

Tullis Russell switches from spiral to shrink wrap at Markinch Mill

The switch to shrink wrapping - from spiral stretch wrapping - has enabled Tullis Russell to increase throughput while improving quality - throughput is up threefold and there has been a 95% decline in customer complaints about wrapped pallets since the start up of the Flowtech machine at Markinch Mill in August 2005.

'The system will have returned its investment by July 2007', says John Tindal, Engineering Manager for Coated and Industrial Papers at Tullis Russell. 'This is based upon savings from complaints, packaging costs, maintenance costs and overtime payments'.

The Flowtech system of MSK is designed specifically for the paper industry and there are installations at Nordland Papier in Germany and Sappi in the USA - the Markinch installation is the first in the UK.

MSK invited Tullis Russell to their Test Centre in Germany where products from Markinch were wrapped on a transport simulation device. The Markinch system was commissioned by an international team of English and German engineers - smoothly and on time.

In order to minimise transport damage, Flowtech creates a very stable and clear view pack pallet. At Markinch, the paper is compressed with a pressure of up to 5 tons so air between sheets is pressed out for optimum loading stability. In addition, stability is also enhanced by vertical and horizontal film tension.

Tullis Russell is impressed by the simplicity and efficiency of the one state Flowtech operation compared with the two stage Spiral-Wrap system. 'When wrapping our bulk paper using the Spiral-Wrap system, we had to strap it first to make the load stable, and then Stretch-Wrap to protect the load from moisture ingress, therefore using 2 operations. The Flowtech uses only one operation because it abolishes the need for strapping.' Says Mr Tindal.

This efficiency increases throughput. Whereas the old spiral wrapper could handle up to 30 pallets an hour - but normally ran around 20 pph - the mills is now processing some 40 pph.

This increase is also due to 'other process improvements and improved tonnes from the cutters', but site acceptance tests show that Flowtech can deliver 100 pallets per hour.



MSK Flowtech shrink wrapping line at Nordland Papier in Dörpen / Germany.



Shrink-wrapped pallets of paper at Tullis Russell

'This extra performance is often used to clear the floor in the finishing area thereby reducing some of the storage problems that had existed previously'.

Cost savings in materials, energy maintenance

The mill is also deriving significant cost savings from the Flowtech system - Savings in packaging materials, in energy consumption and in life cycle costs.

- With the old stretch wrap system, the mill inserted cardboard corners to prevent damage and 4 straps were applied for rigidity, all of which carried an extra cost per pallet. 'On average we produce 10,000 pallets per month which are yielding a substantial saving' says Jim Meek, Coated Finishing Manager, Tullis Russell.
- To save energy, the shrink wrapping machine uses an encapsulated shrink ring system which dispenses high volumes of air but low volumes of gas and a low temperature. This enables the shrink ring to use no open flame, so thinner shrink film is used, saving film costs as well as significantly improving safety.
- The MSK shrink frame which only uses energy when required, gives a huge advantage over conventional shrink ovens.

Efficiency in operation

The MSK shrink ring has two gas management systems which allow the amount of shrink on the sides and ends of the ring to be controlled independently. With this added control over the shrink process, the MSK shrink ring is able to shrink various sizes of products using the same shrink ring, without delay.

The quickest possible film change with different film sizes ensures the films are adapted to all pallet sizes. The horizontal arrangement of the film rolls prolong the change intervals of the rolls and simplify handling.

This all adds up to a highly efficiency and reliable operation. Mr Tindal: 'The system has proven itself to be very reliable in the first 6 months of operation on site and needs next to no day to day maintenance involvement.

We can also take additional housekeeping and TPM (Total Productive Maintenance) shutdowns safe in the knowledge that the system will catch up with the cutter output in a couple of hours.'