

Determination of moisture in dried fibre

realised with MoistureScan

Döscher

In 2001, the starting signal was given: with the KFB Kunz fibre board factory, one of Europe's largest manufacturing plants for medium density fibre boards went into operation in Germany. In order to optimize the process control by accurate measurements in every production section, the MDF plant uses three moisture measurement systems of the type MoistureScan.

It is essential to measure at the position of the belt weighers and in the fibre bin of the forming lines. Two measuring instruments of the type MoistureScan were integrated laterally into the walls at the belt weighers, where they determine the moisture content of the dried fibres (see fig. 1).

Depending on many influence factors, the performance of the dryer needs to be regulated by temperature adjustment in order to obtain the necessary fiber moisture. This becomes possible by an accurate moisture measurement of the dried product. The sensor design is based on open scattering field technology. They determine the water content continuously and independently from density and temperature. The production process remains uninfluenced.

A third system, another MoistureScan, had been integrated into the forming lines in the fiber bin (see fig. 2).

Prior to injecting and pressing, a precise determination of the water content is particularly important, since this does effect the quality of the pressed plates.

In case the water content of the fibres should be

fig 1:

Determination of moisture content of dried fibres on belt wheigher



fig 2:

Integration in the fibre bin of the fomring line



to low, the thermal conduction is missing and the temperatures needed for the hardening of the glue will be reached at the exterior surfaces, only, while the core of the panel will not achieve a sufficient compound.

In case the water content should be too high, the extreme pressure of the steam produced inside the press may lead to the panels cracking as soon as they leave the press, causing disturbances of the production process or even an unintended downtime. Moreover, customers increasingly do expect boards to contain a fixed percentage of water in their quality control, which thus can be reliably met.

The accurate determination of the moisture content is decisive also for the avoidance of complaints. Many customers expect a certain moisture of the boards, which can be kept with the help of the measuring system in quality control, reliably.

All sensors are centrally operated by a computer, results of the continuous measurements are displayed on the screen. If required by the customer, the manufacturer can carry out adjustments and maintenance works online by remote maintenance. Problems can thus be quickly found out and solved and malfunctions will be avoided. Compared to alternative methods, the systems are particularly distinguished by their independence from colour variations and long-time stability. The long-wave microwaves in use simply cannot, in contrast to optical methods, "see" neither variations in the colour nor the surface structure of a material. Differences between core and surface moisture are balanced, too, because the waves will penetrate the entire product. Density variations of the fibres have no influence.

Heiko Wolf, technological director/conductor of MDF production with Kunz, is particularly positive about the Doescher & Doescher Systems and their uncomplicated and durable design, user-friendly operation and quick and easy calibration-on-procedure.

Mr. Wolf is entirely content with product and service: „The technology did, by all means, prove itself equally at all measuring points.“

MoistureScan

