

XRS – Soft X-Ray

NON-CONTACT THICKNESS MEASURING DEVICE

This non-contact thickness measuring device is for thin sheet/films up to 0.7 mm* thickness, a maximum width of 8 m and with a repeatability of $\leq 0.2 \mu\text{m}^*$.

Composed of:

- Measuring frame with integrated control cabinet
- Traversing unit with electrical drive
- Sensor mounted on the traversing unit measuring in transmission mode
- Control cabinet with industrial PC, 17" Monitor, keyboard drawer
- Connection cable control cabinet - measuring frame, 6m length

Visualisation

- Thickness profile diagram as bolt and line chart
- Trend and SPC analysis
- Roll protocol
- Recipe storage
- Alarm and history



Technical Data:	XRS
Measuring system	X-Ray
Max tube voltage	< 5kV
Max. measuring thickness	700 μm^*
Measuring gap	10 - 20 mm
Measuring spot diameter	15 mm
Repeatability	$\leq 0.2 \mu\text{m}^*$
Measurement speed	10 – 200 mm/s adjustable
Main dimensions (width x height x depth)	Measuring width + 1300mm x 1300 x 450mm
Colour:	RAL 7035/7022

*the value is material dependent

Thickness gauges



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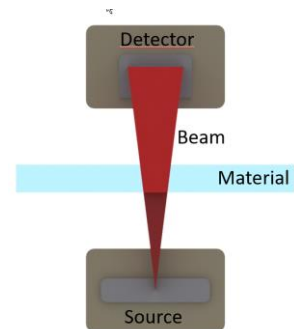
Electrical Supply:	XRS
Supply voltage:	115/230 VAC \pm 10 %
Supply frequency:	50/60 Hz \pm 1 %
Electrical equipment to EN 60204	

Ambience:	
Max. ambient temperature:	50°C
Max. air humidity:	80%, without condensation
Documentation:	Every EU Language



Measuring principle:

It is based on a non-contact, indirect thickness measurement principle. The X-Rays are being continuously generated in the source box. On their way to the detector box, they are being attenuated by the material. The amount of attenuation directly depends on the basis weight of the material. If the density of the sheet is constant, its thickness can also be calculated from the amount of X-Ray attenuation.



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Features/Screen frames:

Description of most important screenshots

Line chart:

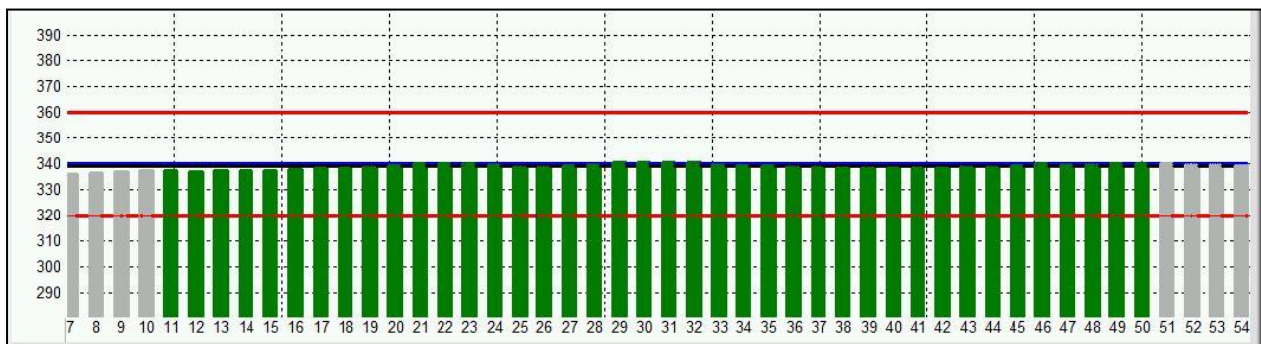
- Current thickness profile displayed over measuring width
- Average profile of last 3 scans
- Reference curve: freeze actual profile for comparing with future profiles – reference curve can be stored and reloaded.
- Net width

Bolt diagram:

- Current thickness profile displayed over bolt numbers
- Average profile of last 3 scans
- Reference curve: freeze actual profile for comparing with future profiles – reference curve can be stored and reloaded.
- Net width

Numeric displays:

- Current thickness (μm) according displayed sensor position
- Average thickness according cross profile, 2 Sigma value, min. and max. thickness
- Tolerance set values
- Thickness set value
- Net width set value



Bolt diagram

Inspect mode:

Zoom in graphics (thickness profile and bolt diagram) for close inspection

Trend diagram:

- Trend diagram shows process over 24 hours
- Most important values like set value, actual/average thickness according cross profile, min. and max. 2 Sigma, tolerances and line speed will be displayed in a line diagram.

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Buttons / Links:

- Production parameter (opens frame: production parameter)
- Calibration (opens frame: calibration)
- Analysis (opens frame: analysis)
- Password (enables setting of passwords for different protected frames)
- Alarms (displays alarm in readable text)
- Print
- Roll changing (reset parameters of frame production parameters, running meter e.g.)
- Roll protocol (report of every roll can be displayed, stored and printed)

Production parameter

Frame for setting production parameter

- Data of order: order nr., customers name, article nr.,
- Production parameter: thickness set value, + and – tolerances, resolution of displays, net width, etc.

Analysis:

This frame displays production data and trends

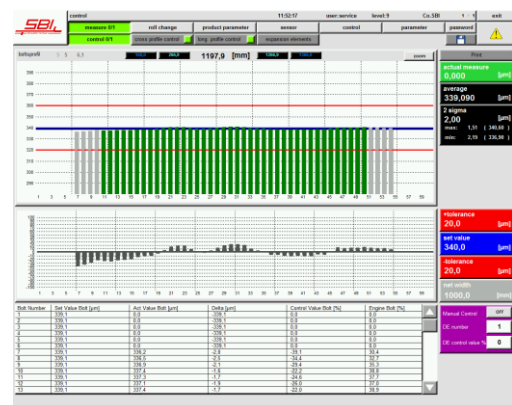
- Production data: time of start, time since start or roll changing, running meter since roll changing, weight, speed, etc.
- Trend: Displays trend graphics of last 24 hours, older trends are stored and can be loaded for viewing and printing. Trend graphics shows thickness average, set value and tolerances.

Thickness Control

Optional frames for control of thickness with automatic extrusion dies.



Main screen: thickness- and bolts diagram



Thickness control (option)