



Introducing

SMART[®] **TECHNOLOGY**

A dynamic breakthrough
in real-time paper machine
optimization.



SMART Technology is the world's first system for dynamic measurement of nip performance.

Press section efficiency is largely dependent upon contact uniformity in the press nip. Yet, improper cover crowns, biased loading, uneven roll cover wear and uneven fabric wear can all cause non-uniformity— leading to costly sheet breaks, reduced paper quality, increased costs and decreased roll cover or fabric life. Traditional tools used to measure nip performance require machine downtime and data extrapolation to obtain a snapshot used to forecast operating conditions. There has never been a way to reliably monitor the response of the nip profile to changing machine conditions. Until now.

Embedded sensor system

SMART Technology employs a proprietary embedded sensor system to extract data from the roll cover during machine operation. For the first time, machine operators get real-time knowledge of true operating conditions. Real-time knowledge provides the ability to make on-the-run adjustments and the power to optimize production, reduce energy consumption and control costs.

How it works

A series of sensors is embedded across the width of the roll cover, providing a continuous flow of data across the entire nip. The sensors are monitored by head-mounted electronics that rotate with the roll and transmit data wirelessly to a dedicated computer. A custom operator interface provides dynamic monitoring of the pressure profile, pressure profile standard deviation and roll speed. The system also provides a log of past nip data.

The benefits of real-time knowledge

Armed for the first time with accurate real-time knowledge of nip performance, the operator can adjust operating parameters and make corrections to the moisture profile exiting the press. The benefits can include an improved nip profile, extended cover life, reduced downtime, lower consumption of materials, reduced energy costs and early warnings of cover failures.

Years in development, SMART Technology is now field proven and providing documented results. Contact your Xerium representative for more information or visit www.xerium.com.

Case Scenario 2

Problem

- Excessive sheet breaks (12+/day)

Resolution

- SMART® Roll identified dynamic profile problem in 1st press
- Corrections made

Value

- Breaks reduced from 12/day to 0.3/day
- Production = 730 TPD
- Avg. break time = 14 minutes
- Incremental profit = \$40/ton

\$994,000 / year

7.1 ton/break x 10 breaks/day x 350 days/year x 40\$/ton

Machine Type: LNP w/ Shoe Press
Speed: 500 mpm (1650 fpm)
Basis Weight: 99-176 lbs/3000 ft²
 161-287 GSM
Grade: Uncoated Plate to Coated Cigarette Board
Load: 105 kN/m (600 pli)
Trim Width: 5.7 m

Case Scenario 3

Problem

- Excessive starch usage in size press

Resolution

- SMART® Roll identified peak pressure variations
- Load corrections made

Value

- Starch consumption reduced by 5%
- Production = 864 TPD
- Starch reduction = 5%
- Starch cost = \$22/ton

\$312,682 / year

864 TPD x 350 days/year x \$22/ton x 0.047

Machine Type: Beloit Trinip
Grade: Uncoated Free sheet
Basis Weight: 75 GSM (20 lb/1300 sqft)
Speed: 945 mpm (3100 fpm)
Load: 42 kN/m (240 pli)

Case Scenario 1

Problem

- Chronic non-uniform profile (+2.7% higher on the back side) leaving 3rd press

Resolution

- SMART® Roll identified CD load bias at equilibrium
- Corrections made

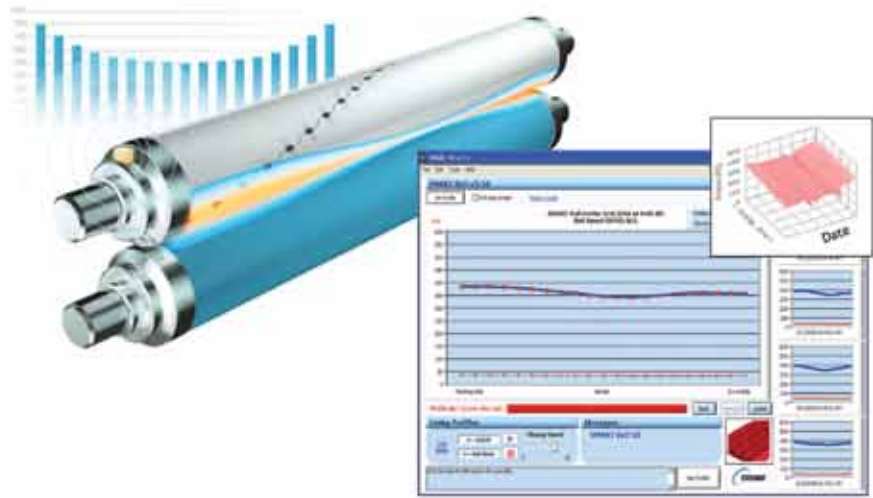
Value

- Drying costs reduced 5.2%
- Drying costs = \$59/ton
- Period = 60 days
- Production = 978 TPD

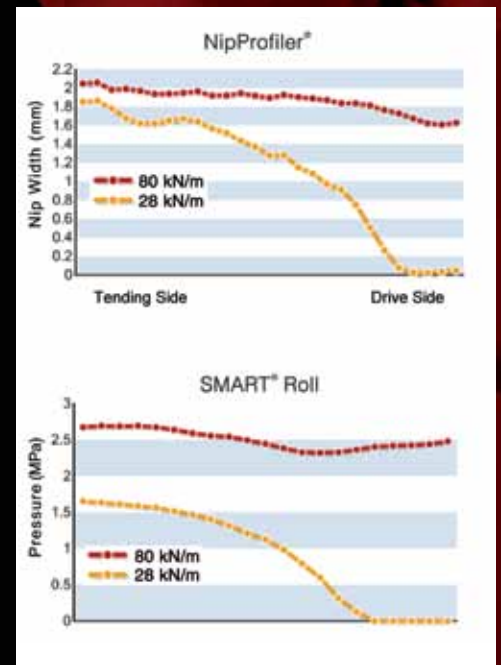
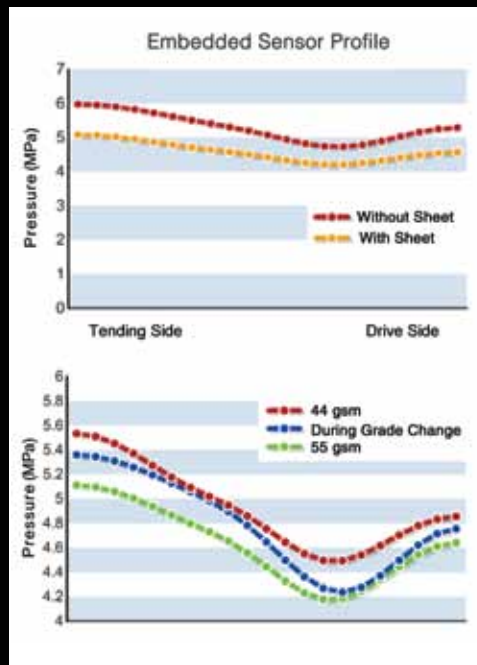
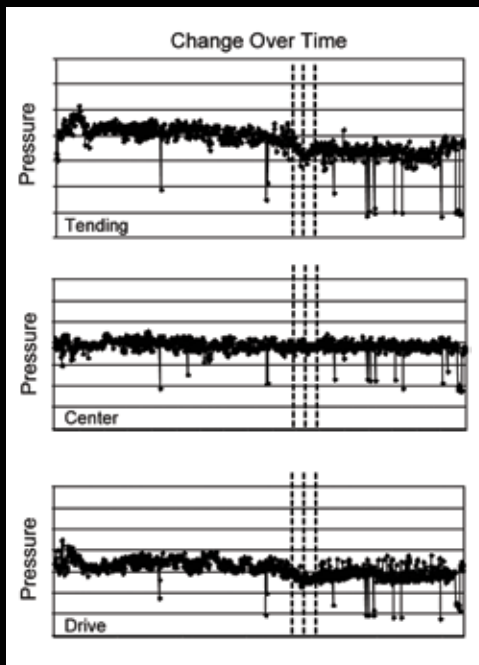
\$180,157

978 TPD x 60 days x \$59/ton x 0.052

Machine Type: Beloit Trinip
Grade: Uncoated Free sheet
Basis Weight: 75 GSM (20 lb/1300 sqft)
Speed: 1220 mpm (4000 fpm)
Load: 123 kN/m (700 pli)
Trim Width: 6.75 m



Field Data



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Real Knowledge. SMART® Performance.



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