

# Switch to Twinlock brings Christiansen Print clear process advantages

*Improved printing performance and a more sustainable production process were the fundamental reasons for the switch to tesa SE's alternative adhesive technology.*

## Dieter Finna

*There have to be good reasons for changing a tried and tested production process and this was indeed the case when Christiansen Print switched to Twinlock Sleeves. The switch brought the corrugated liner preprinter a range of advantages. The assembly process no longer involves adhesive tapes for mounting plates, which saves time and eliminates waste. On top of that, as soon as Twinlock Sleeves started to be tested and introduced it became clear that there were process advantage during the actual printing that resulted in higher printing speeds for many jobs.*

The project, which began with a set of test sleeves, now takes the very visible form of a stock of some 300 bright green tesa Twinlock Sleeves held in the Christiansen Print assembly department following a complete switch of production at Ilsenburg to Twinlock Sleeves over the space of just three months. With a working width of 2485 mm, the 30 different repeat lengths range from 790 mm to 2060 mm.

*Nico Jasper, tesa SE, and Björn Vorlop, Christiansen Print, in front of the stock of Twinlock Sleeves*

## New in the tesa product portfolio

Twinlock Sleeves were added to the tesa range in 2018 and now users have to ask themselves whether adhesive tapes or tesa Twinlock Sleeves are the more economical solution. Answering this question requires both discussions about the specific technical requirements and possibilities, and also an application-focused ROI analysis that tesa

provides in order to support the decision-making process. This analysis looks at the frequency with which the various repeat lengths are used as well as the areas of the forms. In the case of Christiansen Print,

this comprehensive analysis covering the complete range of repeat lengths identified a commercial benefit through savings on adhesive tape. This provided sufficient grounds to undertake a test of tesa Twinlock Sleeves.

## Structure of tesa Twinlock Sleeves

Tesa's Twinlock Sleeves are based on industry standard sleeves and every customer is free to choose the basic core. A 1.5 mm thick open cell polyurethane (PU) foam is then applied to this core. Many years of practical experience confirm that the foam layer remains compressible even after years of use. It is this PU foam that forms the basis of the printing properties of the sleeves. Lying on top of it, a PET stabilization film serves as the carrier layer for the cross-linked, permanently sticky acrylic photopolymer layer on which the plates are mounted. The side edges of Twinlock Sleeves are sealed in order to protect them from soiling and solvents.

## Initial test delivered convincing results

At Christiansen Print, project manager Björn Vorlop und Michael Schmidt from the lean management team oversaw the project and decided to carry out the initial tests on seven sleeves with a repeat length of 2000 mm, which is one of the longest the company uses. Past experience suggests that what works with large circumferences usually also works with smaller ones, and this also turned out to be the case here. The results in terms of print quality and press performance were



Source: packconsult

## Christiansen Print

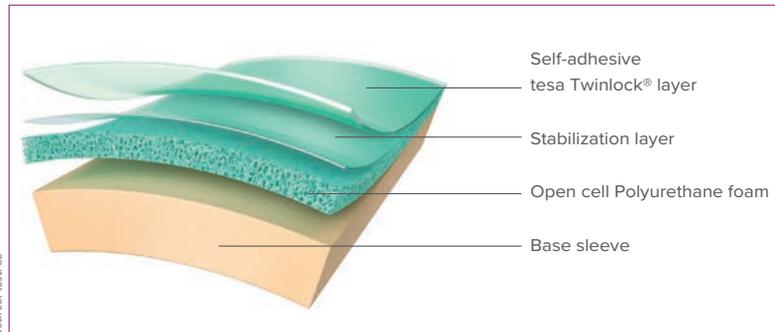
The European market leader for preprinted reels of corrugated liner for packaging and displays was founded in 2005. Since 2016 has been a wholly owned division of the THIMM Gruppe. It has three production sites in Germany and France and at Ilsenburg am Harz it operates two of the world's largest common impression cylinder flexo presses as well as, since 2017, the HP PageWide T1100S digital web press. Printing at the sites in Northeim and Garancières-en-Beauce (France) is on three of the latest belt flexo presses. This combination offers Christiansen Print the benefit of three complementary printing technologies. In total, the company produces around 450 million m<sup>2</sup> of preprint per annum. The company has a workforce of over 170 staff.

good right from the start. It was possible, for example, to increase the speed of a print job from 200 m/min to a maximum speed of 500 m/min. It was also possible to reduce vibration streaking as a result of the vibration-damping recovery properties of the PU foam.

Despite the promising initial test results there was of course a good deal of underlying scepticism amongst the staff when it came to working with the new sleeves on a daily basis. There were concerns about the resulting process changes and also whether the sleeves would be suitable in every way. Following on from the promising test results, the test phase was extended and a second set of sleeves with a circumference of 1250 mm were purchased. This second test phase confirmed the good results delivered by Twinlock technology, and ac-

## tesa SE

tesa SE is a manufacturer of adhesive tapes for technical uses and adhesive system solutions that has a range of over 7,000 products for industry and commerce, consumers and crafts. Worldwide, the company employs 4,450 people and in 2017 tesa SE generated a turnover of €1.26 billion. The company offers an extensive range of tesa® Softprint adhesive foam tapes for plate mounting. With the acquisition of the Twinlock division from Polymount in March 2018, tesa SE has strengthened its market position for printing industry products, which form a key part of the industrial business of tesa®



Source: tesa SE

*Twinlock Sleeve consists of a permanently sticky acrylic photopolymer top layer, a PET stabilization film and an open pore polyurethane foam laid down on an industry standard sleeve.*

ceptance and the number of those in favour in assembly, production and management steadily increased.

### What does the Twinlock system deliver?

Twinlock really pays for repeat lengths that are used frequently. What tesa Twinlock Sleeves allow Christiansen Print to do in prepress is to standardize the assembly process. Adhesive tape is eliminated and the plates are mounted on the acrylic photopolymer surface of the sleeves, which all exhibit a medium degree of hardness. This means that the complexity of the assembly process and the supply chain spend can be reduced. Many steps in the process are now simply done away with and replaced by the very linear Twinlock process.

When it comes to printing, there have been speed improvements, and for many jobs it has been possible to increase the speed by 20-30% compared with adhesive tape mounting. What was

found was that the ability to increase speed was dependent upon the sensitivity of the design to vibration and that a large circumference helps to reduce vibration streaking. The compression behaviour of the sleeves also means that a constant print quality is maintained over a long production time frame.

Christiansen Print has also found that print register is very precise in comparison with adhesive tape assembly due to the lower thickness tolerances of Twinlock Sleeves. The thickness of Twinlock Sleeves is measured during and after manufacture with a laser and they can be tailor-made to an accuracy of +2/100 mm.

### Do the characteristic printing curves have to be adjusted?

There was a concern that changing the plate-substructure system would have an impact on tone value increase and therefore the characteristic printing curves. At Christiansen Print, just as with other change-overs, it was found

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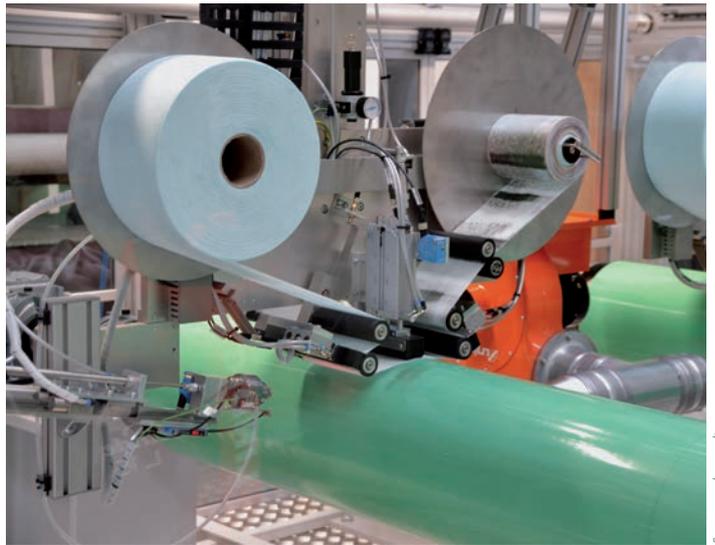
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Left: Plate mounting on a Twinlock Sleeve.

Right: Twinlock Sleeves are cleaned and activated before use.



Source: Christiansen Print

Source: pack.consult

that the characteristic printing curves tended to remain very similar and that it was not necessary to make any change. The tone value increase can be a little lower in the highlights up to a tone value of 5% but for the printer it is generally simpler to adjust the printing pressure, since the system has somewhat greater tolerance due to the foam thickness and properties.

**Fully automatic, sealed activation**

In order to activate the adhesive effect of the sleeves it is essential to remove ink residues, dust and dirt from the acrylic photopolymer. This

step is carried out entirely automatically at Christiansen Print in a Twinlock-activation machine. The large sleeve formats meant that it needed to be designed to order in close cooperation with Christiansen Print.

The activator, which is used as the cleaning agent, is an alcohol with a high flame point, meaning that there is no need for precautions against explosion. The vapour is extracted from the sealed system.

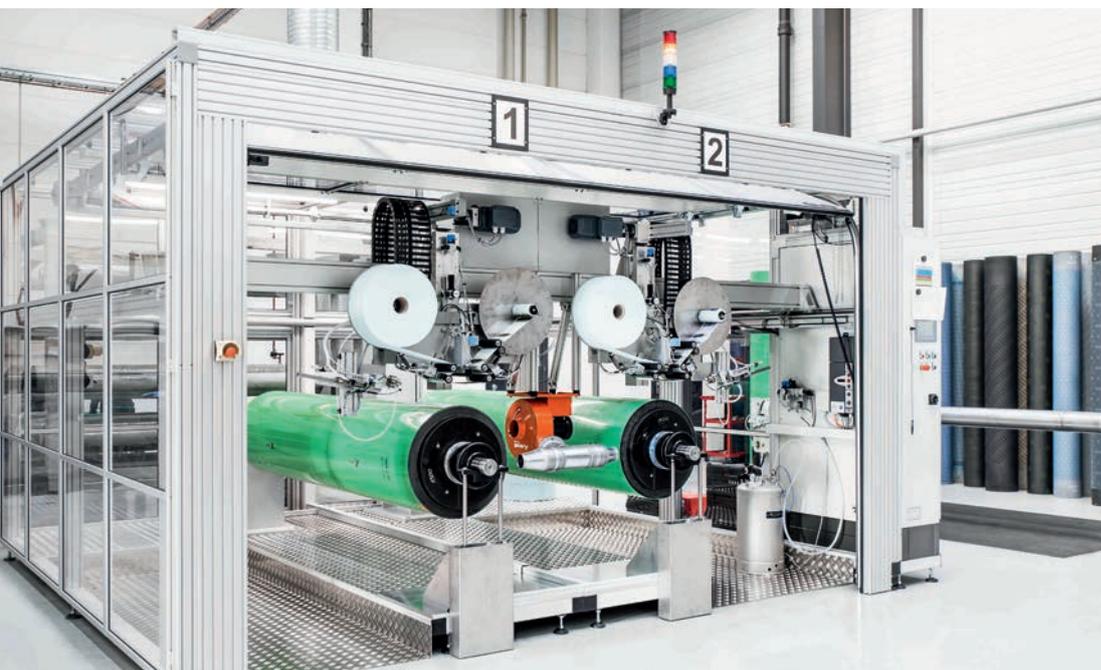
**Substantial waste reduction**

First and foremost, Twinlock offers a way of reducing adhesive tape usage and improving the CO2 footprint by eliminating waste.

The sustainability of the product is graphically demonstrated at Christiansen Print by the fact that there are now three fewer containers of waste every week. Over the space of a year that works out at the equivalent of eight football pitches of adhesive tape.

The environmental and economic aspects were two reasons for Christiansen Print to switch to Twinlock Sleeves, whilst improved print performance was a third. [8925]

Two sleeves are activated simultaneously and fully automatically in the horizontal Twinlock activation machine (HTAM).



Source: Christiansen Print

**Project data as a glance**

**Project launch:**  
July 2018

**Project timescale:**  
3 months for the switch

**Numbers:**  
c. 300 Twinlock Sleeves

**Repeat lengths:**  
790 to 2060 mm

**tesa Twinlock structure:**  
c. 1.8 mm overall thickness

**Savings:**  
eight football pitches of adhesive tape

**Increased printing speed:**  
up to c. 20-30 %

**ROI:**  
c. 2.5 years