Case Study
SMART® 5.0 PM 6 UPM Schongau, Germany

UPM Schongau recently upgraded to SMART 5.0 on PM 6 for better control and visibility of nip conditions. (Fig. 1) Upon initial start-up following the SMART 5.0 installation, the SMART system captured a number of process changes including pressure differences, edge overloading, nonuniform distribution of nip load, and others. SMART 5.0 provided rapid and accurate information so production engineers could make immediate adjustments where necessary, and acknowledge the need for other corrective measures to be performed at scheduled downtimes.

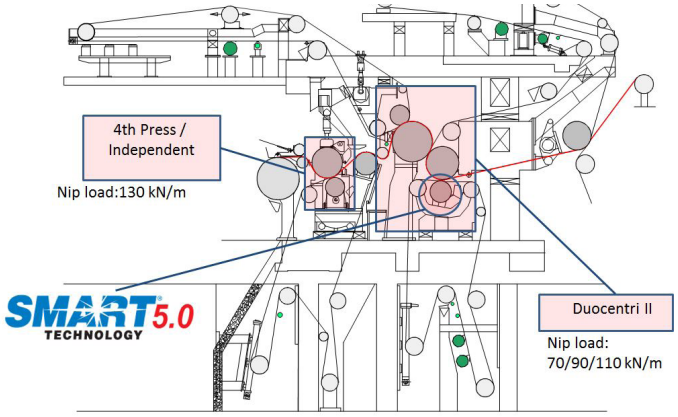

Fig. 1 - UPM Schongau PM 6 - 1,400 MPM

Figure 2 shows a sectional enlargement from the long-term nip pressure measurement phase over a period of several days. It displays the measured nip pressure prior to the scheduled PM downtime for changing felts and its changed condition after start-up. (To simplify the graph the actual period of downtime was filtered out.) With SMART 5.0, it's immediately clear that there is an edge overloading condition on tending and drive sides which reduced proportionally during the break-in period of the felts, (green areas = increased pressure level). The insight and accuracy that SMART provided enabled engineers to quickly isolate the edge overload issue and accelerate corrective action.

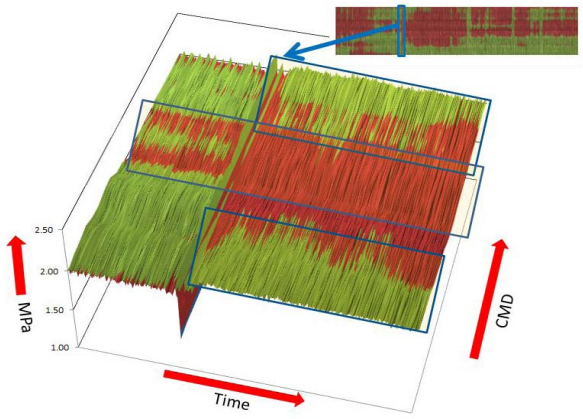

Fig. 2 - Nip pressure vs. felt change

Figure 3 shows the measured nip width prior to shutdown for changing of the bottom and pickup felts and double suction press roll. (Again, to simplify the graph, the actual period of downtime was filtered out.) SMART captured a minor change in the measured nip width after start-up of the paper machine, despite the fact that there was a change of PMC and RC at the same time. After the break-in period of the felts, the nip width was significantly reduced, and a slight overloading effect on tending and drive sides was documented (more red = shorter nip width). Through the change of the double suction press roll, the nip decreased by ~2.5 mm, or ~10% of the prior nip width. That reduction could be caused by differing cover hardness or a changed diameter of the installed spare roll cover. As an isolated effect this would not have any negative influence to the runnability or productivity, but the width reduction and overloading effect would have gone undetected without SMART.

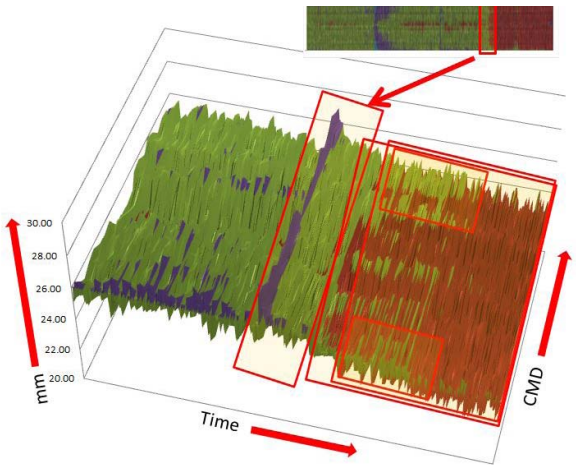

Fig. 3 - Nip width vs. roll cover & felt changes

The SMART system provided UPM with real-time measurement information, which has never before been available, leading to an accelerated trouble-shooting process. Further quality improvements on PM 6 include the 3rd / 4th press and calender.

"We're very satisfied with the SMART System. It provides us with greater information to speed up our troubleshooting. We plan to invest in additional SMART Technology systems for other positions."

Stephan Carda, Production Manager of PM 6
UPM Schongau, Germany.

In summary, each grade of paper produced has an individual pressing environment in which an optimized peak pressure range has been established. Armed with this knowledge the Papermakers can utilize SMART 5.0 technology as a practical engineering tool to ensure the press section operates within this designed peak pressure range. Before SMART 5.0 technology, this was only possible through indirect analytical modeling based on inputs from the roll cover, clothing, and machine parameters. SMART 5.0 accurately identifies and isolates issues for rapid analysis and decision-making to improve the productivity and efficiency of the paper machine. Now, the papermaker will know whether the press nip is performing at peak optimization levels by observing the peak pressure range as a function of nip width. In addition to the press section, SMART technology is also suitable for nip analysis with; couch press rolls, soft calenders, multi-nip calenders, super calenders, size presses, and lamination and finishing applications.

At the end of 2012 Xerium had already sold more than 330 SMART Roll applications worldwide on a wide variety of Stowe roll cover concepts and paper machine types for practically every paper grade.

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For more information visit ***Xerium.com/SMART.***