

CONMARK

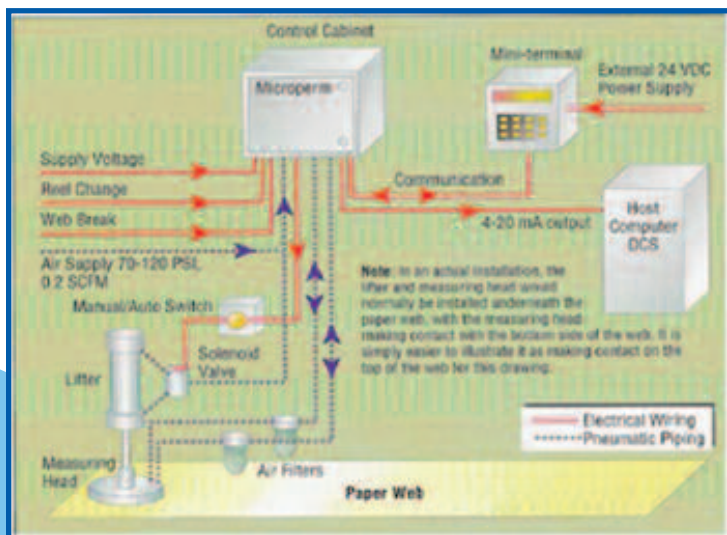
POROSITY ANALYZER

The Fully automatic online Microperm Porosity Analyzer for Paper Makers

THE MICROPERM POROSITY ANALYZER is designed for monitoring the porosity of the paper or board on the web. The Microperm measures the time required for a known volume of air at a very small and gentle vacuum to pass through the measurement head and measured material. Air permeability and air resistance values are then calculated in the desired units, and sent via 4-20mA out to monitoring or DCS system. The Microperm Analyzer operates fully automatically, 24 hours a day, 7 days a week and produces online machine directional porosity reading. The analyzer is suitable for process control as well as an analytical information source.



THE MICROPERM POROSITY ANALYZER is manufactured for easy maintenance and continuous trouble free run. The user can pre-calibrate the Microperm for each paper grade, so recalibration for grade change is not required. The calibration method correlates the on-line porosity measurement directly with the laboratory. Non linear variables are controlled physically and by using mathematical software models. With this latest technology it is possible to measure the porosity of the paper only and eliminate such disturbing factors as: air leakage, loss of pressure and excess air brought by the moving web. The parameters of Microperm software are individually set for each installation to guarantee the accurate on-line porosity measurement. After the success of the previous Classic version, Avatron engineers have further developed the hardware and software to effectively measure nonwovens, filter papers and glass fibers as well as very dense board sheets.



TECHNOLOGY

The online porosity measurement system replicates the laboratory testing procedure for porosity. As Figure I shows, the system consists of a measuring head, a pneumatic cylinder for lifting the head to the sheet surface, air filters, a control cabinet, and the mini-terminal or PC based operator interface. Using these components, the system pulls a fixed volume of air through the moving paper web at a constant vacuum. The time for this volume of air to pass through the sheet is then used in calculating the porosity or air permeability values.

MEASURING HEADS

Measuring heads come in four different models, which differ from one another in the measuring area. The choice of measuring head type depends on the paper grades to be measured. Although a single head will usually cover the porosity range for a paper machine, two heads can be used for extreme situations, such as specialty mills that must capture the porosity ranges of many different paper grades. Measuring head is designed to be extremely smooth so that it would not mark the sheet. and it is also extremely resistant to the abrasive characteristics of the sheet. With "friction-less" coating and unique mechanical design, the measuring head had no impact on the sheet during production. It will not mark the sheet or cause the web breaks.



RELIABLE MEASUREMENT FOR PROCESS CONTROL

In addition to having no limitations associated with paper machine speed, the online porosity measurement system operates with papers in a basis weight range of 6 to 200 lb/3,300 ft². Also, it has specific quality and production benefits associated with improved refining and vacuum control, better wet-end chemistry control, and faster grade changes.

REFINING CONTROL is most common application for Porosity measurement. Changes in the refining control have direct affect to the porosity of the paper and that measurement can be utilized as a cascaded set point for Refiner Load Control. Mills have repeatedly reported fewer web breaks after implementing refining control based on online porosity, resulting in higher machine efficiencies. Porosity correlates directly with some of the strength properties of the paper and it can be utilized in the optional real time models to predict strength properties.



TECHNICAL SPECIFICATIONS

- Dimensions 900x1900x800 mm 35"x75"x31"
- Weight 350 kg 770 lbs
- Operating Ambient Temp. 5 - 40 °C 40-105F
- Sampling 1 - 4 lines
- Inputs 8 digital inputs
- Outputs 8 analog outputs,32 digital outputs
- On site access Laptop, H P4700 (wireless access)
- Remote access Modem, VPN (Internet)
- Measurement Range + 200 – (-3500) µekv/l

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