MICRO-EPSILON

More Precision

thicknessCONTROL UTS 8X02.K // Non-contact thickness measurement

Non-contact thickness measurement

thicknessCONTROL UTS 8X02.K

Measuring range, thickness:	*10 / 30mm*
Accuracy:	*±5 / ±15µm*
Temperature stability:	*automatic compensation*
Measuring rate:	*up to 70kHz*
Calibration:	*automatic*

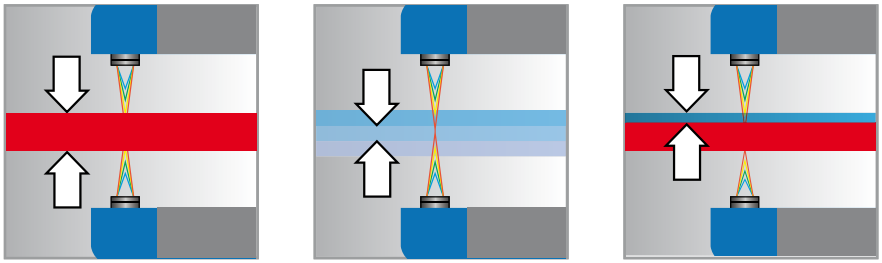
Operating principle of thickness measurement

In the thicknessCONTROL UTS 8X02.K C-frame, two confocal chromatic sensors are integrated. The sensors focus polychromatic light (white light) onto the target surface through a multilens optical system. The lenses are arranged so that the white light is dispersed into a monochromatic light by controlled chromatic aberration. A specific distance to the target is assigned to each wavelength by a factory calibration. In the sensor system, this wavelength of light is used for the measurement, which is exactly focused on the target. The light reflected from this point is imaged by an optical arrangement onto a light sensitive sensor element, on which the associated spectral color is detected and evaluated. With transparent materials, several distance points can be evaluated for determining the thickness.

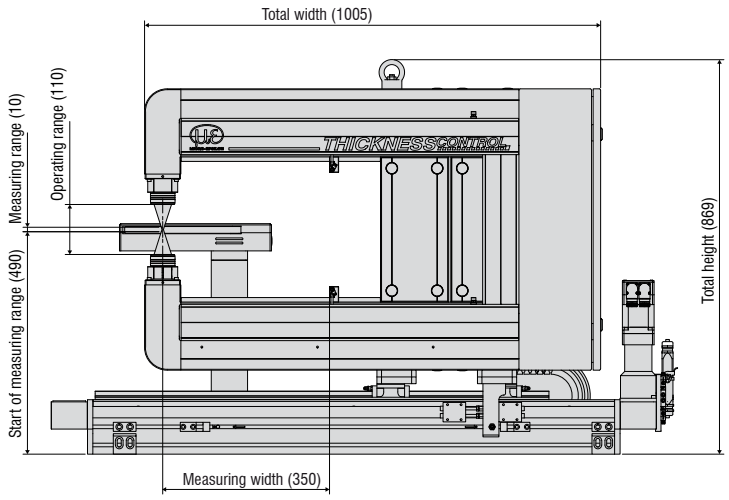
Both confocal sensors are synchronised with one another during the in-situ calibration in order to detect the thickness of the material to be measured according to the difference principle (difference between the sum of the sensor signals and the mouth width). Both laser lines must be projected congruently onto the top side and the rear side of the material in order to achieve an accurate thickness measurement. This is ensured by exact factory calibration and adjustment using an opto-electronic tool.

Special features

The measurement is carried out on transparent and semi-transparent materials such as plastic sheets, coated glass and high-gloss polished metal. The exposure time regulation of the confocal sensors enables reliable measurements even on changing surfaces. Furthermore, objects consisting of several transparent layers can be measured. The measurement is carried out without contact and is therefore reactionless which enables that even sensitive materials can be reliably measured using the thicknessCONTROL UTS 8X02.K.



Description	-10/250	-10/500	-10/800	-30/250	-30/500	-30/800
Article number	4350127.41	4350127.42	4350127.43	4350127.44	4350127.45	4350127.46
Measuring width	250mm	500mm	800mm	250mm	500mm	800mm
Total width	1005mm	1255mm	1555mm	1005mm	1255mm	1555mm
Operating range	110mm	110mm	110mm	230mm	230mm	230mm
Measuring range	10mm			30mm		
Accuracy	±5µm			±15µm		
Resolution	0.12µm			0.36µm		
Measuring rate	up to 70kHz					
Temperature stability	automatic compensation					
Calibration	automatic					
Interfaces	Profibus / Profinet / Ethernet/IP / OPC					

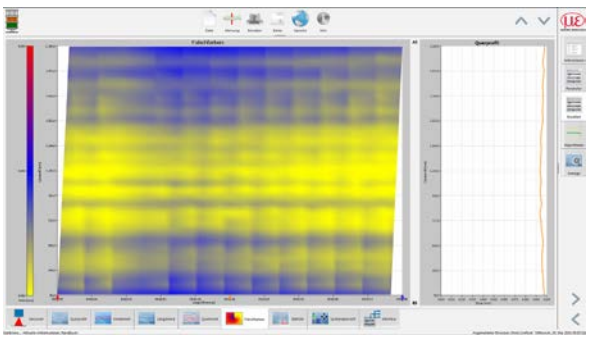


Analysis and control software

The thicknessCONTROL UTS data collection and analysis software provides fully automatic documentation and control of the production process by offering

- article database
- production archive
- statistical evaluations
- limit value monitoring with return back to production (optional fieldbus interfaces)

Interfaces



The C-frame includes a multi-touch capable software package for analysis, presentation and archiving of monitored production data. It enables different measurement modes such as fixed track thickness measurement at any position, measurement of the thickness profile, measurement of several longitudinal trends, a SPC package and automated verification of the measurement system's capability.

High performance sensors made by Micro-Epsilon

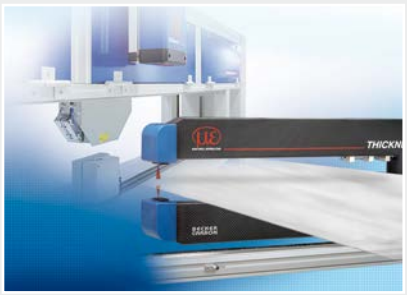
Sensors and systems for displacement and position

Sensors and measurement devices for non-contact temperature measurement

2D/3D profile sensors (laser scanner)

Optical micrometers, fiber optic sensors and fiber optics

Color recognition sensors, LED analyzers and color online spectrometer



Measurement and inspection systems

MICRO-EPSILON

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