

Margaret Marley

StoraEnso Fors starts up a MHV zone controlled calender

A rolling programme of investment has made Fors one of the world's most successful cartonboard mills. Lightweighting and intelligent medical packaging are the order of the day.

StoraEnso Fors has completed a rebuild which will increase its capacity for lightweight cartonboard while improving the quality and cost efficiency of the the BM2 line.

The Swedish mill, which makes 390,000 tpy folding boxboard on two PMs, is a world leader in the move to the lightweight grades for which environmentalists, regulators and retailers are calling - in order to minimise packaging, conserve resources and reduce costs. The Fors Performa grade, for example, is made in grammages which are 10 to 20per cent below the weights which, traditionally, were thought to be essential for performance.

The production of lightweight grades without any compromise in strength properties, is achieved by increasing the ratio of bending stiffness to basis weight and is a function of the latest technology, from stock prep to finishing.

The BM2 rebuild includes an Andritz Küsters calender which will increase the flexibility of the production line, enabling it to produce high quality FBB of 180-380 gsm. Most folding carton is in the 200-600 gsm range and the lightweight 180 gsm grades are not far from the 160 gsm crossover point between paper and board.

The production of lighter and stiffer board structures for the most demanding uses at the high end of the market - in pharmaceutical, cosmetic and luxury packaging - is part of the StoraEnso strategy which has made Fors one of the most successful FBB mills in the world, even in the recessionary conditions of 2008-2009.

The European cartonboard market is characterised by overcapacity and low margins, a situation which has been intensified by the current economic turnaround. In 2008 European demand for cartonboard fell by 4 per cent to 6.3 million tonnes, which represents 16 per cent of total global demand of 40 million tonnes.

But, while the full force of the recession is being felt at the low-end of the sector - the white lined chipboard which is produced at StoraEnso's Barcelona Mill in Spain - value-added grades continue to make a profit, but at reduced margins.

This is achieved via rigorous capacity control, the closure of unprofitable machines and continuous investment in viable mills. Last year, for example, StoraEnso closed the 190,000 tpy FBB mill at Baienfurt in Germany and transferred its work load to Swedish and Finnish mills.

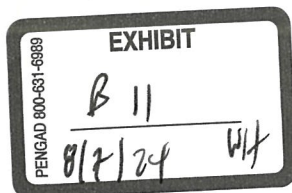
These mills - Ingerosi and Imatra in Finland and Fors in Sweden - are now the focus of a RMB 1.170M (USD 171M) investment programme which will increase pulp, board and sheeting capacity while maintaining StoraEnso's edge at the quality end of the market.

At Fors, the board machines, BM2 and BM3, have been rebuilt extensively in recent years and capacity has increased from 360,000 tpy to 395,000 tpy. The most recent rebuild focused on BM2, the smaller of the two machines, which trims at 3.72m and has capacity of 125,000 tpy. It came on stream in 1961 and has been upgraded several times: the wet end in the 1990s; headbox and winder in 2006-07 and the calender in the 2008-09 rebuild.

A calender with zone control

For the 2008 rebuild, Andritz Küsters supplied a Prime Cal Hard calender; a Prime Feeder threading system which feeds the web into the coating station; a VIB spray dampener and the rebuild of the drying section. To create space for the new calender, four drying cylinders were removed from the approach to the coater and three of them were replaced further upstream, and the beginning and middle of the drying section.

The calender has a working width of 4m and an operating speed of 700 mpm. The surface temperature of the heated roll is 300° C; and, a line force ranging from 10 to 100 N/mm can be applied, depending on the grade produced.



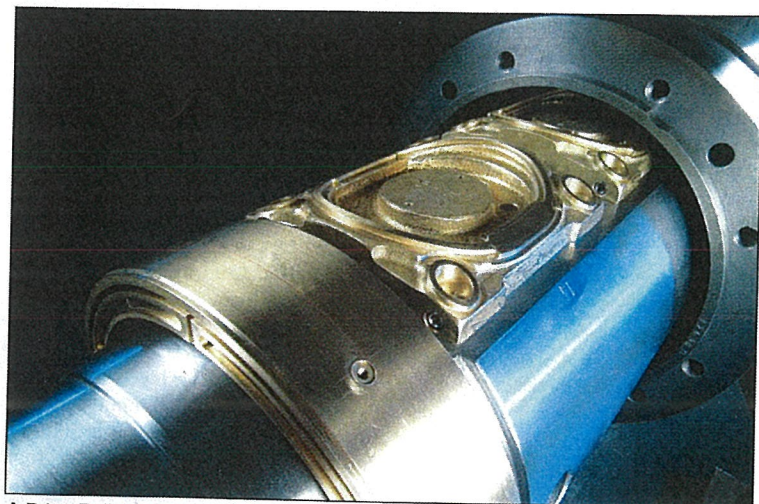
'We are convinced that fibre-based packaging will take over from plastics and other fossil fuel-based packaging', says StoraEnso.

MHV technology enables precise profiling even at the roll edge and over the full line load range.

The production of lightweight grades without any compromise in strength is achieved by increasing the ratio of bending stiffness to basis weight.



Expanding markets: a StoraEnso Discbox Slider



A PrimeRoll zone-controlled roll in the new BM2 calender

The new calender is equipped with MHV zone-controlled rolls which were developed by Eduard Küsters and are installed on several StoraEnso machines, including Langerbrugge PM3. PrimeRoll Multi HV technology includes a precise profiling system with the capacity to provide long and short-wave cross-section corrections, even at the roll edge and over the full line load range.

Profile corrections can be carried out while the calender is running at high speed - no need to decelerate. They equal the resolution of the best precision profiling systems and can also be run - without expenditure of energy - at high roll temperatures.

The BM3 production line

BM3, a 6m machine with a speed of 800mpm, has also been rebuilt several times over the last 10 years. The new coater of 1999 was followed by drying section rebuild by Kadant in 2004-05; and, in 2008 a wet end rebuild which included the upgrade of the middle ply headbox by Vaahto. Quality and productivity is enhanced by an on-line, condition monitoring system which was installed by SPM Instruments. It is based on 438 measuring points, five VCM continuous measuring units and more than 10 kilometers of cable.

With this technology Fors can produce the highest quality cartonboard on the market, value added grades which are returning a reasonable profit in a difficult marketplace. This is, moreover, a market segment with positive, long-term growth, even in the mature markets of the West, where:

- Fibre based packaging is gaining market share from less eco-friendly materials which are made from non-renewable raw materials and are not recyclable. A StoraEnso life cycle analysis shows that its fibre based packaging - made in mills with a high ratio of bio-energy - has a very

small carbon footprint. In fact, it accounts for only 3-10 per cent of the carbon footprint produced by the entire package and its contents. This is a 'huge draw' in the marketplace.

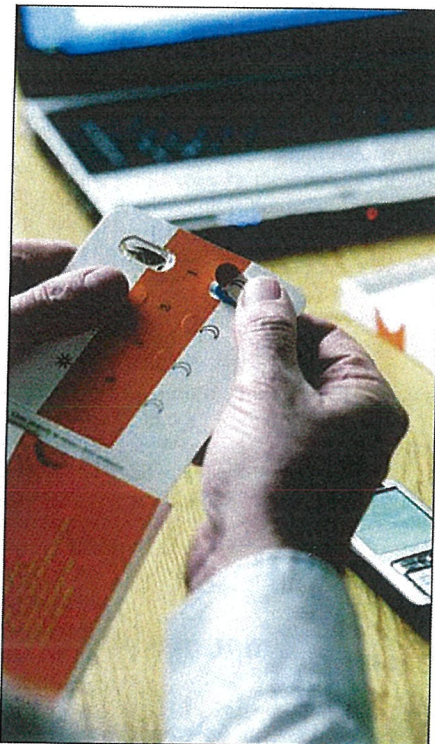
- The high quality packaging sector - for healthcare, pharmaceuticals, cosmetics and luxury goods - is growing faster than the market average.

To maintain its market leadership, StoraEnso also invests heavily in innovation; and, in 2008 the buzz words in R&D were: future packaging solutions, biorefinery, operations efficiency and sustainability.

2008 was the year in which Pharma DDSi, an intelligent pharmaceutical pack developed by StoraEnso won the the annual packaging award of Europe's Healthcare Compliance Packaging Council.

The packaging material has an embedded microchip which can beep to remind the patient to take a pill and records the precise date, time and dose taken. This data can be transferred by mobile phone to doctor or drugs company to assess the efficacy of the medication.

In September 2008, StoraEnso established fibre based packaging as a strategic priority. 'We are convinced that fibre-based packaging will take over from plastics and other fossil fuel-based packaging', says the 2008 annual report. 'Our mills are shifting production and we have outlined new focus areas for mature markets'.



An intelligent medical pack