Confocal sensors
confocalDT

One-sided thickness measurement of container glass

In container glass production, wall thickness and roundness of the bottles are crucial quality features. This is why these parameters must be 100 % inspected. Any faulty containers are immediately rejected and returned to the glass melt.

Due to high processing speeds and in order to prevent the bottles from being damaged, a fast, non-contact measurement procedure is required. The confocal chromatic confocalDT 2422 dual-channel measurement system combined with the IFS2406-10 sensor from Micro-Epsilon are ideally suited to this measurement task.

Its measuring principle enables non-contact distance and thickness measurements of transparent materials while measuring synchronously on two points. The system measures synchronously on two points. The controller provides versatile interfaces. The EtherCAT and RS422 interfaces are intended for when the data should be output in real time.

The sensors have a large measuring range of 10mm with a sensor diameter of 27mm. The thickness calibration feature enables precise thickness measurements across the entire measuring range of the sensor. Automatic exposure control allows stable measurements regardless of the glass color.

Requirements for the measurement system
- Measurement accuracy 10μm
- Non-contact thickness measurement
- High speed & real time capability
- Measurements almost independent of glass color

Ambient conditions
- Suitable for harsh environments (glass dust/powder)
- Regular handling of sensors & cables by machine operators e.g. during cleaning and maintenance
- Use in the cold area of container glass production

System design
- Controller: confocalDT 2422 (dual-channel system)
- Sensor: IFS2406-10 (10mm measuring range with small diameter)
- Cable with protective hose

Advantages
- Easy adaption to different colors due to automatic exposure control
- Reliable and precise thickness measurement due to thickness calibration
- Low cost solution due to dual-channel system
- EtherCAT interface provides real-time capability