

GRAVIMAT FMI-12

Weight monitoring and control system

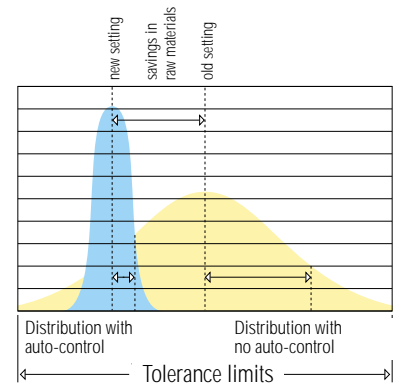
Measurement

Control

Automation

GRAVIMAT FMI-12

A control system for continuous, non-contact, non-destructive measurement of the weight per m² of on-line materials!



The all-important benefits:

- economic use of materials
- quality assurance
- increased productivity
- full quality-related documentation

Auto-control strategy

When using two scanners, a sophisticated feed-forward, algorithmic control ensures excellent results on stenters. Consistent quality in terms of finish, and constant residual-shrinkage levels are (FMI .. is) achieved by optimising the target in m² weight.

Even on frequent, abrupt variations in m² weight, adjustment of target to measured value begins the moment the material enters the stenter. By checking the result again automatically at the delivery end, a further fine adjustment is made to the target preset at the feed end.

Continuous and accurate measurement of weight per m² on many processes associated with the manufacture of textiles, paper, non-wovens, plastics and coated products in sheet or open-width form is considered to be the criterion most vital to assessment of finished quality.

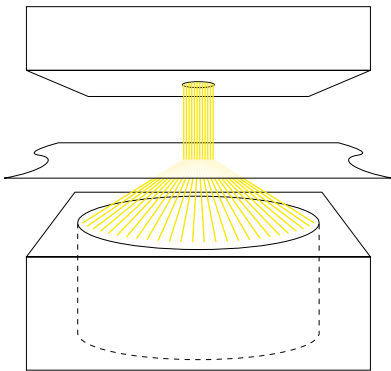
More importantly, the system must also be able to measure on-line and with a high degree of reproducibility in any given industrial environment.

Gravimat FMI – Accuracy pays in the long run!

In addition to an assurance of consistent quality, impressive savings in raw materials and energy can be achieved, process reliability attained, and productivity increased by setting a suitable target weight and opting for close tolerances (as illustrated in the following diagram).

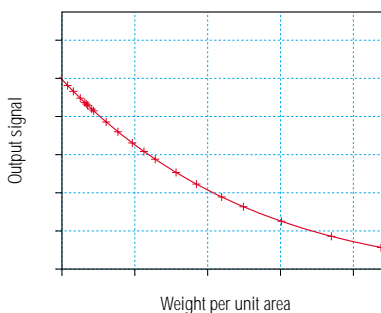
How it measures

When the rays from a radioactive isotope pass through a material their intensity weakens in accordance with the mass of the on-line sheet. This decrease in intensity is a measure of the product's weight per m².



Specially designed offsetting techniques eliminate unwanted effects and thus help promote the utmost degree of accuracy.

An exceedingly wide range of weights can be covered by using various radioactive elements.



Operating features

① Having switched the system on, a user-interface appears on the touchscreen monitor.

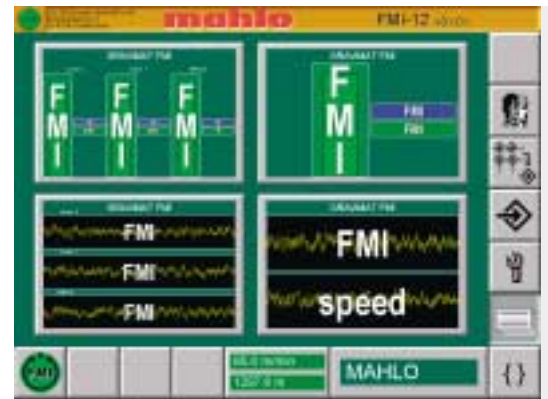
Typical installation:



This facilitates control by direct finger-contact with the screen.

Screen displays:

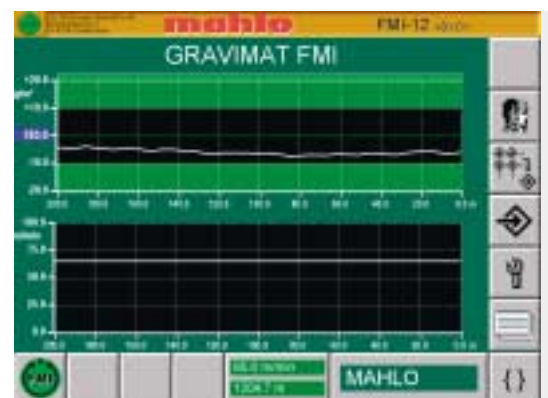
- ② Graphic display of weight differential (example: typical configuration for coating ranges applications).
- Measurements taken at two points and the computed difference between the two are indicated by bar graphs.
 - Informative target and readout data is displayed in figures
 - A separate histogram records the trend of the computed differential
- ③ Freely configurable histograms
- The trend of the weight per m² is plotted on a histogram
 - Progressive line-speed is recorded by a separate histogram



①



②



③

Technical data		
Type of measurement	Beta-ray transmission	
Activity	Kr 85: 3 GBq	Sr-90: 500 MBq
Range	Radiation source Kr 85:	20 – 1000 g/m ²
	Radiation source Sr 90:	1000 – 5000 g/m ²
Reproducibility (at 20 °C T _{amb})	Radiation source Kr 85:	± 0.1 g/m ²
	Radiation source Sr 90:	± 0.5 g/m ²
Scanning gap	10 – 60 mm	
Temperature compensation	at 4 locations (emitter and receiver enclosures, scanning gap at emitter and receiver ends)	
Power supply	230/115V AC 50/60 Hz	
Ambient limits	max. 50 °C, 0-95% relative humidity (non-condensing)	
	Emitter	Receiver
Max. current consumption	max. 1A (continuous: 0.5A)	0.3A
approx. dimensions in mm (W x H x D)		
• with covers (radiation-protection requirements have been met!)	564mm x 564mm x 161mm	564mm x 564mm x 275mm
• without covers (If there is a lack of space, and the radiation protection requirements can still be met, the cover may be omitted!)	250 mm x 154 mm x 135 mm	400 mm x 250 mm x 135 mm
Applications:	textiles, nonwovens, industrial fabric, plastic foil, self-adhesive materials, paper, boxboard, cardboard, fibreboard	

Illustration: Gravimat FMI-12

