

SESSION 2B MACHINE ROOM

2B1 Wrap line Reliability Improvements at Crofton

Lisa Hudson, P.E. Crofton

Catalyst Paper Crofton Division has two paper machines that both feed rolls into an automated finishing line, known as the wrapline. The wrapline is manned by one operator a shift, who monitors the flow of rolls into the line, supply changes, and final package quality. Five robots are installed in the line; two place the inner caps, two place the outer headers, and one applies the label to the roll. Wrapline availability, meaning the percentage of time that the wrapline is available to accept rolls, and downtime due to unscheduled failures directly affects wrapline capacity, winder uptime, and ultimately the productivity of the paper machines.

The process of improving wrapline reliability requires a focus on decreasing unplanned breakdowns and increasing availability of the wrapline. This presentation aims to discuss the wrapline reliability improvement measures taken over the last year and a half, including the successes in adapting our maintenance strategy to deal with aging robots, the challenges involved in creating effective key process indicators, and more steps that can be taken now to improve the future reliability of the wrapline.

2B2 Title: Modelling of Pulp Dewatering

Dr Tom Eaves, Department of Mathematics, University of British Columbia

The Pulp Dewatering Research Group at UBC is interested in developing models of pulp dewatering which can be carefully calibrated in the laboratory and scaled up to make predictions about pilot-plant and full-scale press operation and design. In this talk I will outline the key ingredients our models use and indicate how we apply these models to industrial machinery. In particular, I shall show some comparisons of our model predictions to pilot scale equipment.

2B3 Improving Pulp Machine Efficiency at Celgar

Koowar Singh, Kevin Kirby, G.O'Reilly, Mercer Celgar

Mercer Celgar's PM1 is a 1961 vintage with a fourdrinier table, 3 open nip presses and flakt dryer. The machine currently produces 720 ADMT/day of NBSK pulp. An integral part of Celgar's Kraft process since the mill's inception in 1962, PM1 continues to play a key role in production today and for the foreseeable future.

Since 2015, PM1 has suffered a high number of wet end sheet breaks, a majority of which were "unknown" breaks with no identifiable root causes. Additionally, the threading process post-break was a tedious one that would further contribute to machine downtime and instability.

The second half of 2018 saw Celgar make strategic upgrades involving the latest in drive technology, laser draw control, high speed cameras and refined process control to improve the overall efficiency of the machine. Additionally, with a solid belief that people are a cornerstone of a successful endeavor, the machine room team focused on personnel training, operator involvement in upgrade projects and implementing a comprehensive preventative maintenance program.

This paper highlights the efforts and methods involved in improving the overall efficiency of PM1 and rehabilitating the machine to a reliable asset for the mill.

2B4 Pulp Dryer Upgrades – Recent Cases

João Carlos Negrão, Valmet Technologies Oy – Finland

Valmet, as the global leader for design, manufacturing and supply of pulp mill technologies, has the knowledge and expertise to assist mills with their objective of increased production capacity while simultaneously improving equipment reliability. This paper will review available upgrades for pulp drying machines, including a review of our most recent reference cases. Pulp drying machines are quite often the main production bottleneck for many pulp mills which is completely

understandable, since to have one bale ready for the customer, the entire mill needs to manage to produce good quality pulp. Valmet works closely with the mill process owners to determine the significant production bottlenecks in the drying line, and provides solutions delivering the best results for maximizing the mill production.

Issues causing low machine performance or driving high production cost can be identified in such a way that all process variables are considered, and correct decision is taken determining the proper upgrade to support the mill's target and new performance level. Headbox flow and profile quality can directly impact cutter run ability and on bale handling. Valmet knowledge as well as proven process solutions can take machine performance to the next level, combining energy savings solutions on high demanding consuming equipment with new developments joining safety with reliable and fast operation for tail-threading in the wet end area, creates a safer environment for all operator-machine interfaces and shows how innovative and forward-thinking Valmet is for next machines' generations. Conversion of old cutter layboy layouts to improve sheet handling from machine to baling line and many other developments to make pulp production cleaner, more environmentally friendly and cost efficient.

Proven results from latest developments enable pulp manufacturers to improve their processes, and many have started aiming for and achieving new targets, such as reducing bales weight variation, saving significant vacuum pump energy, or even boosting cutter and machine final speed. Valmet, as a full scope supplier for pulp and paper mills, can support customer performance forward, from headbox to cutter, including Automation and integration with the new Industrial Internet age.

2B5 Parallelism of Rollers a new invention for the solution of an old problem

Payam Assadi, Prüftechnik

For several reasons, there is an ever greater need for well-aligned rolls in paper mills. On one hand, precisely aligned rolls are a vital prerequisite for producing paper of consistently high quality. On the other hand, consumables such as felts or roller coatings are used up much faster when rolls are misaligned, resulting in tremendous cost for more frequent replacement.

Roll Alignment so far

Up to now, alignment of rolls has relied almost exclusively on optical equipment. When measuring with devices such as theodolites, intervisibility between the center line outside the machine and the rolls to be aligned is necessary. When using sticks for the alignment of rolls, intervisibility between the rolls is necessary as well. If a paper mill is already in operation, encased areas of the machine are particularly difficult to access, thus further compounding this problem. Not least, with all traditional ways of alignment a great amount of time is required to perform the measurements.

New approach by Prüftechnik Alignment Systems

In contrast to all conventional system, PARALIGN® is based on a completely new technology for the alignment of rolls. PARALIGN® contains highly accurate ringlaser gyroscopes, which have a so-called 'inertia'. With three gyroscopes in the same housing, it is possible to make this device "capable of learning".

If a point in Cartesian space is specified as a reference point (i.e. as the ideal point) with the device, the device can then specify every other point in the same space with respect to its deviation from the horizontal and vertical planes. In other words: an "ideal" roller within the machine is identified and used as a reference. PARALIGN® stores and 'remembers' its relative position and compares it to each subsequent roller that is being measured. Their relative angular position is stored, displayed and automatically processed in the PARALIGN® Explorer software.