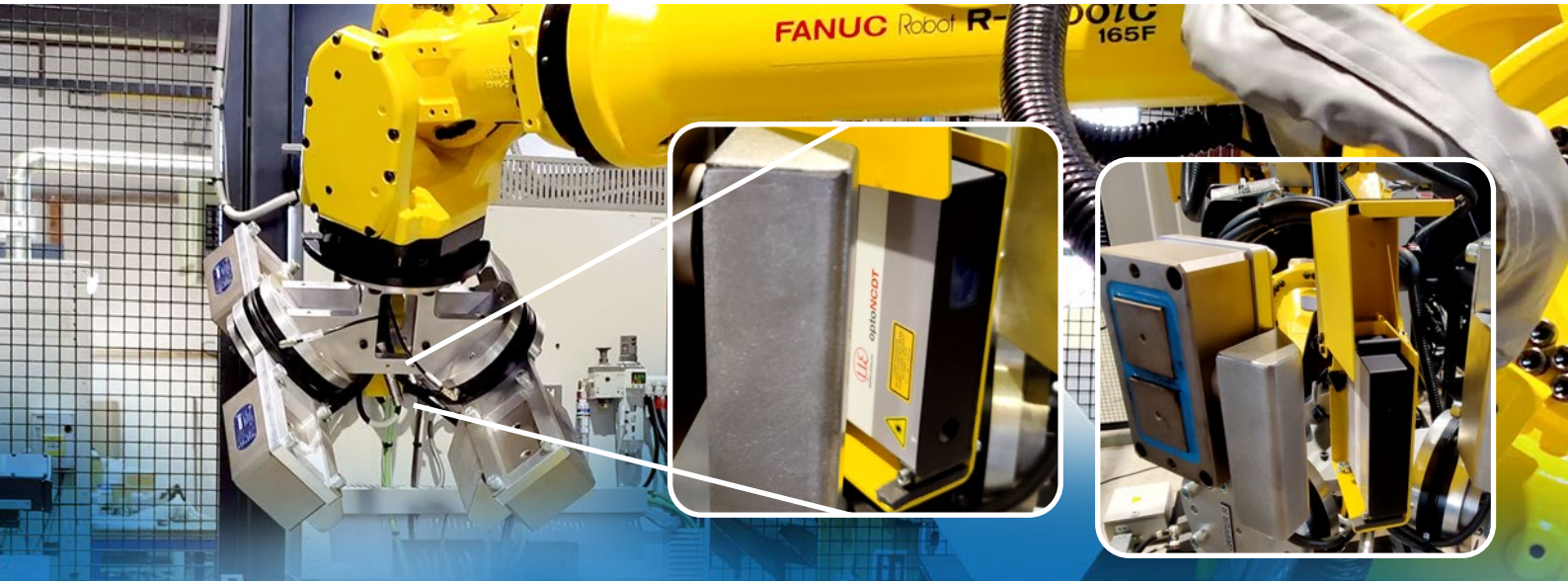




Automated measurement of railway fishplates

The company Mills CNC is a supplier of machine tools. They use Micro-Epsilon laser sensors for the automatic inspection of large, hot-rolled railway fishplates made of steel. These fishplates join two rails together and must be as straight and flat as possible.

In a machine tool automation cell specially developed by Mills CNC for this task, both the bend and a twist of the fishplates are determined. For this measurement task, an optoNCDT 1750 Micro-Epsilon sensor with a large measuring range of 750 mm is mounted on a robot. Its compact sensor design and direct data output without external controllers enable easy integration.

First, two magnetic grippers position the measuring object. A robot then guides the laser sensor along the fishplate edges. The optoNCDT 1750 measures the fishplate in eight different positions. At each position, the sensor is moved a short distance and generates an averaged value, which is transmitted from the sensor via the interface module IF2030/ENETIP (EtherNet/IP) to a computer.

The evaluation unit developed by the customer computes and checks whether the component is within the manufacturing tolerances. The bend must not exceed a height difference of 2 mm over a length of 1 m. If it does, the component can be sorted out and reworked before the next machining step, which saves machining time.

Requirements for the measurement system

- Reliable and stable measurement signal
- Integration via EtherNet/IP
- Compact design without external unit
- Sensor and cable suitable for use in robotics

Ambient conditions

- Measuring cell in production hall

System configuration

- Sensor: optoNCDT 1750-750
- Interface module: IF2030/ENETIP

Advantages

- Easy integration on the robot thanks to small and lightweight sensor with direct data output
- Wide measuring range for safe distance with good accuracy and reliability
- Integration via Industrial Ethernet
- Excellent price/performance ratio



Watch video



8x averaged measurement values at the fishplates edges to determine bend and twist