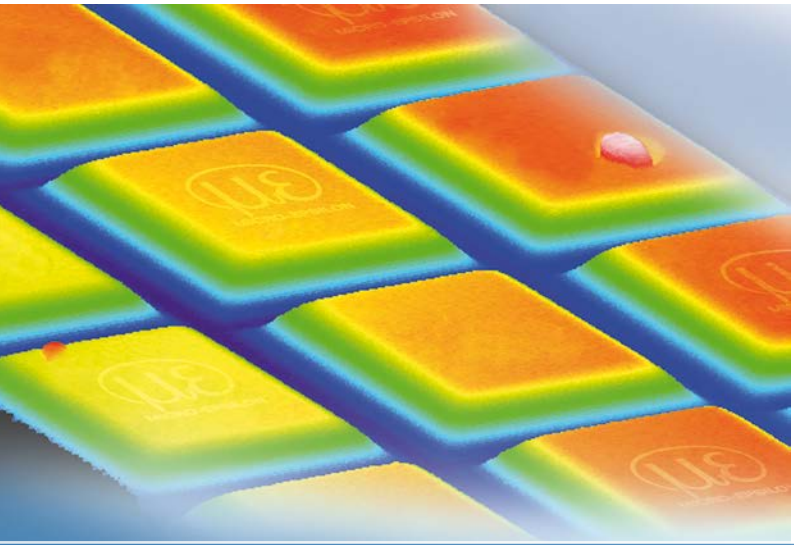
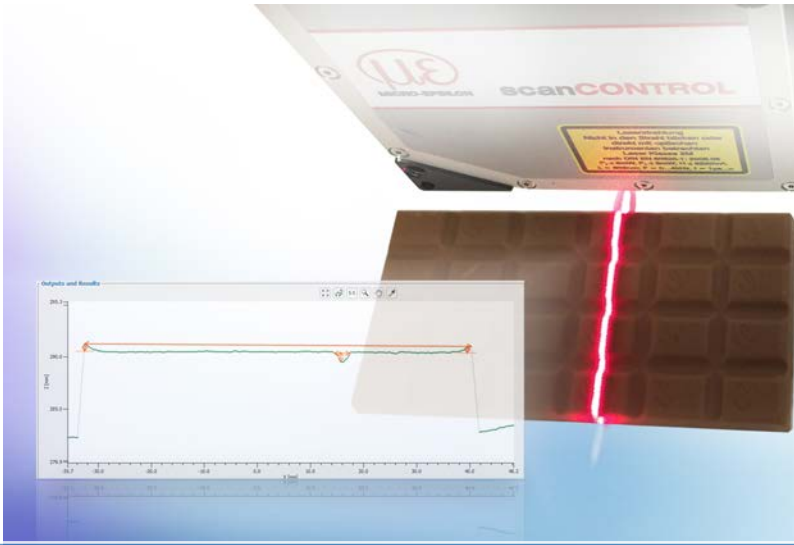
A311

Laser scanners

scanCONTROL

MICRO-EPSILON





Quality control in chocolate production

Customers demand flawless products. The first glance and optical appearance are often decisive factors in the purchasing decision. Production errors such as deformations, holes in the surface or undesired protruding edges affect the perfection desired by the customer. This is why a smooth production procedure and reliable quality control of the final products are mandatory. Here, high precision sensor technology from Micro-Epsilon is used.

For example, quality control in chocolate production is often a manual process at the end of the production process, either based on tactile measurements or using laser point sensors. This involves high time-based and financial expenditure.

A much more efficient method is to monitor the production process using laser scanners from Micro-Epsilon. The scanCONTROL 2960-100 laser scanner enables 100% control directly in the processing line. The scanCONTROL Configuration Tools software enables easy sensor set up and configuration. With a throughput rate of more than 60 m/min, the high speed laser scanners detect each profile of the finished chocolate bars without contact and transmit this to the software. The inspection is now based on predefined parameters. The OK/NOK signal is directly transmitted to the control system of the processing line. Unlike camera systems, laser scanners are independent of contrast. Therefore, neither the surface properties of the conveyor belt nor the color of the chocolate can affect these high precision measurements. In order to achieve high repeatability of the measurement results, it is necessary to connect the sensors to an encoder. This ensures even distances in the y axis (conveyor belt) regardless of the belt speed.

The system operates continuously and is much more precise than humans as recognition performance and accuracy do not depend on a person's mood on the day or tiredness, but stays consistently high. As the measurement technology is integrated in the processing line, a random check is replaced by 100% real-time inspection of the complete product range. Should deviations occur during the production process, the plant operator can immediately intervene, which means waste is reduced.

Requirements for the measurement system

- Measuring range < 85mm
- Resolution and measurement uncertainty
  0.1mm in Z direction
  0.1mm in X direction
- Throughput rates > 60 m/min

Limitations:

- Undetectable cracks (< 0.8mm)
  (possible with other sensors from approx. 50µm)
- Special protection housing for the food industry
  (provided by customer)

Advantages

- Non-contact high speed measurement
- Compact inline solution
- Reliable system with 100% control

System design

- scanCONTROL LLT2960-100
- Parameter set up using scanCONTROL Configuration Tools
- Encoder