



TEXTILE



NONWOVENS



PAPER



PLASTIC

SENSORS

GRAVIMAT FMX

BASIS WEIGHT (MASS PER UNIT AREA) / THICKNESS



Applications

The Gravimat FMX sensor consists of a compact X-ray tube and its high-voltage power supply as well as special, modern X-ray detectors with the electronics for data acquisition. It is completely insensitive to environmental effects such as temperature and relative humidity. This new measuring principle is used with the proven Mahlo® components for data recording and processing, and is therefore fully compatible with other products of the Qualiscan QMS family.

The manner in which X-rays interact with mass allows for the measurement of a very wide range of web basis weights using a single sensor, from 50 - 20,000 g/m² with the web against a steel roller or in free air!

Product-highlights

- ✓ Single-sided measurement requiring a minimum of space; easy to integrate into existing systems
- ✓ Measuring device works with an X-ray tube that can be turned off, and has no radioactive isotope emitter
- ✓ Insensitive to distance-related variations due to patented detection system
- ✓ It can measure against a steel roller, thereby ensuring perfect web guiding at the measuring point
- ✓ Virtually insensitive to the chemical composition of the web thanks to 65 KV tube

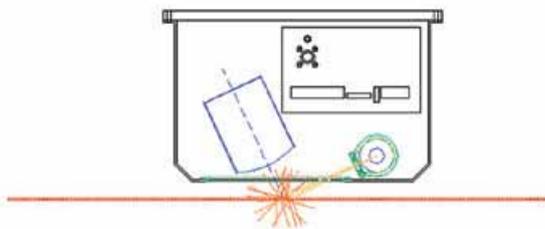
GRAVIMAT FMX in place



Principle of operation

The photons from an X-ray tube are directed towards the product, from which they are partially backscattered. The backscattered photons generate a high number of pulses in the detectors, thus enabling precise and ultra-stable measurement of the weight of the web.

The detector signal generated by the X-ray backscatter increases linearly with the weight of the product. Errors traditionally associated with web position, flutter or temperature are eliminated by the sensor design. When the density is known, the thickness of the material can also be determined very accurately (film, PVC, etc.).



Principle of operation, schematic representation

Customer benefits

- ✓ Can be installed without having to modify the processing range and existing web guiding arrangement
- ✓ Easy to certify, and a minimum of radiation safety requirements; X-rays can be turned off
- ✓ Highly accurate and virtually insensitive to product composition
- ✓ Extremely wide measuring range using the same instrument without modification or redesign

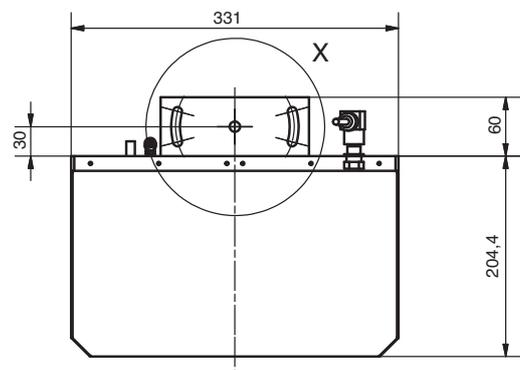
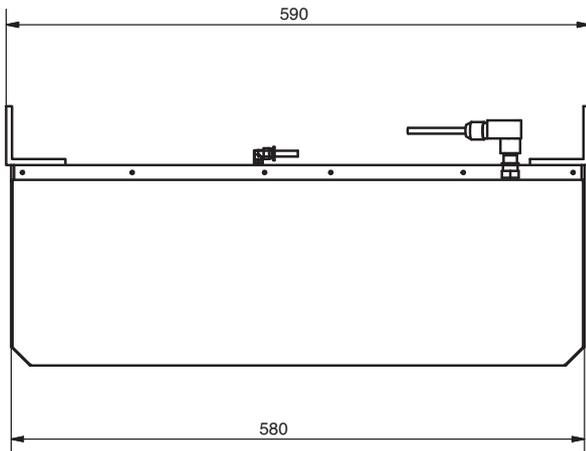


Gravimat FMX measurement diagram

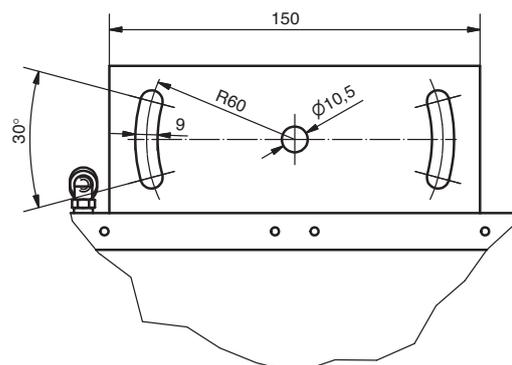
TECHNICAL DATA | GRAVIMAT FMX • AQUALOT HMF

Sensor	Gravimat FMX
Measurement	X-ray backscatter sensor
Beam generator	X-ray tube
Measuring range	50 - 20000 g/m ²
Accuracy	± 0.4 g/m ² at 100 g/m ² ± 1.0 g/m ² at 500 g/m ² ± 2.5 g/m ² at 2000 g/m ²
Distance sensor-product	15 - 50 mm (standard 20 mm)
Distinctive feature	Can measure against a steel roller or free air
Cooling	Water (circulation)
Power supply	24 V DC
Ambient limits	Max. 60° C, 0 - 95 % relative humidity (higher temperature applications upon request)

Dimensions



X (1 : 2)



GRAVIMAT FMX sensor
91-013782