

Latest Technological Trend of Shoe Press Belt and Transfer Belt

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From the time of the inception of our predecessor company, Tokyo Mofu Co., Ltd. in 1918 and throughout the early days of Ichikawa Woolen Textile Company, we have been accumulating unique technologies in the development of paper machine clothing that would help the press section of paper making process run more efficiently. Paper machine clothing used in the press section includes Press Felt, Shoe Press Belt and Transfer Belt. In Japan, we are the only manufacturer that is capable of developing, manufacturing and supplying all three product groups enabling us, as a press section specialist, to offer comprehensive solutions to optimize the operation of paper machine press sections.

In this issue, we present the latest technical trends in Shoe Press Belts of which we supplied our first product to the US market in 1982 as well as Transfer Belts with our first product installed in China in 2002.

Changes and Latest Rebuild Case of Forming Section for Paperboard Machine

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The forming section of paperboard machine was developed and progressed from vat machine and fourdrinier machine. The typical formers progressed from vat machine are Ultra Former series and Success Former, Kobayashi's original brands. There are different 7 types of our models those are applicable for all kinds of paperboard production. We developed and supplied new types one after another in response to the market needs during the days and those models are contributing to the paper industry's improvement.

On the other hand, the twin wire type formers such as hybrid former and gap former were developed from fourdrinier machine. Twin wire former is the type sandwiches the headbox jet by 2 wires and dewaterers, and this former accelerated the high speed operation and paper's high

quality.

This report introduces the history of vat and fourdrinier machine, besides recent rebuild experience of a board machine start-up this March.

New Approach for Wet End Operation and Optimization

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The global paper market put new challenges into today's paper making. Low cost imports and high quality manufactures are competing with each other. Competitive manufacturing cost as well as high quality is essential to keep the paper machine profitable to stay in business.

IBS "iTABLE™" is the perfect solution with modern drainage technology on a paper machine to produce consideration in formation and paper strength improvement as well as remarkable results in energy consumption and chemical cost saving leading to an extremely short payback period of less than one year. The over forty "iTABLE™" are operating in the worldwide on single fourdrinier, ON-TOP former and multi-layer high quality paper machines. This paper describe the performance results on field operation of "iTABLE™"

"Fiber to Print" , Optimizing Paper Process

— **Allimand Hydraulic Head Box with Dilution Control S-IV Version** —

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When quality control is concerned, the focus is often on the paper machine. However, the quality potential for a paper machine is always set before it in the pulp mill and stock preparation area. Correcting stock preparation upsets at paper machine is already too late. To put it simple, the paper machine merely forms the sheet and removes the water, whereas everything else is done at furnish preparation. This paper will present the measurement and optimization possibilities in holistic quality management at paper machine and present a study case for estimation of final paper strength by using fibrlization measurement results from On-line Fiber Analyzer Valmet MAP.

The Latest Trend of Press Felt in 2015

—Correspondence to Trend of Papermaking Technology—

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In recent years, the efficiency improvement of paper machine operation has been getting more important in paper industry than before. The improvement has been done, for example, by the increasing number of energy-saving operation, higher pressure loadings at press position, and a higher machine operation speed. As a paper machine clothing supplier, it is very important to respond quickly to these trends. Therefore, we continue to modernize our production facilities and to work on the development of press felts based on the theory of water removal at press section.

This report introduces you some of our new type felts, such as “Aquathlete” for newsprint and printing & writing paper grades, providing very good water removal at press nip, “Multipath concept” for paperboard grade, retaining thickness and water permeability very well, and “W-speeder” for tissue paper grade, sustaining very good dewatering capability throughout its service life.

Deposit Control Technology of Papermaking Process

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Deposit is a difficult issue to deal with in the paper making process. One of the solutions for deposit is chemical treatment which has two different addition methods, surface treatment and internal treatment. Surface treatment is to spray the chemical in only contaminated place, e.g. wire or felt, to deal with the problem at there. Disperser or sticky control is one of the chemicals of internal treatment which can control any deposit throughout the process. Overall deposit control can be achieved by combination of above treatments.

I explain sticky pitch issues mainly in this article.

Practical Use of the Two Dimensional On-line Formation Sensor for the Improvement of Sheet Formation

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Well-controlled sheet formation is necessary to ensure optimal physical characteristics leading to product quality and waste reduction. To evaluate and control the sheet formation, a good on-line formation sensor is required. The two dimensional on-line formation sensor enables to detect the transmission images of the running web and evaluate the sheet formation (formation index and flock shape) intermittently.

The on-line formation sensor was installed on the two newsprint paper machines which have worse sheet formation than others. The relationship between the information from the on-line formation sensor and the operating condition was analyzed. The sheet formation of one of two paper machines was improved by the optimization of dewatering condition on the former from the results of the analysis and achieved the target value within one week. Although the target value wasn't achieved only by the optimization of the dewatering condition about one other paper machine, we succeeded in achievement of the target value by the optimization of the furnish condition as well as the dewatering condition.

Voith QCS Tissue Solutions

—The Most Economical and Ecological QCS for the Tissue Industry—

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For safety and cost reasons, a major objective of the paper industry has been to measure moisture and fiber weight without using radioactive beams. Using the Voith LSC TecoSens sensor this is now possible for tissue production.

Currently, online basis weight in tissue manufacturing is usually measured with radiometric basis weight sensors. Using radioactive beta rays, the basis weight of the tissue web is determined in units of g/m^2 . Although this technology has long been proven, paper manufacturers were nevertheless seeking a reliable alternative without radiometry.

With the Voith LSC TecoSens, an infrared optical sensor is now available for tissue manufacture that uses one unit to measure both the moisture and fiber weight. It measures these two physical measuring variables of the tissue web simultaneously using a modular sensor unit integrated into the quality control system. The measuring process used is based on infrared spectroscopic methods and is particularly suited to tissue manufacture which uses only fibers and no fillers. This method is superior to conventional radiometric measurement in both

ecological and economical terms.

“TecoSens” means Tissue Ecological and Economical Sensor.

iRoll, Intelligence Solves Many Problems

—Technology for Better Runnability and Nip Profiles —

Yoshiki Kabutoya

Valmet K.K.

Production efficiency, good paper profiles, reduced energy consumption and cost savings are common targets for all paper makers. Besides these, also providing the best possible customer satisfaction for end product users is crucial on today's demanding markets. iRoll product family aims at these goals and provides a solution for improving sheet quality, optimizing nip profiles and for assuring highest possible end product runnability. The intelligent iRoll product family is a complete set of tools for controlling paper tension and nip profiles. iRolls can be utilized for all main processes and positions of paper machines. iRoll technology enables to improve production efficiency and product quality by assuring optimal runnability in all process phases. iRoll offers cost savings by improved nip profiles, parent roll hardness profiles and tension profiles as well as best possible product for printing and converting houses. This paper introduces the applications of intelligent roll technology in paper, board and tissue making and illustrates the benefits through example cases.

The History of Technological Developments of the Paper Industry in Japan

Part 1: Social Restoration that Demanded New Type of Paper

Kiyoaki Iida

After The Meiji Restoration, Japanese started to introduce social culture and system of western countries. One was letterpress printing which was less costly than traditional woodblock printing. Another was carton and paper container that efficiently distributed goods. At the beginning, western paper was imported for those uses as traditional washi paper was unsuitable. So, some pioneers tried to produce those papers by themselves. It took thirty years since a first paper machine was installed for the domestic paper industry to take off. Then, it increased its production at the rate of 10% per year. The growth was supported by demand by

printing industry which grew as much as or more than the paper industry. Carton industry, one more customer, also expanded along with the paper industry, though its size was 20% of the paper industry. Imported paper, on the other hand, remained almost at the same volume, and its share went down to 10% in 1930.

Thus, the paper industry monopolized the domestic market by competitively inventing a Japanese model of production, and became one of major industries in Japan. This report follows the history of technological developments of the industry. The part 2 will review the dawn of the industry.

Corporate Profile & Products Information (26)

IKARI SHODOKU CO., Ltd.

In late years many paper mills introduce a monitoring system and an investigation as a part of pest control management, but the performance itself often becomes the purpose. Even though a large amount of cost is spent on the investigation every year, a hygiene level and environmental improvement do not often advance as expected.

IKARI SHODOKU CO., Ltd. recommends "the environmental diagnosis investigation" as well as highly advanced monitoring investigation system so that pest measures and sanitary supervision can be carried out more effectively. The exclusive apparatus which conducts an environmental investigation is used to find out the weak point of the facilities structure in order to make it possible to increase the efficiency of sanitation improvement activities.

Since IKARI gives priority to the environmental protection, we advanced non-chemical pest control measures and developed a lot of original products such as "Clean Eco line GX". The realization of the effective and effective pest measures in the paper mill is enabled by combining an environmental improvement design with basics of monitoring data.

—Peer Reviewed—

Fiber Morphologies and Sheet Properties of Hardwood Thermomechanical Pulp

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Thermomechanical pulps were produced in a laboratory from various softwood and hardwood species by applying different chemical pretreatments to study fiber morphology and sheet properties. High-density hardwood chips produced mechanical pulp fibers with thick walls, which were hard to be collapsed in the sheet forming and resulted in bulky sheets. The Runkel ratio was a good parameter to characterize the cross sectional dimension of fibers and to predict the sheet bulkiness. The fibrillated fines increased fiber bonding of sheets while the flake-type fines improved the light- scattering coefficient. Wood species and chemical pretreatment conditions primarily determined the type of fines, which was characterized by the sedimentation velocity test.