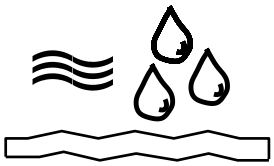
MRP - Messen Regeln Prüfen Automatisierungstechnik

Description



MRP-ST LAB MOI 2015 xxx - Humidity measurement for MRP-Schnettler test line

Moister measurement for the MRP-Schnettler automatic test line

The moisture measurement on paper and cardboard is carried out at MRP-Schnettler automatic test line with 3 different moisture sensors. Depending on the task you can choose between:

- MRP-ST LAB MOI DS115
- MRP-ST LAB MOI DS20
- MRP-ST LAB MOI SCH

Paper and board moisture is one of the most important quality parameters. It is generally determined according to DIN EN ISO 638:2009-01 by means of weighing and drying cabinet evaluation. This evaluation is very time-consuming and generally takes about 24 hours. Faster evaluations with the help of a shortened drying time are still about 3-4 h.

Indicator / Characteristics

The moisture measurement integrated in the automatic test line is characterized by the following features:

- non-destructive
- Largely independent of filler
- independent of surface and colour

Physical principle

The moister sensor is designed as a capacitor in which the field lines run through the paper. Water has a much higher dielectric constant (about 80) than cellulose (about 2.5). The proportion of moisture in the paper is therefore very well expressed by the dielectric constant. This ratio means that the presence of water between two electrically conductive but unconnected sheets increases the charging capacity by about 32 times compared to dry paper. This effect is implemented with a high evaluation accuracy in the moister sensor used. MRP offers two possible variants here, which can be used depending on the requirements.
The three systems used by MRP differ in their evaluated frequency range and the possible measuring ranges.

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Measurement accuracy:

Type	MRP-ST LAB MOI DS115	MRP-ST LAB MOI DS20	MRP-ST LAB MOI SCH
Basis weight	30 - 700 g/m2	250 - 5000 g/m2	40 - 500 g/m2
Measuring range	0 - 80 g H2O 1-20% H2O Sensitivity adjustable	10 - 600 g H2O 2-20% H2O Sensitivity adjustable	0.8 - 60 g H2O 2-12% H2O
Resolution	0,01 % H2O	0,05 % H2O	0,05 % H2O
accuracy - 2 sigma at 1 sec	±0.1% H2O abs.	±0.15% H2O abs.	±0.15 H2O abs.
Operating temperature	10°C-70°C	10°C-70°C	10°C-50°C

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