

## Precise Inspection of Functional Areas on the Skirt & Crown

Whether cast or forged pistons: alongside classic material defects, function-critical defects can occur during the manufacturing process that are unacceptable from a quality perspective. On the skirt and crown surfaces in particular, even the smallest deviations directly impact the function, lifespan, and performance of the piston.

The AIT inspection standard for piston inspection enables reliable, automated 100% control of the critical functional surfaces. Both the machined surfaces of the piston crown and the skirt surface are inspected: precisely, reproducibly, and process-securely.

An innovative lighting approach delivers 2.5D information in the  $\mu\text{m}$  range, ensuring excellent inspection results even with high manufacturing variance. Combined with evaluation algorithms optimized specifically for piston inspection, material and manufacturing defects are reliably detected while the pseudo-defect rate remains at a minimum.

In addition to surface inspection, the solution also covers assembly checks and dimensional inspections, ensuring comprehensive quality assurance. Thanks to direct integration into the manufacturing process — consisting of an IPC and two inspection stations with standard PLC interfaces — AIT Piston Inspection is ideally suited for use in ongoing operations.

Intuitive intervention options allow operators to respond quickly and precisely to process changes. Thanks to its high flexibility, the solution is particularly well suited to end-of-line inspections with high part, geometry, and surface variance.



## AIT Piston Inspection: reliable quality assurance for the highest demands

### Technical Highlights & Benefits

#### Innovative Lighting Approach

- 2.5D information in the  $\mu\text{m}$  range
- Excellent results with high variance

#### Reliable Defect Detection

- Ideal for material & manufacturing defects
- Minimal pseudo-defect rate

#### 100% Inspection

- Surface inspection
- Assembly checks, dimensional inspection

#### Direct Integration into the Manufacturing Process

- Inspection station with IPC & 2 inspection stations
- Standard PLC interfaces

#### Sophisticated Evaluation Strategy

- Algorithms optimized for piston inspection
- Intuitive intervention options for operators

#### Flexible

- Ideal for end-of-line inspection with high part variance (geometry, surface)