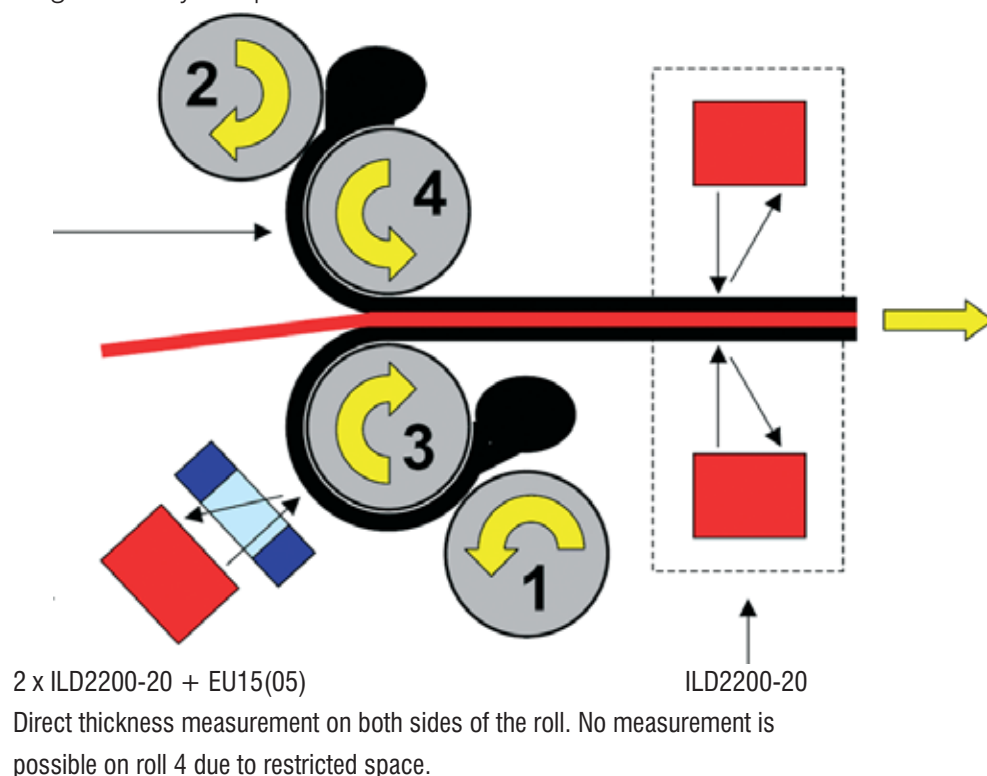
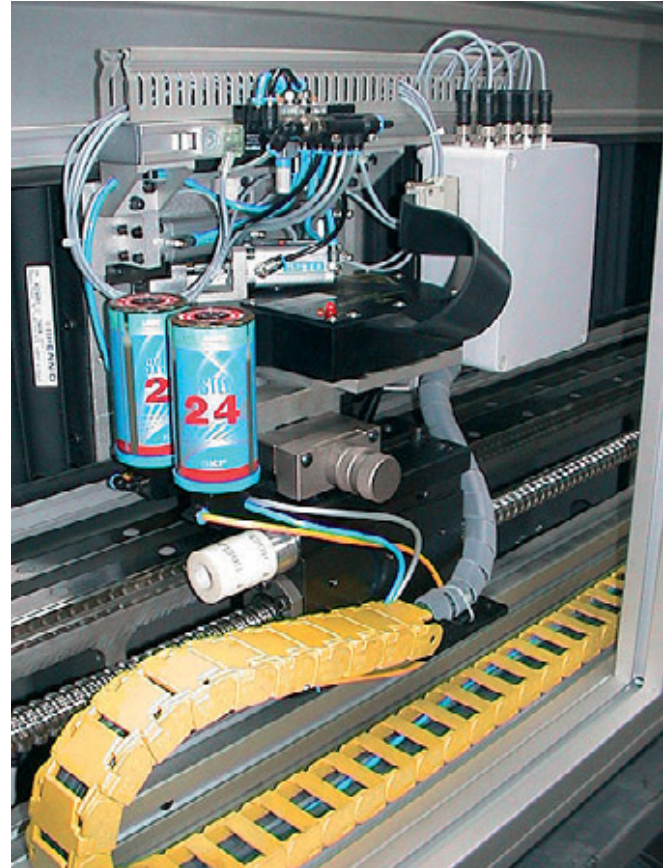


Thickness Measurement on the Calender

Rubber-coated textile and metal fabrics form the basis of tire manufacture.

The rubber is applied to the fabric by calender rolling which demands a uniform layer thickness for the manufacture of high quality tires. The strength and the dimensional conformance of the tire directly depend on the coating process.

Measurement of the thickness of the rubber on both rolls (Nos. 3 and 4 in the illustration) is often not possible due to the way the calender is constructed. Therefore, additional measurements are made at the outlet. Two laser-based optical sensors, optoNCDT are positioned above and below the coated fabric web. A mechanical system enables the sensors to move over the width of the web. Due to the small measuring spot and the high resolution, it is possible to not only measure the thickness, but also the surface structure of the coated fabric. The sensors are protected against the high ambient temperatures by a protective housing cooled by compressed air.



Applikation

Ambient conditions

- Temperature: Up to 80°C
- Medium: Air

Measurement system requirements

- Measurement range: 20 mm, band thickness effectively 5 mm
- Resolution: 1 μm
- Bandwidth: 10 kHz

Reasons for the system selection

- Non-contact measurement.
- High precision measurement against structured, high gloss, black rubber.
- Small measuring spot.
- Large base distance.
- High measuring speed.

Measurement system setup for optoNCDT

4x ILD2200-20 Laser Displacement Measurement System
2x PC1800-3/10/RS485 Supply/Output Cable
2x PC1800-3 Supply/Output Cable
1x IF2004 Interface Card

Measurement system setup for eddyNCDT

2x DT3301 Multifunction Controller
2x EA3025-EU15(05)M Adaptation Board
2x EU15(05) Unscreened Eddy-Current Flat Sensor
2x EC3 Sensor Cable
2x SCA3/5 Signal Cable, analog
1x PS2010 Power Supply Unit 24V/2.5A