec
Max. workpiece weight	8 kg
Max. workpiece diameter	200 mm
Max. workpiece length	250 mm

### Automatic visual inspection system for hot forgings

## IM-3100

Actualize the high-speed  
appearance inspection  
with 5-second cycle time!!



The description in this catalog has been current as of August, 2017. The specifications and the product design may be changed for the improvement.

## SCREEN Holdings Co., Ltd.

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