KÜNDIG CONTROL SYSTEMS
The Gauge Manufacturer for Film Extrusion SWISS MADE

KNC-600 Linear Scanner

Online thickness gauge for cast film lines

KNC-600 Linear Scanner

The KNC-600 Linear Scanner is a thickness gauge for cast film lines, film orientation lines or other extrusion lines where the thickness of flat film needs to be measured.

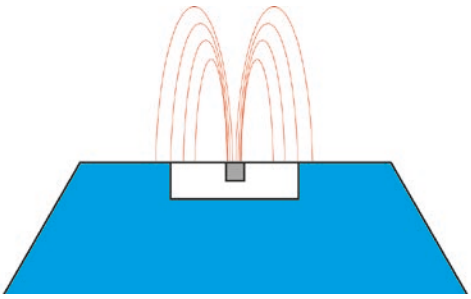
Rapid and accurate measurement of film thickness allows the film production process to be tightly controlled. This results in an enhanced film quality that is maintained during the entire production process. Optimizing film thickness profiles contributes to material savings. In addition, material waste during product changes is reduced.

KNC_600 Linear Scanner

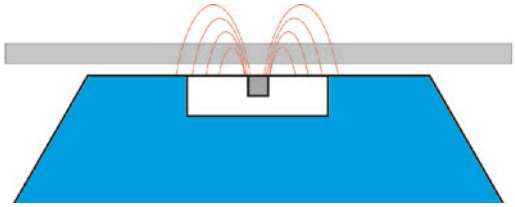
The installation of the KNC-600 can be easily done by factory technicians and immediately put into service. The measuring device is nearly maintenance free and provides a high reliability and performance.

The capacitive measuring principle

The capacitive sensor operates with an electric field, the so-called stray field of a capacitor. The field intensity variates depending on the thickness of the film. This variation is calculated and shown as thickness.



Sensor and stray field without film



Sensor and stray field with film

Capacitive thickness sensors are especially qualified for thickness measurement because of the following reasons:

- High resolution and accuracy
- Instant reproducibility of the measured profile
- No influence due to coloration or film transparency
- Not subject to licensing / No costly disposal

The non-contact thickness measurement

Advantages of a non-contact thickness measuring system:

- Online measurement of sticky film
- Sensitive films can be measured scratch-free
- No tear and wear of the sensor
- No contamination of the sensor

Requirements for a reliable film measurement:

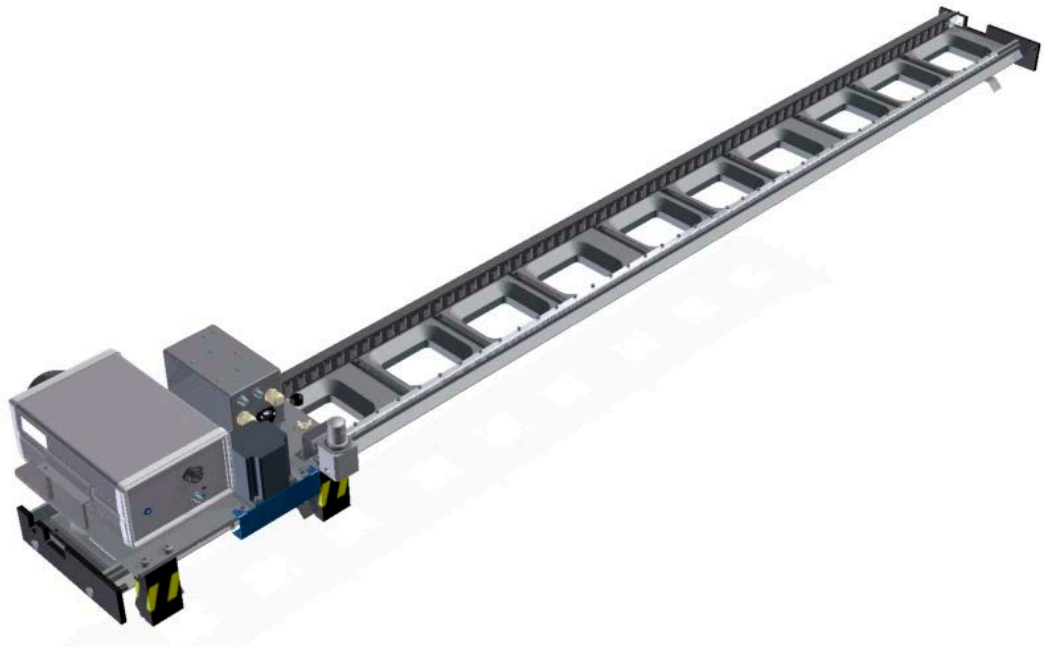
- The film must be vertical at the installation place of the sensor
- Changes in bubble position should be no more than 0.4 inches (10mm) at max. 5 Hz

The procedure

Once the measurement is started, the traveller moves to the center of the film, before the thickness sensor extends. It continuously measures the thickness across the web. Two infrared sensors in the head ensures that the thickness gauge does not run over the edge.

The linear scanner

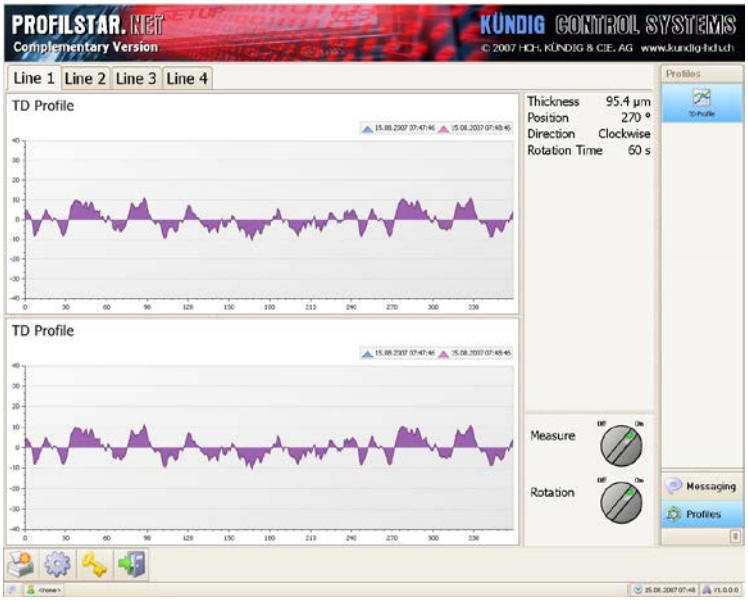
The scanner consists of modular segments, and is therefore available in almost any size.



Connections and interfaces

PROFILSTAR.NET

The PROFILSTAR.NET is a complete visualization system for process optimization and quality control. Up to 16 lines, equipped with Kündig thickness gauges and / or layflat control systems, can be connected to one PROFILSTAR.NET unit.



PCD-LINK via RS-422 or UDP/IP Ethernet

The proven PCD-LINK protocol, used for the communication between control system and any Kündig measuring device, is now available via RS-422 and also via UDP/IP Ethernet with the new data processor. So it is still compatible with existing host computers but at the same time offers a new and very cost efficient version.
Both ports can be used at the same time, for example one port for the control system and the other port to record the data.

KCS-API and KCS-Process

For a fast and easy integration of Kündig measuring devices into Windows based control systems, we now offer a KCS-API (Application Programming Interface) in the widely used programming language C. The KCS-API is delivered as a DLL (Dynamic Link Library) and a KCS Process (Windows application) that acts as a driver.

Analog output

Still 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 a digital form.

Technical data KNC-600

Interface values

Power supply	110 - 240 VAC, 50/60 Hz
Power consumption	max. 300 VA
Nominal current	1.5 A
Switch-on peak current	4.0 A
Air pressure	5 - 10 bar
Air consumption	35 dm^3 / min.

Ambient temperature

Data processor	max. 55 °C
Measuring electronics	max. 60 °C
Measuring head	max. 60 °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	1 MHz
Measuring range	10 to 300 µm > 300 µm on request
Measuring interval	40 ms
Resolution	0.1 µm
Accuracy after calibration	10 to 30 µm ⇨ 0.5µm, > 30 µm ⇨ 2%
Linearity within range of calibration thickness (± 10%)	better than 2%

Ambient conditions

Ambient temperature	23 °C ± 2 °C
Measured film	LDPE-film, at 50 °C approx.

Calculation of amortization

Material output _____kg/h	X	Operation time _____h/day	X	Operation time _____days/year	X	Material price _____€/kg	=	Material throughput _____€/year			
				Material throughput _____€/year	X	Optimization _____%/100	=	Material savings _____€/year			
				Investment _____€	:	Material savings _____€/year	=	Amortization time _____years			

Questionnaire application technology

Company

Address

Zip Code | City | Country

Contact person | E-mail

Phone | Fax

We are interested in

- ❑ Online thickness gauge
- ❑ Online thickness gauge and automatic profile control
- ❑ Offline system for film thickness
- ❑ Width measurement
- ❑ Width measurement and control
- ❑ Meter weight control

Specifications of existing line

Film width:	Min. _____ mm	Max. _____ mm
Film thickness:	Min. _____ µm	Max. _____ µm
Throughput:	Min. _____ kg/h	Max. _____ kg/h
Line speed:	Min. _____ m/min	Max. _____ m/min
Extrusion:	❑ Monoextrusion __ Components	❑ Coextrusion __ Layers __ Components per layer
Processed materials:	_____	
Width of roll at haul-off:	_____ mm	
Power supply:	_____ VAC _____ Hz (single phase)	
Existing measuring and control units:	❑ Thickness gauge ❑ Width measurement ❑ Meter weight control	❑ Profile control system ❑ Width control ❑ Line speed control
Brand of existing line:	_____	

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KÜNDIG CONTROL SYSTEMS
The Gauge Manufacturer for Film Extrusion SWISS MADE

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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