

## “You cannot manage what cannot be measured!”

**This guiding principle of Mahlo GmbH, one of the leading manufacturers of sensors and systems for process control, ensures, among others, that things are comfortable and dry under our roofs.**

The building sector is booming. Regardless of whether in New York, Rio de Janeiro or Tokyo: Construction cranes seem to be engaged in a competition of who is building faster, higher and further. It should be a well-known fact by now that quite a number of nonwovens play a significant role in this scenario.



Fig. 1: Fibreglass

The great advantage of fibreglass mats is the fact that they do not rot and are able to bind much air, which is the ideal prerequisite for durable insulation. With a binder portion of 8 to 35%, the filaments reach a thickness from 0.6 to 0.7 cm. This may not sound like very much at first sight, but even a minute variance means an unnecessary added product is needed, amounting to a few per cent. Calculated over the year, a great deal of raw material can disappear unnoticed or its consumption can be optimised by means of appropriate control mechanisms. Using the appropriate sensors, Mahlo is able to determine the weight, amount of binder, ignition loss and the thickness of the mats with precision.

### Quality control with beta sensors

Radioactive sources are used here for weight determination (Gravimat DFI/Ashpro FMA) just as much as IR reflection for the binder detection (Infralot IMF) or laser for thickness measurement (Calipro DML). It does not matter here that the measuring points are located at the end of the drying stage and thereby subjected to major heat in the process.

### Right material mix for maximum profit

Perfectly sealed roofs are just as important in home construction. TPO or PVC membranes are used here, which may also contain PET. Here, too, finding the right material mix to control the costs and performance of the membrane is important. Again, the Calipro DML laser triangulation from the Mahlo range of sensors is the perfect choice for controlling thickness consistently. What's more, with the “Auto Profile Control” customers are able to influence the profile of the product and generate an absolutely uniform surface finish. This not only supports product quality but also helps save raw materials.

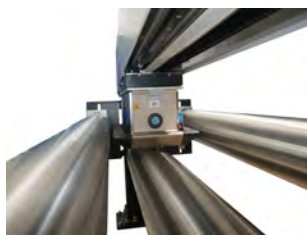


Fig. 2: Calipro DML in Uniscan

Insulating panels are another building block with the architecture of modern houses. In addition to the weight (up to 5 kg/m<sup>2</sup>) and thickness (13–114 mm), the R-factor plays a major role. This value constitutes an indicator for the insulating performance and depends, among others, on the density of the panels. Again, the Gravimat DFI with radioactive source is used here. These sensors are very popular because they do not require a lot of calibration and they cover a very wide range of different materials (up to 7 kg/m<sup>2</sup>). The  $\beta$ -rays are directed here through the material and measured on the other side. From the difference between the emitted rays and those arriving at the receiver, the weight can be derived with an accuracy of up to 0.06 g/m<sup>2</sup>. X-rays can also be used for special applications. For thin products (up to 1,000 g/m<sup>2</sup>), a sensor that does not require official approval can even be used.

### Mahlo QMS for universal use

All the sensors are supplied, including the appropriate bridge, which is individually adapted to all the production requirements with regard to substrate thickness (up to 600 mm), width (up to 6.6 m) and the remaining requirements (explosion protection, dust, heat). Of course, the QCS systems from Mahlo can also be used for many other applications in all areas of building and construction. Carpet tiles or PVC floor cover-

ings are just two popular examples of where costs can be saved efficiently and in a quality-oriented manner. Because, with the measuring and control system from Mahlo, one can not only be rest assured knowing that the product meets the exact requirements but also know with certainty that the material costs meet the specifications exactly and not one gram too much leaves production.

This provides the end customer with a safe and comfortable home and the manufacturers of technical textiles with perfect efficiency in production.