

NIR Spectral Imaging in Moisture Profiling

IQInsight

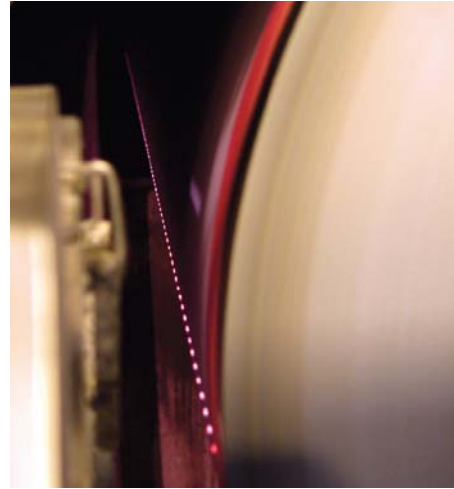
IQInsight is an instantaneous, full sheet moisture measurement embedded in the paper machine. It allows papermakers to see into the papermaking process at the machine wet end, where uneven profiles just start to develop. Superior cross direction quality controls are possible at this location. Papermakers can also diagnose and correct machine direction variations and cross direction streaks from the forming and press sections.

Measurement system description

IQInsight is a high-resolution infrared sensing array located in a pressurized cross machine enclosure, which extends across the full sheet width. The measuring array captures high-resolution and high-frequency snapshots of the paper web moisture as it enters the dryer section. The true CD profile is known at any instant and how it changes over time. The measurement beam is unobtrusive, fitting easily into the pockets between the dryer section vacuum rolls.

IQInsight provides very high CD resolution measurement with the fastest profile update in the industry. Using full-spectrum infrared analysis and multivariate calibration, the effects of sheet temperature, pocket humidity and drying fabric material are effectively cancelled.

IQInsight separates MD and CD variations. This is one of the key design features of the measurement that make it more valuable for machine diagnostics and controls than a traditional scanner. This allows papermakers to see short-term machine direction pulsations from the forming or press sections.



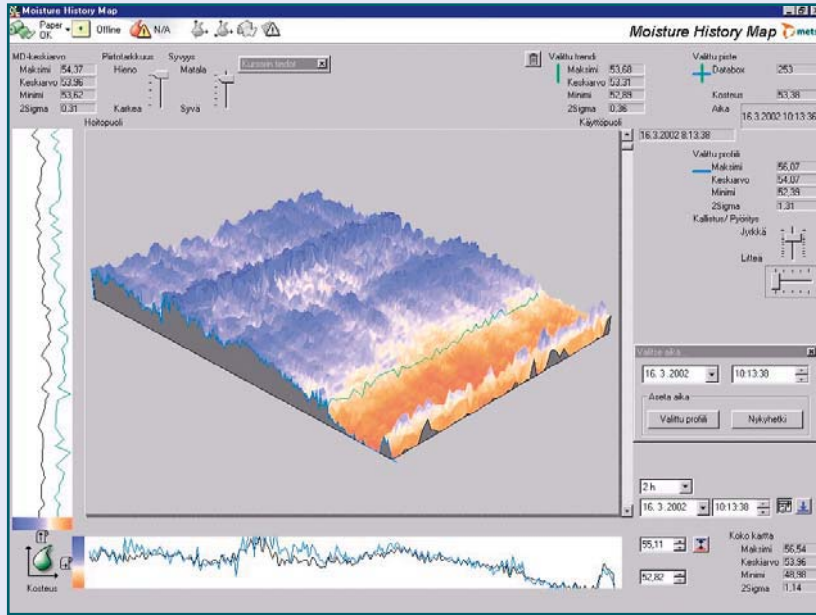
Intelligent quality

The measurements are shown as a series of profiles in three-dimensional displays that can be scaled and rotated to the operator's preference. A zoom function can be used to highlight specific problem areas.

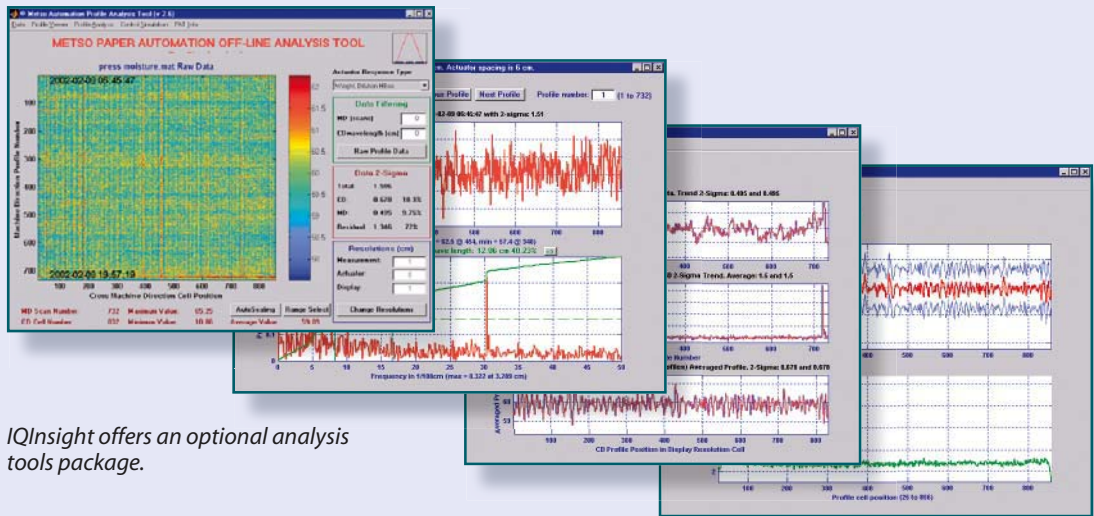
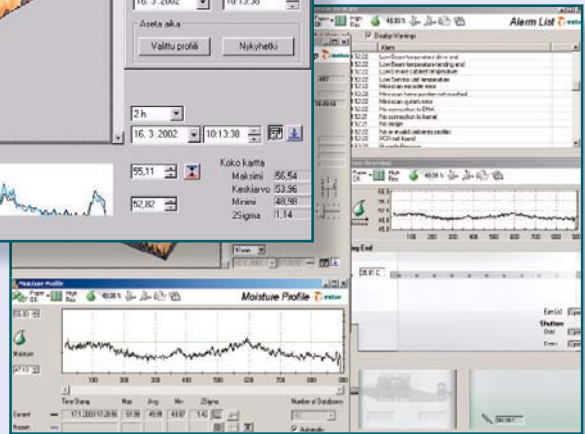
The protective stainless steel enclosure is purged with filtered air. During sheet breaks, the sensing array is protected by an automatically activated shield mechanism within the enclosure.

Benefits to the Papermaker

- Superior CD controls
- The most stable quality sheet for optimized on-line coating and on-line finishing
- Optimized forming section and press section dewatering
- Stable sheet dryness for better runnability
- Early diagnosis of problems with machine fabric cleanliness or uniformity
- Diagnosis and correction of wet end process instabilities
- Improved sheet threading, faster startups



IQInsight is supplied with a comprehensive set of operator and maintenance displays.



IQInsight offers an optional analysis tools package.