

# Measuring systems

Gehring Inspection System



Excellence in motion.  
Future in mind.

# Precise measurement of components and stators

The Gehring Inspection System (GIS) is a measuring system that is able to measure all components with high precision. The system is particularly specialized in the measurement of stators and is also able to calculate and validate certain relevant measured variables fully automatically and quickly. GIS creates a point cloud with real measurement results, which can be analyzed by downstream processes as desired. There is also the option of full integration into Gehring CORE, in which the measurement results and the point cloud can be accessed at any time.

Variations:

- Rotation-based measurement: GIS-R
- Linear measurement: GIS-L

## Key Facts

### ✓ Integration into production lines possible

- Fully automatic integration and evaluation can be realized according to design agreement

### ✓ Measurement of general components

- Shape and size of the component are irrelevant as long as the features to be measured are visible in the sensors and the component can be clamped
- Automatic calibration must be carried out again if the sensors are repositioned

### ✓ Direct calculation of individual measured values on the machine

- Access to the individual measuring points
- Validation of the entire component (OK/NOK)

### ✓ Measurement results

- Access to the raw data
- Access to pre-processed point cloud
- Access to results of configurable analyses

### ✓ Cycle time

- Time required to record a component < 20s. Processing time varies between 10s and 60s depending on the required resolution and complexity of the analysis

### ✓ Automatic detection of the orientation

- Alignment of the component when it is inserted into the machine is irrelevant
- Rotation of the point cloud to defined alignment

### ✓ Automatic calibration

- Calibration takes place automatically after the calibration part has been inserted and the planarity has been determined

## Communication protocols

- ✓ **OPC-UA**
  - Directly connected to interlinked machines or downstream evaluation
- ✓ **CORE-connectivity**
  - The complete point cloud is stored
  - All recorded images are stored
  - All measured values for individual components are stored
- ✓ **Optional: further communication protocols**

## Image capture (at GIS-R)

- ✓ **Possibility to capture images in any definable orientation of the workpiece**
  - Rotation of the workpiece is independent of the clamping angle
  - Any number of images can be recorded
  - Images are suitable for AI training
- ✓ **Image capture under different lightning conditions**
  - Normal light
  - UV light

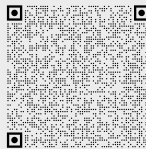
## Stator measurement

- ✓ **Automatic detection of various features on the laminated core**
  - Inner diameter
  - Outer diameter
  - Eccentricity
  - Deviation from the ideal circle of the inner diameter
  - Deviation from the ideal circle of the outer diameter
  - Plane of the sheet packages
- ✓ **Automatic detection of various features on the bending side**
  - Number of welding spots
  - Minimum inner diameter
  - Minimum outer diameter
  - Maximum height
- ✓ **Automatic detection of various features on the welding side**
  - Number of welding spots
  - Minimum inner diameter
  - Minimum outer diameter
  - Per Pin
    - Standardized heightmap
    - Pins comparable with each other
    - Maximum height
    - Geometric center
    - Bounding circle
    - Absolute position
  - 2D surface
  - Min/max distance to axis of rotation
  - Minimum distance to neighboring pins

Further analysis features can be recorded.



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