EL-THICKNESS Thickness measurement on the calender

Erhardt+Leimer thickness measurement with compact combination sensor

High-precision thickness measurement directly on the calender

In addition to many other parameters, material thickness is a decisive factor for reliable tire production. Our measuring systems use state-of-the-art sensor technologies to precisely detect defects and irregularities in tires during the calendering process.

The EL-THICKNESS thickness measurement enables highly accurate profile thickness measurement against the calender roll. A laser triangulation sensor for measuring the distance to the rubber and an eddy current sensor that measures the distance to the calender roll through the rubber are integrated into a compact measuring head. The difference between the two measurements gives the exact material thickness. Thanks to the compact design of the combined measuring head, the space requirement is significantly lower, so that EL-THICKNESS can be installed directly on the calender.

Since high temperatures and contamination occur at the calender, the optical sensor system has air cooling that is controlled by temperature sensors. This ensures stable measurement even at temperatures up to 50 °C. To monitor continuous, correct cooling – and to ensure that the cooling air reliably reaches the combination sensor – a compressed air sensor is also integrated.

The thickness measurement on the calender can be combined with the AG 72 electrical drive. This allows switching between the working position and the parking position, making maintenance work easier in the parking position.

Compact integration, precise measurement, robust in process

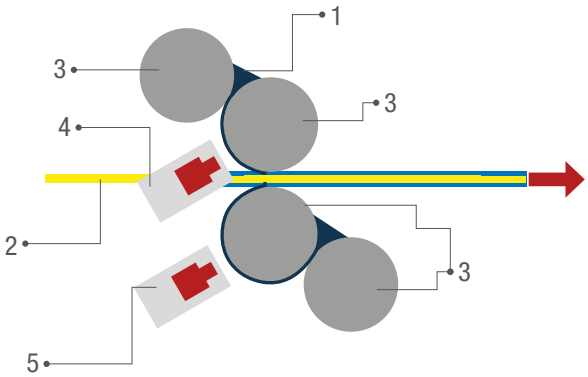
Easy integration
- Compact design
- Space-saving installation directly on the calender
- Various connection options
- Modular design

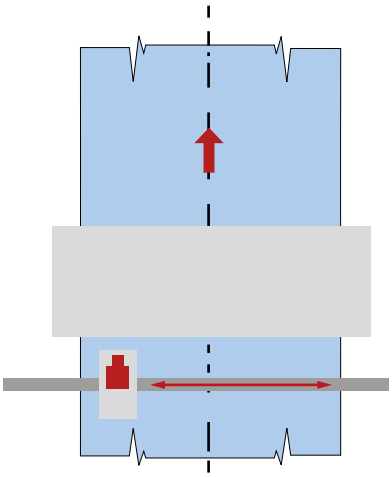
Robust in hot and dirty environments
- Air cooling for optical sensors
- Stable measurement at temperatures up to 50 °C
- Compressed air sensor for monitoring correct cooling

Communication and system integration
- Communication with customer PLC
- Assignment of the measured material thickness to the exact position on the roll
- Fully integrated into ELQ data management

Ease of maintenance and operation
- Switch between parking position and working position
- Easier maintenance in parking position
- Combination with electrical drive AG 72

Precise combination sensor technology
- Laser triangulation sensor measures distance to the material
- Eddy current sensor measures distance to the calender roll
- Exact material thickness as the difference between the two measurement values





Legend

1	Rubber material
2	Cord material
3	Calender rollers
4	Upper sensor unit
5	Lower sensor unit

Technical data	
Profile width	up to 5000 mm
Material thickness measuring range	up to 8 mm, up to 40 mm on request
Thickness accuracy	up to ±10 µm
Measuring equipment capability (Cg&Cgk): [TW = 10 x accuracy]	> 1.33
Displayed resolution	1 µm
Sensor technology	Laser triangulation combined with eddy current sensor
Measuring points	up to 5 permanently mounted (more on request) or 1 traversing
Scan frequency	Sensor technology-dependent
Laser class	2 (650 nm, visible light) – Dedicated laser safety officer not required!
Dimensions of the measuring head	300 x 199.5 x 122 retracted position 362 x 199.5 x 122 extended position
Air cooling for sensor	optional with additional temperature and air flow sensors
Positioning/traversing speed of the sensor	max. 300 mm/s
Interface	EtherNet/IP, DeviceNet, Profibus DP, CC-Link
Relative humidity	15 % to 95 % (non-condensing)
Ambient temperature	0 °C to +50 °C
Operating voltage	115 V to 230 V; 50 Hz/60 Hz; 16 A
Protection rating	IP 54

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