



COATING & CONVERTING

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European paper, film and foil converting

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**USE COATING TRICKS
TO CREATE SHELF IMPACT**

ALL WOUND UP
THE QUEST FOR PERFECT TENSION

WASTE REMOVAL
WHEN HOT AIR IS COOL



Hot topics: Converters
put coating on trial (p. 30)



Casebook: Debatin cashes
in with Euromac (p. 67)



Converter of the month:
Bogucki Folie (p. 70)

Nordenia gets a makeover

C2 examines Nordenia's approach to improving the efficiency of its waste removal system since 2003. Compared with today's streamlined operation, the removal of materials was considerably more time- and cost-intensive.

The German Nordenia International plant in Steinfeld produces flexible, resealable packaging of different shapes and sizes for the international market. Heart and soul of the production are the B&B-MAF SFB 8 E-L side gusseted bag machines.

The machines featured injector units for the removal of edge trim. Up to four edge trims were continuously conveyed and collected in a container close by the production machine.

Because of their minimal bulk density, the content of the collector sacks had to be emptied and disposed of continually. For the disposal of the punched out pieces, small, mobile exhaust fans were connected to the machine's outlets.

The removal of the materials was not only burdensome but also time- and cost-intensive. From an energy efficiency viewpoint the installation left much to be desired.

Early changes

In December 2003, Nordenia asked German-based Schuh Anlagen-technik to equip the side gusseted bag machine with a central exhaust system.

At that time the indirectly conveying edge trim removals were replaced by direct conveying systems that are 50% more energy effective. A tailor-



In the original installation the edge trims were collected in big bags

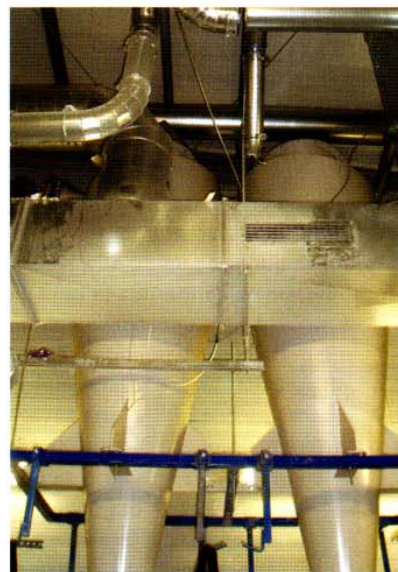
made cutting device in combination with a conveyor fan also improved the material transport considerably.

The cutting equipment is always applied where a continuous cutting process is needed and the use of a cutting fan is not possible.

It is a cost-effective alternative for thin and adhesive materials, variable thicknesses, high line speeds or longer transport ways of the edge trims. Energy costs can be reduced by about 30% by utilising the extraction system.

Furthermore, the unit for edge trim elimination is optimised in a way that the volume of the remaining material is reduced significantly and makes the use of a compacting plant unnecessary.

A further advantage of this installation engineering occurred with the HACCP certification, which enforces the disposal of all material waste from the production area



The modern vacuum extraction unit

immediately. Besides the hygiene instructions the unit also profits from an automatic removal without interrupting production and a reduced staff requirement.

Disposal of the edge trim meant that a separate disposal room for collection containers, separators and vacuum exhausts had to be set up.

During production, it is possible to switch to a further redundancy container through a pneumatic/electrical switchblade system to empty the filled big bags continuously.

New pack die

A further die on an existing line was installed for the production of new pack formats. This also increased the number of exhaust spots. Accordingly, the extraction system had to grow as well to guarantee a flawless central extraction.

A cyclone separator has replaced the previous air separator to cope

with the significantly higher amounts of air and material. To facilitate an optimal energetic mode of operation, the conveyor fan was equipped with a frequency converter.

With the help of this device the fan performance is adapted to the product dependent mode of operation. While a 100% performance of the fan is necessary with complex products, easy applications have less exhaust spots and therefore need less extraction performance.

In this case the frequency converter enabled additional energy saving. The previous plant concept, however, could be retained, apart from the mentioned alterations.

Current reconstruction

The extraction and de-dusting unit that was delivered some months ago was also equipped with five exhaust spots for the removal of edge trim, pieces that had been punched out, cross cutting, side gussets and die waste.

In this plant design, however, the fan was arranged behind the cyclone separator. The altered position of the fan outside of the material stream led to a further 30% energy efficiency.

A buffer container is placed below the rotary feeder of the cyclone so that a change of big bags can be effected without the need for a further redundancy container. The electro-pneumatic switchblades can also be omitted.

The downstream filter unit cleans the exhaust air, which is led back into the production hall again. The closed plant system that is adapted to the process fulfils the strict requirements of air pollution control in the workplace to a great extent. ■



The lateral movement canal in detail



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