A309

Laser sensors
optoNCDT

Monitoring embossment depth

Embossed serial numbers enable worldwide unambiguous identification of, for example, car body shells. For increased safety measures (e.g. in case of theft), car body IDs are punched into the vehicle frame. Therefore, the depth of the embossment is a critical factor.

This is why embossing machines operate using optoNCDT 1420 laser triangulation sensors from Micro-Epsilon. These determine the precise distance between the embossing tool and the component. Based on these distance values, the tool can be positioned correctly. After the embossment is finished, the sensor measures the profile of the embossment and ensures that all characters are embossed to the required depth.

Due to their small light spot, the optoNCDT 1420 sensors are perfectly suitable for profile measurement of the embossment. Furthermore, due to its compact size, the sensor can also be mounted in restricted spaces. The web interface and the predefined settings (presets) enable a fast commissioning process. In high volume applications, customer-specific pre-configurations (Plug & Play) enable extremely rapid parameter set up.

Requirements for the measurement system
- Measurement accuracy 10µm
- Non-contact distance measurement
- High speed
- High spatial resolution due to small light spot size
  e.g. for measuring profiles

Ambient conditions
- Room temperature
- Vibrations and accelerations

System design
- Sensor: optoNCDT 1420-10
- Connection to industrial fieldbuses, e.g. EtherCAT
  via corresponding bus terminals

Advantages
- High precision (repeatability 0.5µm) with compact design
- User-friendly commissioning via web interface and presets
- Cost-effective solution for high volume applications