

S-50

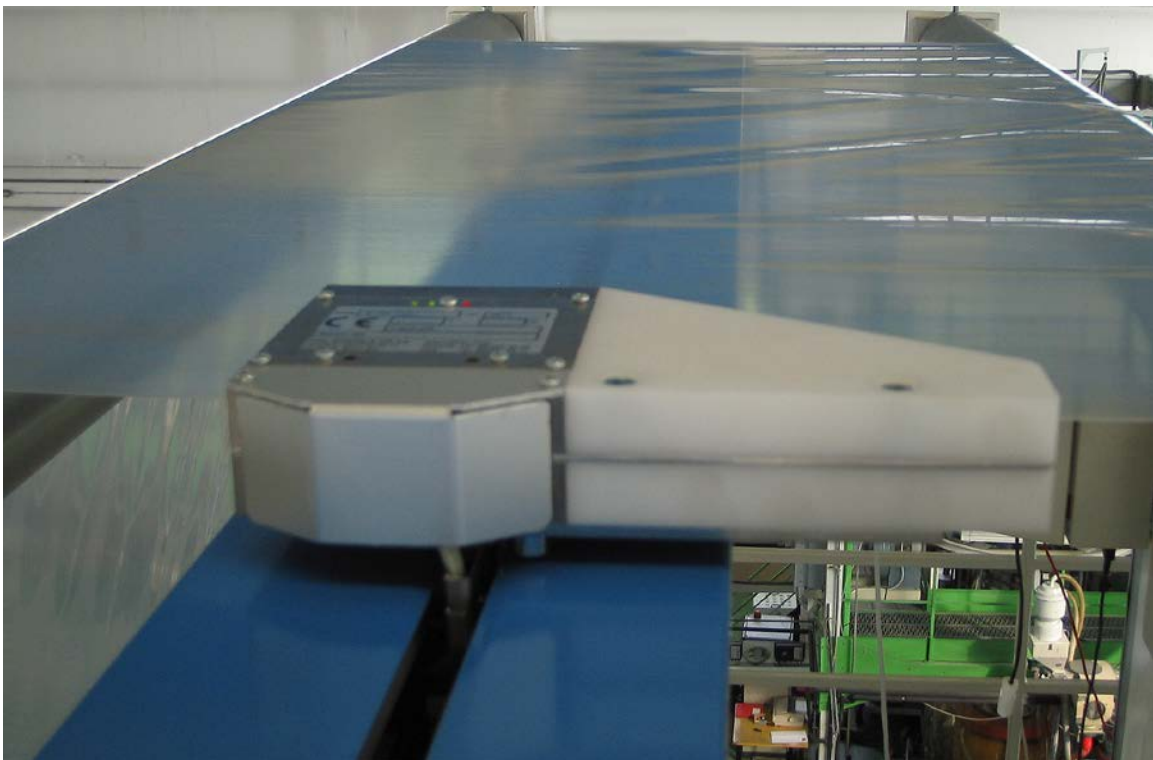
***Online
Thickness
Measurement***

■ S-50

The S-50 is an online thickness gauge for blown film which measures the film thickness with nearly no contact.

This gauge is the ideal solution for blown film lines not being equipped with auto profile control. The operator adjusts the die bolts according to the thickness profile. These manual adjustments do already help a lot to optimize profile tolerances. As a next step, the S-50 can help with accurate downgauging efforts which reduces raw material costs.

The S-50 can be mounted anywhere between the haul-off and the winder. Its compact size will allow installation nearly anywhere.

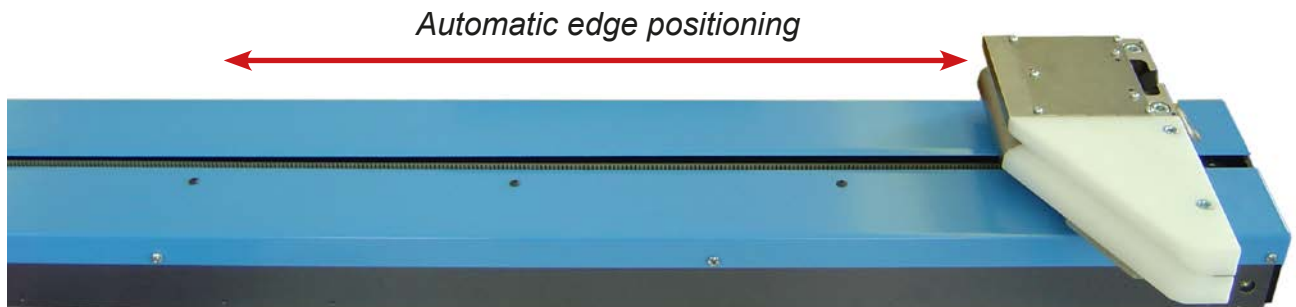


The installation is very easy and can be quickly done by company internal technicians. This plug and play installation leads to a very fast return of investment. The S-50 needs very little maintenance and has a high availability.

The S-50 is the better solution compared with a thickness gauge mounted in the layflat. Nearly no film contact, higher durability and low dirt sensitivity are only some of the many advantages of the S-50.

■ Working principle

The capacitive sensor works with an electrical field called the stray field of a capacitor. The film changes the field strength according to its thickness. This change is analyzed and displayed as thickness.



Capacitive thickness sensor

After each rotation of the haul-off or the die a torsion compensated thickness profile is transmitted to the attached visualization system.

The C shaped thickness sensor measures the sum of an upper and a lower film segment. The easiest way would be to divide this thickness value by two and assign two both segments the half value. The data processors software does it much better. A complex algorithm calculates the exact thickness for each segment.

■ Available sizes

Following sizes are standard. Max. Δ dfl stands for the maximal width difference between maximal and minimal measurable widths for each S-50 size. Web edge position variations of +/- 50mm are taken into account.

Size S-50	Max. Δ dfl [mm]
440	680
730	1260
995	1790

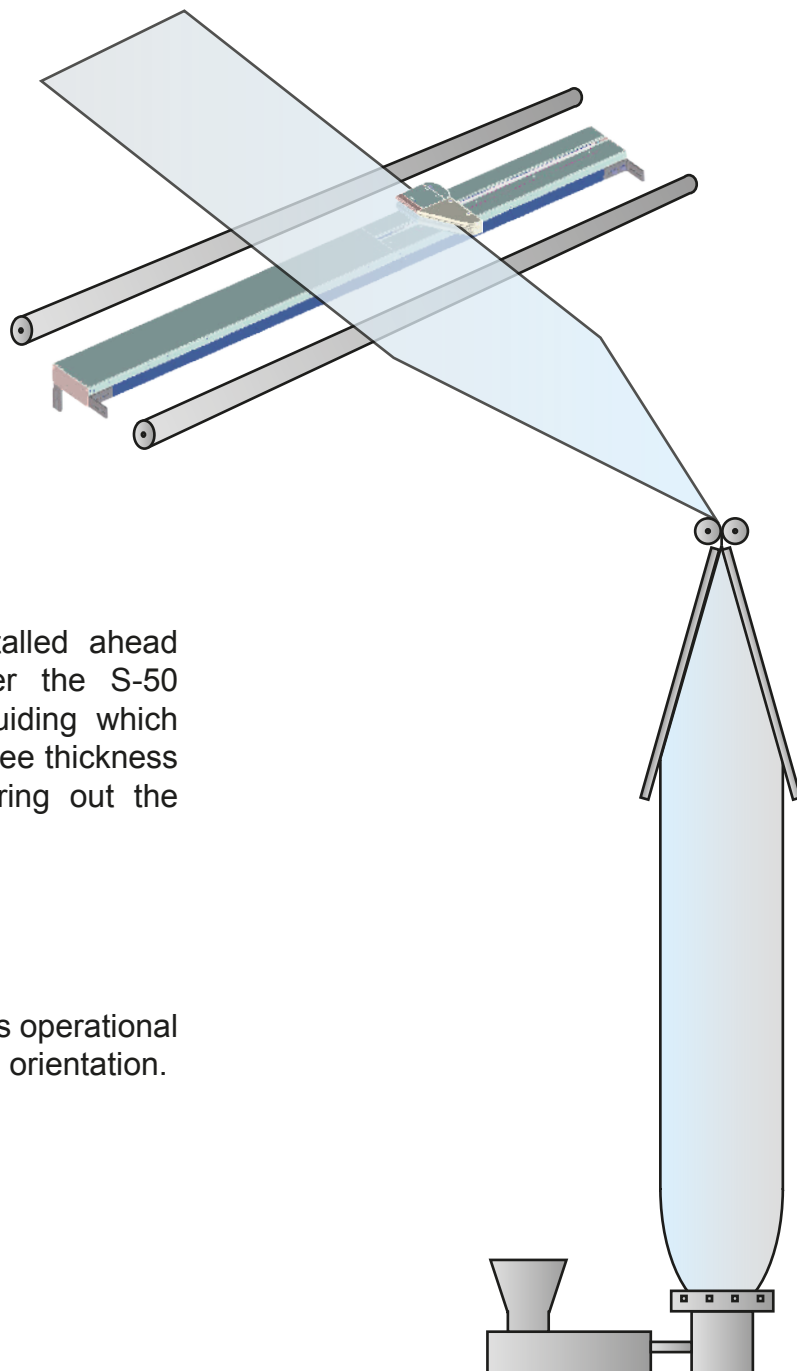
Other sizes on request



■ Installation

For easy mounting of the S-50 to the machine frame, a spacer bar will be added to the measuring bar. Therefore the whole measuring bar can be mounted central like a reel.

The S-50 can be mounted anywhere between the haul-off and the winder.



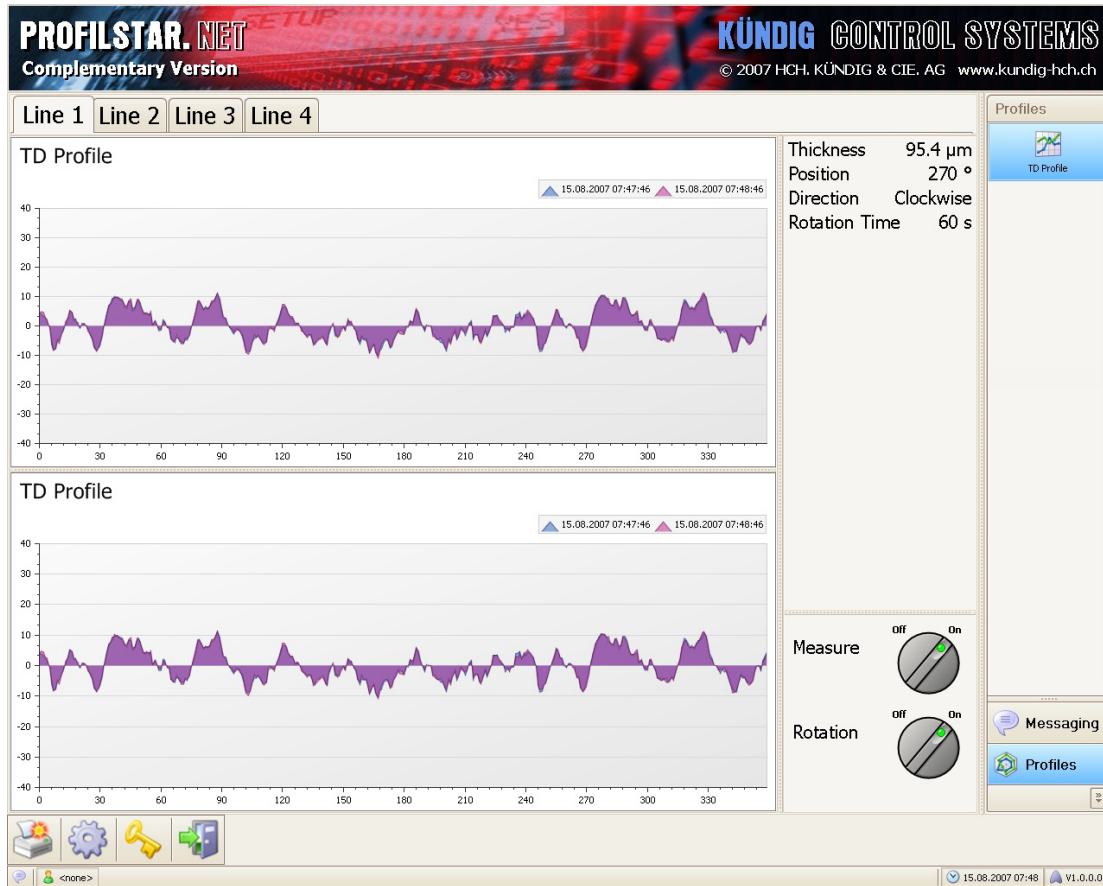
Film guiding

Two idler rollers; one installed ahead of the S-50 and one after the S-50 guarantee an ideal film guiding which results in a nearly contact free thickness measurement without wearing out the sensors surface.

Mounting orientation

The S-50 thickness sensor is operational in a horizontal and a vertical orientation.

■ Connections and interfaces



RS-422

All Kundig measuring systems can be connected to a visualization or control system. For this purpose we provide our established PCD-LINK protocol. With this protocol the measurement can be integrated with little effort into any software.

The same protocol is used by Kundig visualization systems. These optional accessory systems are the ideal solution for the measurement of thickness and width, quality protocols and long term trending. Additional information is available in the brochure on visualization.

Ethernet

The connection between Kundig measuring systems and visualization / control system is available via Ethernet. The PCD-LINK protocol is carried by information packages over the Ethernet connection.

Analog output

Also available is a connection with an analog signal. In this case the measured thickness value is transmitted as an analog signal, while the rotation signals are presented in digital form.



■ S-50 Technical data

Electrical interface values

Power supply	230 VAC ± 10%, 50-60 Hz
Power consumption	max. 110 VA
Nominal current	0.5 A
Switch-on peak current	1.5 A

Ambient temperature

Data processor	max. 55 °C
Measuring sensor	max. 70 °C
Transport and storage	-40 °C to 70 °C

Thickness measurement

Measuring principle	Capacitive thickness measurement Suitable for all electrically non-conducting material
Measuring frequency	400 kHz
Measuring range	5 to 300 µm * > 300 µm on request
Measuring interval	200 ms
Resolution	0.1 µm *
Accuracy after calibration	5 to 10 µm * ⇔ 0.2µm > 10 µm * ⇔ 1%
Temperature drift	compensated
Ambient conditions	
Ambient temperature	23 °C ± 2 °C
Measured film	LDPE-film, at 50 °C approx.

* thickness of single film

■ Calculation of amortization

$$\begin{array}{l}
 \boxed{\text{Material output}}_{\text{kg/h}} \times \boxed{\text{Operation time}}_{\text{h/day}} \times \boxed{\text{Operation time}}_{\text{days/year}} \times \boxed{\text{Material price}}_{\text{€/kg}} = \boxed{\text{Material throughput}}_{\text{€/year}} \\
 \\
 \boxed{\text{Material throughput}}_{\text{€/year}} \times \boxed{\text{Optimization}}_{\text{\%/100}} = \boxed{\text{Material savings}}_{\text{€/year}} \\
 \\
 \boxed{\text{Investment}}_{\text{€}} : \boxed{\text{Material savings}}_{\text{€/year}} = \boxed{\text{Amortization time}}_{\text{years}}
 \end{array}$$

Questionnaire application technology

Company

Address

Zip Code

City

Country

Contact person

E-mail

Phone

Fax

We are interested in

- | | |
|---|--|
| <input type="checkbox"/> Online thickness gauge | <input type="checkbox"/> Width measurement |
| <input type="checkbox"/> Online thickness gauge and automatic profile control | <input type="checkbox"/> Width measurement and control |
| <input type="checkbox"/> Offline system for film thickness | <input type="checkbox"/> Meter weight control |

Specifications of existing line

- Film width: Min. _____ mm Max. _____ mm
- Film thickness: Min. _____ μ m Max. _____ μ m
- Throughput: Min. _____ kg/h Max. _____ kg/h
- Line speed: Min. _____ m/min Max. _____ m/min
- Extrusion: Monoextrusion Coextrusion __ Layers
 __ Components __ Components per layer
- Processed materials: _____
- IBC: Yes No
- Gusseted films: Yes No
- Die: Fixed Reversing Rotating
- Haul-off: Fixed Reversing Rotating
- Width of roll at haul-off: _____ mm
- Rotation time: Min. _____ min Max. _____ min
- Power supply: _____ VAC _____ Hz (single phase)
- Existing measuring and control units: Thickness gauge Profile control system
 Width measurement Width control
 Meter weight control Line speed control
- Brand of existing line: _____

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Product overview

K-300 Rotomat KT

Online thickness gauge with rotating scanner

KNC-400 Rotomat KT

Online thickness gauge for sticky
and sensitive films

KNC-600 Linear Scanner

Online thickness gauge for cast film

K-NDC Rotomat KT

Nuclear online thickness gauge
for barrier films

K-300 CF Gauge

Online thickness gauge
for quality supervision

S-50

Online thickness gauge
for quality supervision

S-100

Capacitive online thickness gauge
for barrier films

FE-8

Width measurement and control
for lines with or without IBC

FILMTEST

Offline measurement for quality control

PROFILSTAR.NET

Visualization for quality supervision and control

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