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The Encoder Experts

Packing solutions
Roll cutter & roll winder

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Adjustable contact pressure
Measuring wheels for any surface
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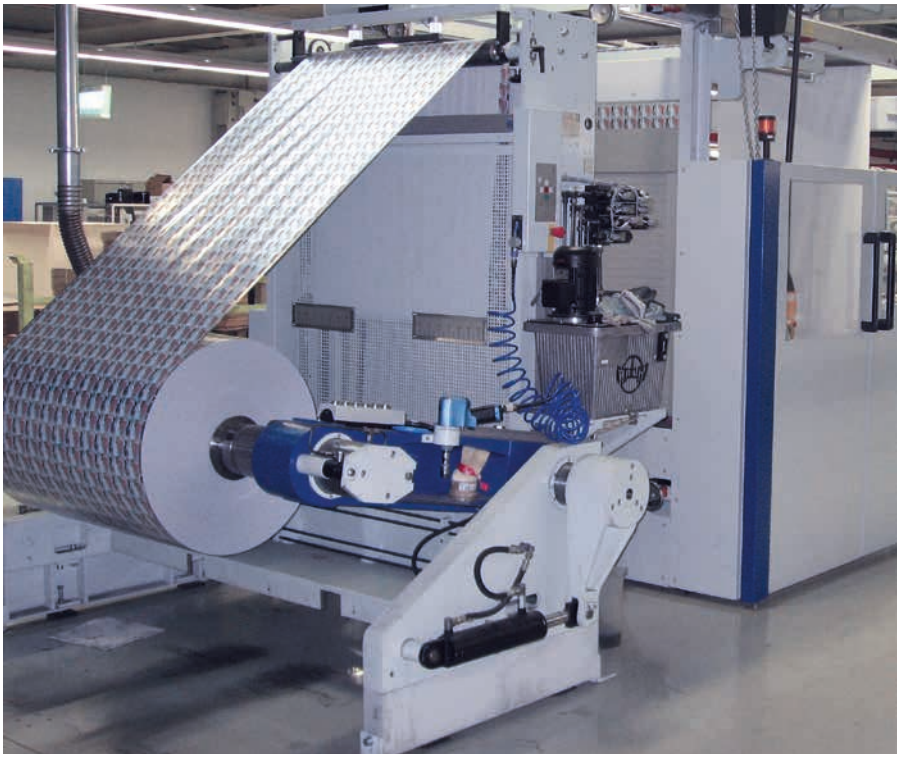
Fast, flexible setup



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Industrie ROBUST

Precision on the running meter

Ten thousand metres on a single roll are not uncommon in the world of packaging films. To ensure that everything fits perfectly, encoders and systems from Wachendorff Automation guarantee the correct dimensions.

A standard roll contains enough packaging film to make 60,000 crisp packets — the same quantity that is produced daily by Constantia Flexibles in Wiesbaden.
Since its foundation in 1949, the company has developed into a global expert in flexible packaging solutions. Twist-wrap films, such as those used in sweet wrappers, are among the company's most successful innovations. On the one hand, the films have to be thin enough to allow sufficient rotation and thus securely envelope the sweet. At the same time, the material must be sufficiently thick and robust so that the packaging machines can safely grip and process the sweets. As a further requirement, it is important that the film remains twisted and does not unravel later on. And as if that were not enough, the materials used are also subject to strict hygiene requirements since they come into direct contact with the packaged food.
All of this means that this business requires a great deal of expert knowledge — and this is precisely why Constantia Flexibles has made a name for itself not only in the food industry, but also in the pharmaceutical and beverage sectors.
The company's headquarters are located in Vienna, however it has locations all over the world, such as Constantia Ebert GmbH in Wiesbaden. The specialism here is the production and finishing of films. After production, the films are printed, dampened or glued according to customer requirements and subsequently prepared for later use.
In addition to technical films for sealing compounds and cleaning agents, Constantia Ebert primarily produces films that are designed for direct packaging of foodstuffs. The demands placed on the quality of the materials and also on hygiene throughout the process are correspondingly high. For example, after printing, the films are glued to another film to prevent the imprint from being rubbed off during transport and to ensure that the packaged sweets do not come into direct contact with the dye.
When ordering, Constantia's customers specify the packaging films exactly as they are needed for their own processes. At the Wiesbaden site, for example, in addition to producing films on extrusion machines and subsequently finishing them, the products are also cut and wrapped in accordance with the specifications of the customers' packaging machines.
For sweet-wrapping companies — the successful twist-wrap process was developed in Wiesbaden — narrow strips are needed, while larger sizes are used for crisp packets. Even the thickness of the finished rolls depends on the customer's requirements. Up to 15,000 linear metres on a single roll are not uncommon.
The company faces a particular challenge here — since the cutting edges are minimally thicker than the rest of the web, the large number of windings would result in large deviations across the rolls' diameter. The rolls would be significantly thicker at the edges than in the middle, which would make further processing difficult, since it would result in different unwinding speeds. Problems would therefore be inevitable since the rolls would be inconsistently wound. To prevent this, the roller slides horizontally back and forth during winding, whereby the bulge at the edge is distributed across the entire surface and the remaining build-up at the edge remains within an acceptable limit.
The roll cutter is a very important system in this process. It is used to prepare the finished films for the customer as required. Films whose edges threaten to stick together are

rewound in order to separate the individual layers. To ensure the final quantity is correct, the company uses a length measurement system from Wachendorff to determine the correct dimensions. In addition to the linear metres for the correct film length per coil, the data is also transferred to the product data acquisition system. „This lets us see how far along individual orders are or how many metres we produce in a shift," explains Burkhard Baum, who is responsible for technical maintenance in Wiesbaden. „We've always had a rotary encoder here — but the old model, which was supplied by a competitor, started jumping at high speeds. It sometimes dropped metres, which meant the lengths were not right at the end." For this reason, the company began looking for a model that was better able to meet its demanding requirements — a search that led to its current supplier, Wachendorff Automation.

„We've been using encoders from this manufacturer for around ten years," explains Burkhard Baum. „Whenever our encoders need to be replaced, we turn to Wachendorff Automation," he says enthusiastically. The reason for this goes beyond the excellent price/performance ratio of the company's products: „Our proximity to Wachendorff Automation also plays an important role," he says. After all, Wiesbaden is only a few kilometres away from Wachendorff's headquarters in Geisenheim/Rheingau, where the encoders are developed and built. „You simply can't get products and service any faster — if it's really urgent, a colleague who lives in Geisenheim simply brings us the parts we need," he says, describing the uncomplicated collaboration between the two companies.

If a rotary encoder fails after several decades of use, a replacement must be quickly installed in order to keep the production line moving. However, the fact that Constantia has used a wide range of models from different manufacturers over the years makes preventive stockpiling of the right encoders very difficult. So much the better, then, that a company such as Wachendorff Automation is located nearby — a supplier that leaves nothing to be desired thanks to its extensive range of rotary encoders and ability to quickly supply the corresponding accessories.

In particular for the roll cutter, there were certain specifications that the new encoder had to meet. Since the measurement is made directly on the film, the materials had to be suitable for use in the food industry, i.e. easy to clean, with sufficient grip on the film, but with no abrasion.

In addition, the contact pressure needed to be variable, because if the pressure is too low, the measuring wheel would jump again, whereas too much pressure could result in marks on the film.

And one feature was especially important for Constantia's day-to-day business — the arm had to be completely foldable, since the rolls are often changed at this point and they sometimes need to be completely re-threaded through all the rollers in the system. „If you then have to dismantle the arm each time, this causes unnecessary waiting times and assembly costs, which is what we really wanted to avoid," says Baum.

The new length measurement system from Wachendorff Automation was able to provide exactly what Constantia wanted. The spring arm can be precisely pre-tensioned with the force required for the respective task. „We experimented to find the correct contact pressure for the wheel and then simply marked the screen using Edding marker pens — so our fitters can easily find the right position immediately after a modification," says Baum.

With regard to the wheel's surface, Wachendorff offers a number of variants. „We opted for smooth plastic to avoid abrasion and marks," explains Baum.

The main advantage for the maintenance engineer is the design of the length measurement system. As well as being pivoted away from the roller via a handle, the rotatable spring arm can also be locked in this position. „Then it's out of the way and you have enough room to change the rolls," says Baum. Locking the arm in position is simply a matter of pulling out a locking pin, holding it in place during the movement and releasing it when the arm is in the desired position. The arm then remains securely in place until the pin is released again and the arm is folded back. „This reduces the assembly time as well as our stress levels," laughs Burkhard Baum.

After this successful test, he will no doubt use the new system from Wachendorff Automation more often in future.

Overview of product details:

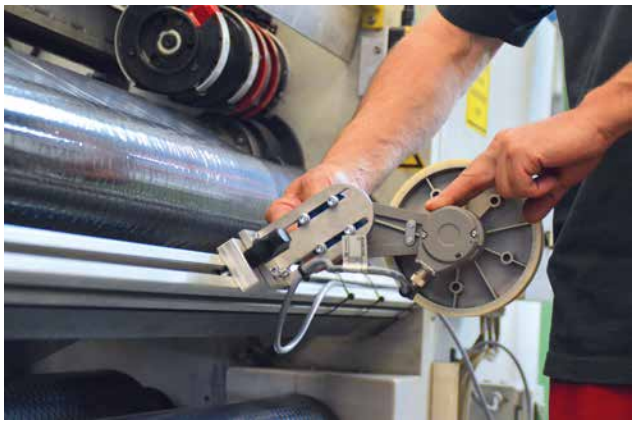
With Wachendorff Automation systems, the positions, speeds and travel lengths of conveyor belts, film/paper webs or cardboard boxes can be safely recorded. The LMSMA2x/3x length measurement system provides constant and exact results by means of optimal, low-slip measurements under a wide range of conditions.

- Adjustable contact pressure
- Coordinated measuring wheels for any surface
- Selectable resolutions from 1.0 to 0.008 mm/pulse
- Small space requirements due to its compact design
- Long service lifetimes thanks to the high mechanical robustness of all components
- Fast and flexible mounting on the machine
- Can be locked in the resting position to save time during system setup and maintenance

Additional technical details:
www.wachendorff-automation.com/lms-info

WA1701_1
The wave pattern is created because the roll is inconsistently wound — the roller oscillates back and forth.

WA1701_2
The contact pressure of the spring arm from Wachendorff Automation can be adjusted. With the aid of the markings, Constantia's fitters can find the perfect pressure for their task right away.



WA1701_3
Since the wheel measures the metres of film, it measures directly on the film itself. When changing the rolls or performing other work on the conveyor belt, the spring arm can be folded away and locked in a few simple steps.

WA1701_4
Technology from Wachendorff Automation is also used on the extruder. Here, the rotational speed is taken directly from the roller. This made it possible to mount the encoder differently, since it is not in the way when changing the rolls.

WA1701_5
A wide range of different films are available in the warehouse. They are refined and finished in accordance with customer specifications.

Photos (Constantia)

WA1701_6
Chewing gum wrappers: a typical Constantia Flexibles product

WA1701_7
The twisted sweet wrapper was invented at the Wiesbaden site

WA1701_8
The films are produced, finished and cut on large machines.

Any Questions? Just call us at +49 (0) 67 22 / 99 65 414, send us an E-Mail to support-wa@wachendorff.de or call your local distributor: **www.wachendorff-automation.com/distri**

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