heimbach

impressive

ISSUE 2/2024

Perfect match for transfer and shoe press belts

Interview with Jochen Pirig

Barring – an invisible problem

Our TASK team in search of clues

Change seam felts safely and quickly

Paper Pete shows how it’s done

Imprint

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Dear Reader,

The paper industry continues to face major challenges: lower demand for both printing and packaging papers and rising energy and raw material prices, to name but a few. Dealing with, and confronting, these changes demands decisive actions and a strong fighting spirit.

We cannot change or affect external circumstances, but it is certainly up to us how we react to them. Showing courage is not always easy. Sometimes it can be helpful to dare take the first step, instead of expending energy focussing on the entire path.

You can be sure that Heimbach will be at your side to help you master the myriad different challenges. With our extensive experience and calculation models, we can inject new impetus and highlight potential savings as well as offering practical tips for your everyday challenges. In this issue, you will once again find useful tips on installing seam felts and the handling of shoe press belts. We also explain the cause of longitudinal mass fluctuations.

In these times, it is particularly important to remain inquisitive, be committed and to take a stand. Visibility plays an important role in this. Our new workwear, which we will soon be issuing to our employees, sends out a clear signal. It is not only safe, but also radiates self-confidence and is committed to our identifying feature: the colour orange.

Be bold and discuss the next steps with us!
I look forward to hearing from you on +49 (0) 2421 802 254.

Motivated and full of thirst for action

Michael Dick

Michael Dick
Vice President Sales PMC Global

Seam Felt Installation: Paper Pete shows how it's done

Film on!

A film tells more than a thousand words.

The felt should be changed quickly and safely. In our new video, Paper Pete shows how to pull in seam felts from Heimbach. Utilising two different installation aids – a kite or a drawing-in tool – the individual steps are illustrated and clarification is provided regarding which method is suitable for which machine.

We wish you every success!

Invisible problems can suddenly be seen: How the TASK team track down barring

Many of you will be familiar with the term barring (or cross laps). But what exactly does it mean and, more importantly, how does it affect the paper machine and paper quality? Our TASK group has many years of experience with this common problem which can lead to damage of rolls and vibration-sensitive parts, machine downtime and, in some cases, massive losses in paper quality. In this impressive article, we want to give you a brief insight into this topic. We have summarised detailed information and explained our measurement methods in a white paper that you can download from our website. First things first, however.

What is barring?

Barring is a phenomenon in which the total mass of paper produced exhibits changes, occuring at regular intervals that can be from a few millimetres to a few metres. These can be due to fluctuations in fibre content, filler content and/or moisture content. These mass fluctuations can visually manifest themselves as variations in gloss or transparency. They can, however, also disrupt the homogeneity of the paper web in the form of noticeable waviness or bubbles that occur regularly.

Why do these irregularities occur?

Profile irregularities that are easy to observe visually often correlate with properties such as basis weight, formation, ash, moisture or thickness of the paper.

The causes are varied and can be found not only in the paper machine, but also in its periphery, such as press rolls, clothing, application systems, stock pumps, water pumps, vacuum pumps, selectors, various control systems etc.

Fig. 1: Facet build up on the roll surface can be the cause or result of barring

Fig. 2: Mobile ODIN measuring system

Fig. 3: Janek Schiefer makes barring visible

Effects of barring

The effects of this phenomenon are often not perceived as barring, treated instead as individually occurring disruptive factors. Typical indications can be, for example, reduced paper quality and an associated higher break rate. Barring can also lead to problems in subsequent processing, which can sometimes then be reflected in an increased claim rate.

In the case of severe barring the paper produced can no longer be used in terms of sheet quality and has to be fed back into the internal recycling process. Additionally, press, sizer or calendar rolls can suffer permanent damage. This can be manifested in a certain polygonality or facet formation in the roll surfaces, which can in turn lead to severe vibrations and, ultimately, damage to the paper machine (Fig. 1).

Active root cause analysis

Nowadays there are efficient solutions to barring problems. First and foremost, of course, it is important to establish the cause, which in most cases can be clearly identified by our TASK team. Often, the cause can be found a long way from the defect!

Measurement and evaluation

Periodic longitudinal mass variations in the sheet (barring) are recorded by non-contact infra-red measurements and displayed directly by accompanying software as an FFT (Fast Fourier Transformation). These fluctuations occur at certain frequencies that correlate with the rotational frequencies, or their multiples, of the potential generators. Heimbach is able to use the ODIN mobile measuring system (Fig. 2) to identify the sources of error and make specific recommendations to eliminate them.

Do you have any questions, or require more information?

Janek Schiefer,
Phone +49 (0) 2421 802 526,
janek.schiefer@heimbach.com

Various practical examples and technical details illustrating the measurement procedures can be found in our *White Paper „Detection of periodic longitudinal mass variations in the paper web."*

„Barring is a regular fluctuation of the total mass, that is to say fibre/filler content, and/or moisture content."

Download your White Paper here!

We look forward to receiving your feedback!

Transport damage: what to look out for

We attach great importance to the careful selection of our logistic partner and suitable shipping packaging for our products. In spite of this there is still a possibility that damage of some kind may occur during transport. It is, therefore, very important that we should make you aware of what to look out for upon reception of our goods. In this way, we can avoid delays on both sides and can resolve whatever problems that arise from damage as quickly as possible.

1. Note on receipt of goods

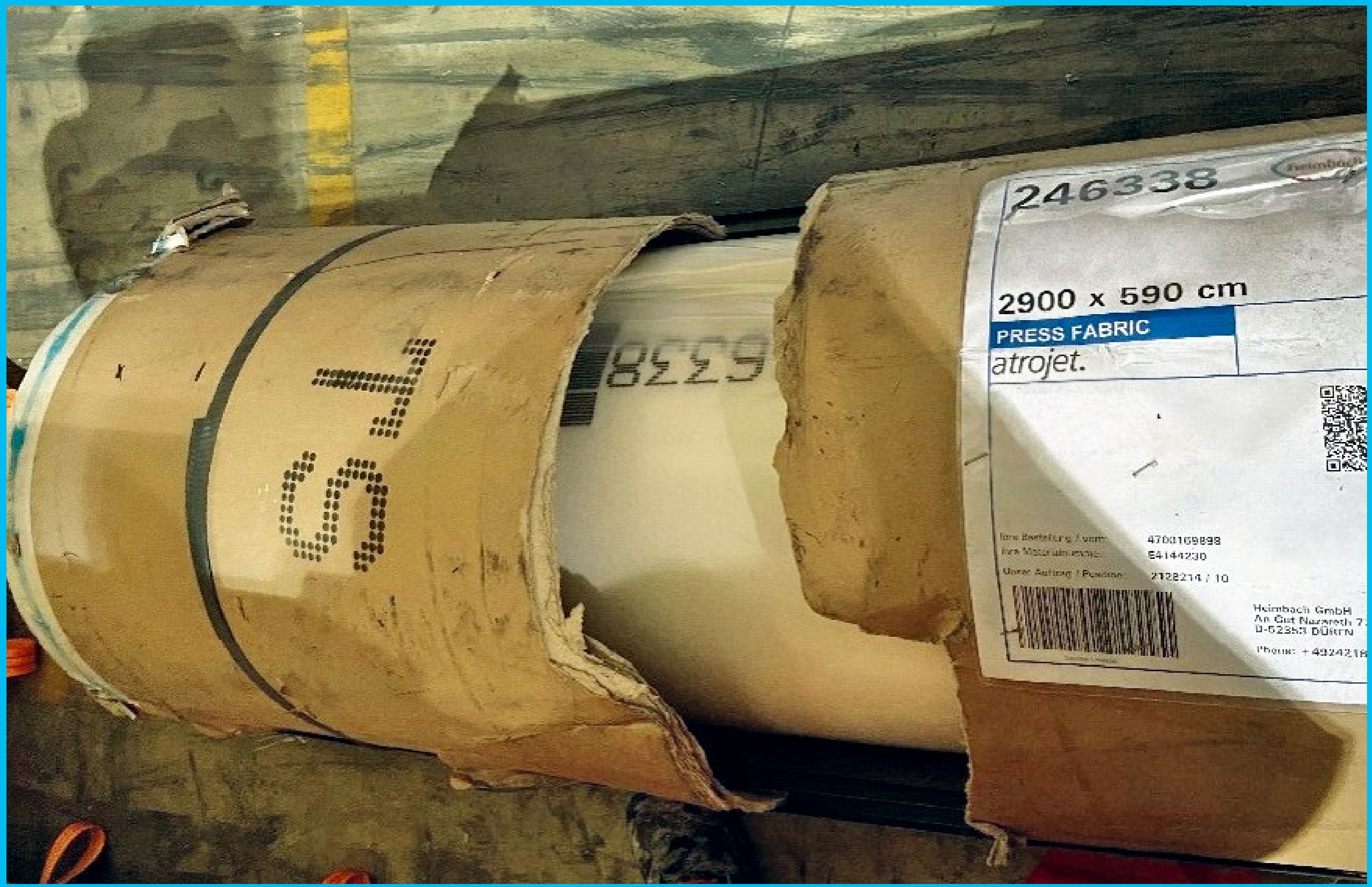
Any damage should be documented on the goods received note and reported **immediately**. This actually requires you to not only note the damage with the statement „goods accepted with reservations“, but also provide **as detailed a description as possible** of the damaged goods, or damaged packaging.

2. Inspection by Heimbach/ forwarding agent

Following receipt of your damage note, we check the accompanying documents from the forwarding agency and whether or not any corresponding damage was noted when they received the goods.

3. Insurance settlement

Our transport insurance only covers damaged **goods.** If possible, please take a photo of any damage. A corresponding note **is mandatory** on the consignment note or bill of lading. Otherwise the insurance company may refuse to accept the goods.



Returning clothing to the laboratory – what’s important?

A returned felt reveals a great deal about its past. Our laboratory staff are able to identify and localise anomalies in the individual piece of clothing and determine possibilities for optimisation. When we get samples back, our aim is to analyse and communicate the results to you as quickly as possible. In order to ensure that you get maximum benefit from this process, there are several important points that should be borne in mind.

Generally speaking, what is known as a cross-section – a continuous sample that corresponds to the full width of the felt and is the basis for the creation of cross-machine profile measurements, for example, would suffice. The following applies to enable precise and reliable analyses:

- Samples should be approximately 50 cm wide, in order to allow all necessary testing to be carried out.
- Each sample should be rolled up so that the paper-side, front side, of the felt is facing outwards. (Depending on the product, and the degree of wear, it is sometimes only possible to determine this to a limited extent after running).
- Where seam felts from the Heimbach Connect product group are concerned, two samples are usually required. One of these needs to have a width of approximately 40 cm **with a centred seam** to test the residual strength of the seam eyelets. As this test leads to the destruction of the sample a **second, approximately 50 cm wide, sample without a seam** is required to allow cross profile analyses to be performed.
- Please always label samples on the edge of the front side (on the paper side) with **Felt Number, Direction Arrow and FS/PS** indicated.

Many thanks for your support!

Ready for laboratory analysis

Correctly labelled, quick analysis

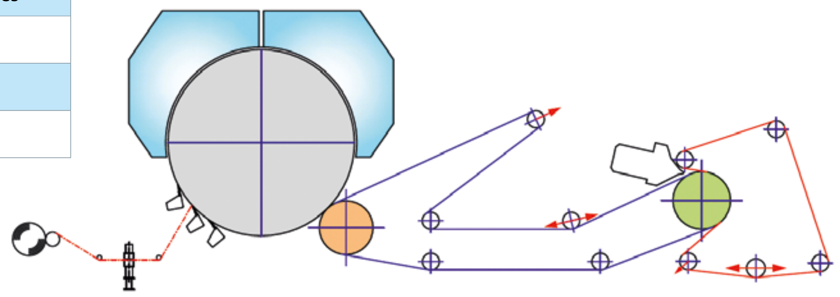
What the felt reveals about itself:

As standard, the felt is analysed in terms of its **cross-directional profile** (air permeability, caliper and weight), **residual fabric strength**, as well as **contamination and wear**. There are further methods and measurement procedures that are available for laboratory testing if required.

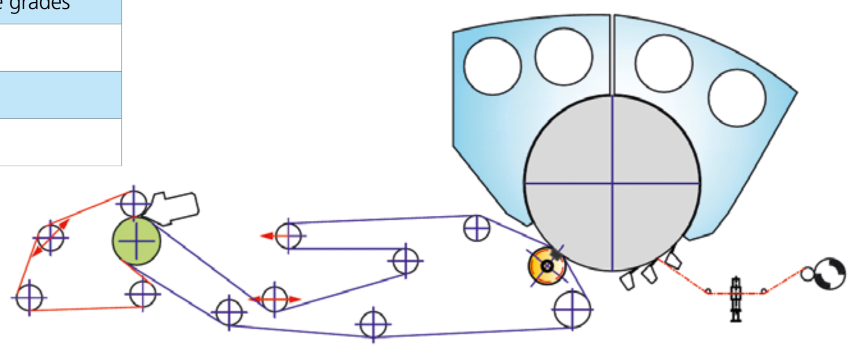
Tailor made for tissue production

Intelligent clothing concepts play a crucial role in modern paper production, even more so in the manufacture of tissue and hygiene papers. Heimbach has a customised offering specifically designed for these most demanding of paper grades. Typically, these products would lead, for example, to reduced energy consumption, more efficient utilisation of raw materials and/or improved paper quality. We are here to help you to get the best out of your machine.
You can find below some current references:

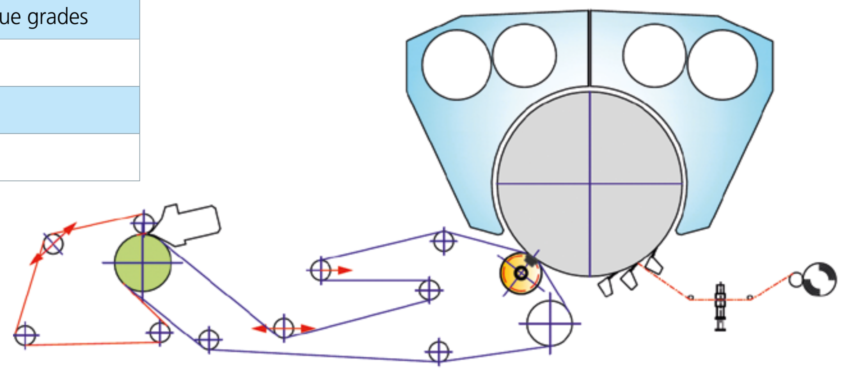
Configuration:	Crescent Former with suction press
Width:	2.8 m
Speed:	1550 m/min
Paper grade:	Household and sanitary tissue grades
Grammage:	13-17 g/m^2
Raw material:	100 % virgin pulp
Design:	Primoselect.TSF+, Atrojet.T



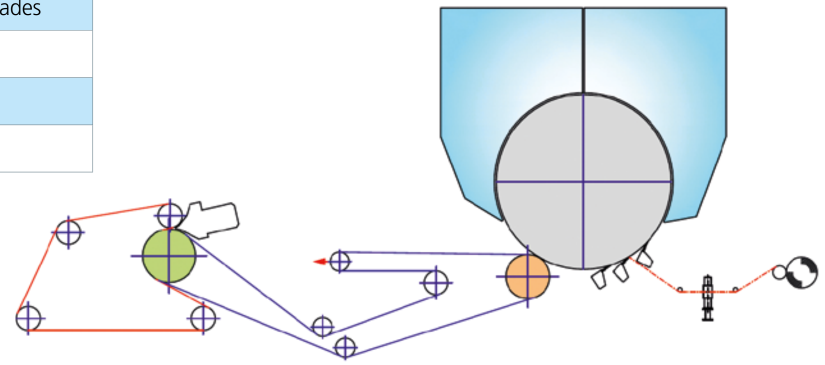
Configuration:	Crescent Former with shoe press
Width:	5.6 m
Speed:	2000 m/min
Paper grade:	Household and sanitary tissue grades
Grammage:	14-22 g/m^2
Raw material:	100 % virgin pulp
Design:	Primoselect.TSF+, Atrojet.T



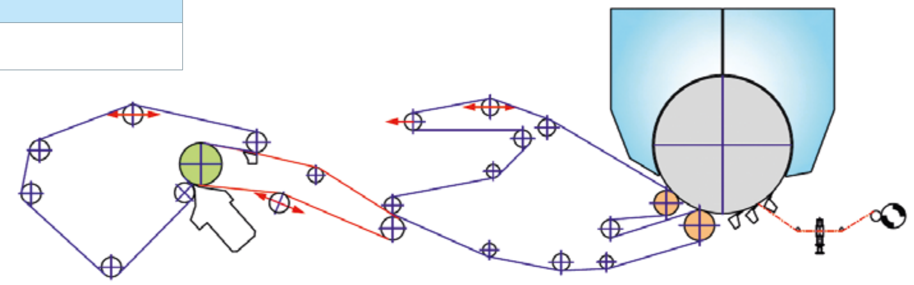
Configuration:	Crescent Former with shoe press
Width:	2.8 m
Speed:	2000 m/min
Paper grade:	Household and sanitary tissue grades
Grammage:	12-26 g/m^2
Raw material:	100 % virgin pulp
Design:	Atrojet.T

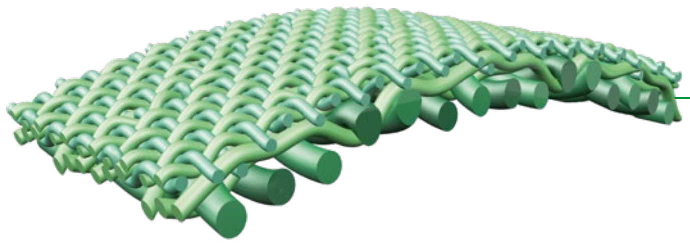


Configuration:	Crescent Former with suction press
Width:	2.8 m
Speed:	900 m/min
Paper grade:	Household and sanitary tissue grades
Grammage:	15-40 g/m^2
Raw material:	virgin pulp and mixed pulp DIP
Design:	Atromaxx.T

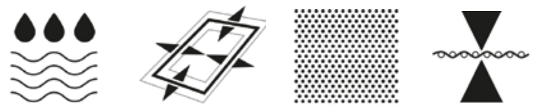


Configuration:	Twin Wire Former with suction press and press roll
Width:	5.6 m
Speed:	1460 m/min
Paper grade:	Household and sanitary tissue grades
Grammage:	15-26 g/m^2
Raw material:	100 % virgin pulp
Design:	Atromaxx.T Connect



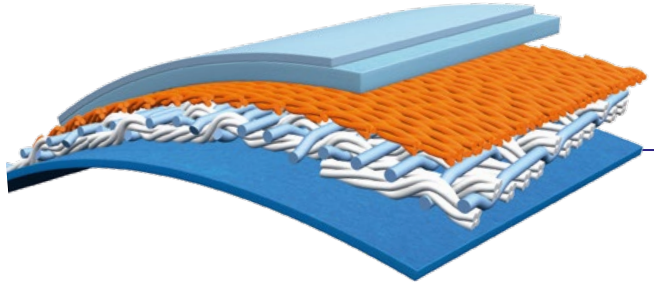


primoselect.TSF+

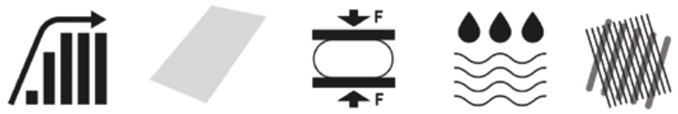


Primoselect.TSF – Performance in the forming section

- A binding concept that sets new standards in the ratio of open paper side surface (SOA) and active fibre support (FSI).
- The polarised machine direction warp system supports ideal sheet formation.
- A combination of high FSI, low fabric caliper and low void volume (VV) are a guarantee of efficient and effective dewatering and allow the paper machine to run clean.
- The patented fabric construction guarantees high dimensional and fabric stability. This, in turn, leads to higher wear resistance and optimal lifetime.



atrojet.T



Atrojet.T – Efficiency in the press section

- The fine and homogeneous base structure is a guarantee of first-class drainage accompanied by a steep and speedy start-up curve.
- The modular non-woven construction provides a very fine-pored structure. This inhibits any dirt accumulations on the felt surface which contributes towards high paper quality.
- The felt quickly achieves perfect saturation, which in turn leads to efficient hydraulic nip pressure.
- Much increased contact area and a high level of uniformity across the felt width result in very even pressure distribution and efficient transfer to the Yankee cylinder.
- The roll side benefits from an open structure which leads to high dewatering in the suction roll press as well as efficient felt conditioning and a clean machine run.

A perfect match: The recipe for success with transfer and shoe press belts

Heimbach has literally decades of experience and extensive know-how in the field of transfer belts. Revolutionary when the concept was first developed, the closed web run brought higher speeds within reach. Whilst the initial target market was graphic papers, transfer belt technology is today applied to the production of hygiene, speciality and packaging grades. Nowadays, the focus is not only on running times, but also on the precise and critical interaction between press felt and transfer belt. Jochen Pirig, Strategic Product Manager for Pressing and Belting, spoke to us about the importance of the „perfect match", about multi-axial transfer belts and about Atrobelt – the new shoe press belt from Heimbach.

Jochen Pirig, Strategic Product Manager for Pressing and Belting

Jochen, could you make a brief introduction of yourself? What is your professional background, and how long have you been with Heimbach?

After my training as a papermaker - that is what it was called back then – I initially continued to work in the 24 hour operation at the Dueren Paper Mill, later studying process engineering in paper production at the Munich University of Applied Sciences.

I have now been with Heimbach for more than two decades: initially responsible for press felts in Dueren before moving to Singapore in 2006. By this time, Heimbach had established a Sales and Service office for the Asian region there. As one of the first employees in that location, I was Product Manager for Pressing, Belting and Drying. After more than seven exciting and challenging years there, I have been back at headquarters since 2014.

Since your return from Singapore, you have been primarily focussed on Belting. What was the biggest challenge at the beginning?

I would have to expand a little on that: Most of the transfer belt positions are located in Asia. So, by the end of 2010, there were up to seven new machines with transfer belt positions going into the market every year. This allowed us to gain a lot of experience in a short time, especially on machines producing graphic papers, which tend to be predominant in Asia.

The concepts and designs of the machines tend to be relatively similar. In Europe, on the other hand, transfer belt technology has been in use for longer and is also more versatile and varied in terms of press concepts and paper grades produced.
One challenge is, and was, to align this product line with the requirements of mechanical engineering and at the same time with the different raw materials and paper grades produced.

In March 2010, we expanded the Heimbach Belting portfolio to include shoe press belts. In this product group, the mechanical requirements are closely aligned to the design of the shoe press of the respective machinery builders.
Transferring our knowledge of mechanical engineering and shoe press technology to our sales teams in Europe and Asia presented an additional challenge.

There were and are certainly trends in the industry that influence your own product development, right?

Absolutely! The use of raw materials is a very complex issue that can have a major impact on both the production process and the circular economy. These influences also impact upon our products. In the 1990s, for example, we increasingly favoured neutral sizing for graphic papers and used calcium carbonates as a filler. In the wake of waste paper recycling, this trend is also noticeable in other types of paper. Fibres for paper production are definitely an area with great potential for future megatrends.

The Webmover transfer felt has been around since 2006. What are the qualities that distinguish the latest generation, the multi-axial based Webmover.NewTech?

At Heimbach we have been relying on NewTech designs to clothe the press section for many years. The modular design not only enables precise and individual modifications to every application, but also comes with guaranteed long and reliable lifetimes. Transferbelts are already durable; further improvement of the concept should be a matter of course in terms of resource conservation. By means of intensive field tests and continuous exchange with our customers, we have been able to transfer the New.Tech concept to transfer belts. The result is a product with high mechanical resilience, which generally plays a key role when it comes to running time and is particularly important for shorter transfer belts or positions with two press nips per cycle.

Let's move on from the transfer belt to the shoe press belt. How long has Atrobelt been on the market and what is special about this newcomer?

Our shoe press belts have been available under the name Atrobelt since January 2024. We have actually built up our knowledge of shoe press belt applications and service for over 13 years.

„Thanks to our experienced sales, service and application team, we offer our customers a coordinated design for both the belt and the felt - the perfect match, as it were."

This know-how was critical in terms of the development of Atrobelt. With this product, we are moving on and expanding our proven concept in the press section: shoe press cover and felt design work together as a perfect unit. Thanks to our experienced sales, service and application team, we offer our customers a coordinated design for both the belt and the felt - the perfect match, as it were.

Which applications are particularly suitable for this product, and can you explain why we need so many different designs?

The technical specifications for shoe press belt design are actually provided by the machine manufacturer. This includes all the dimensions of the press belt and the layout of the fastening straps at the edges. A technical drawing, known as an OEM drawing (Original Equipment Manufacturer drawing), contains all the data that the supplier must very precisely adhere to in terms of pressbelts. In discussions with our customers, we then clarify further requirements such as the construction and length of the cleat in the run direction and the cleat edge design. Other aspects include edge relieving, CD clamping paths, line forces, cross direction offset intervals, as well as operating conditions such as paper grade range, production speed and the ratio of nip to Uhle box dewatering. This is where a perfectly coordinated combination of felt and belt design makes all the difference. We select the ideal atrobelt design by taking into account the position-related requirements of the shoe press and the demands of our customers.

Atrobelt has been on the market for 11 months now. What feedback do you have from customers?

At the beginning of the year, we had many meetings with our customers to present the new belt. We are very happy about the great interest. We delivered the first Atrobelt shortly after its launch. The results of all the belts we have run are absolutely convincing. The market has now fully embraced our product.

Finally, a few words about the product offering for the Tissue market, which you have been driving forward for many years. What is it in particular that separates Heimbach clothing from the competition?

New tissue machines from the most wellknown manufacturers are typically equipped with shoe presses. These tend to form the press nip in contact with the Yankee cylinder. A shoe that is flexible in the cross direction would normally provide the most uniform contact, or nip, possible between the cylinder and shoe press. Our traditional approach has shown its value in the tissue market too: make the perfect match between the design of the press felt and the shoe press. When making press felts for tissue manufacture, we rely on lightweight designs such as Atromaxx.T or Atrojet.T. The modular structure just gives us better control of the product properties. To give an example, the paper side felt can have a backing layer providing a high-contact surface, yet can still be combined with a robust layer on the roll side. This allows us to better match raw materials and paper qualities to optimise felt lifetimes.

Jochen, we thanks you for this discussion and wish you every success.

Advantages all the way

Webmover.NewTech

- Base weave fully embedded in high-performance polyurethane for extreme abrasion resistance
- Symmetrical, multi axial structure for even greater stability and tensile strength
- Durable and uniform pore structure for excellent "Tack and release"
- Uniform surface for guaranteed constant paper quality over time

+ longer transfer belt lives

+ improved performance

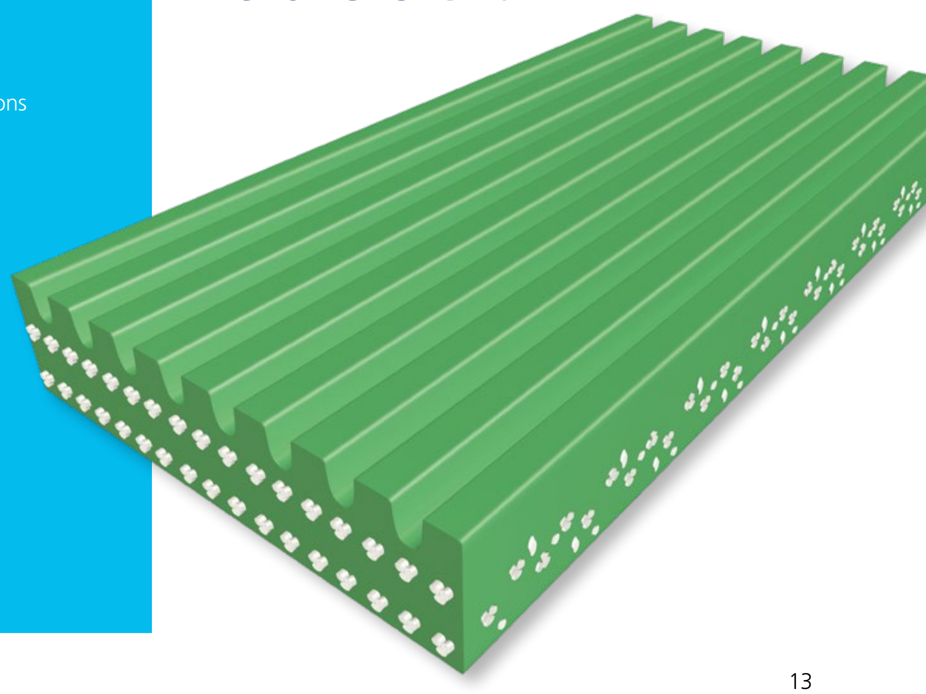
+ more reliability in planning

webmover. NEWTECH

Atrobelt.

- Smooth surface finish, grooved, with short and long interrupted versions
- Wide range of storage volumes for all applications
- Available in different polyurethanes, depending on application
- Excellent retention of storage volumes over lifetime
- Long-lived elasticity provides high resistance to cracking

atrobelt.



Knowing how: The correct way to run the shoe press belt

Nobody is more familiar with the paper machine than you. Of that we are fully aware. However, as is so often the case in life, it is sometimes the little things that make the most difference. In this case, we are talking about the interaction between paper machine and clothing. In this article, we would like to offer you a few tips on how to smoothly install shoe press belts and ensure the longest possible lifetime.

Storage/preparation
The belt should always remain in its original packaging until the time comes for its installation in order to protect it as much as possible from external damage (forklift traffic, chemicals for example). Polyurethanes should also not be exposed to sunlight.

Check that the pull-in device ("cannon") is clean prior to installation so that the belt is not damaged. It is best to cover the cantilever beam, external doctor and the saveall – a piece of felt can be used.

Installation
Ensure that the shoe press, clamping devices and seals are in perfect condition. Sharp edges, gouges, scratches or any unevenness must be ground off as these can cause damage to the polyurethane material (see Fig. 1 & 2). If the inside of the belt is damaged, oil can be forced into the damaged area under pressure which will lead to the material coming away.
Shoe press belts are extremely robust, and are made to withstand millions of nip cycles. Nevertheless, special care must be taken when setting the belt out for installation. First of all, the surface on which the belt is placed must be absolutely clean.
All attachments that could damage the belt from the inside must be removed or covered beforehand. A scratch can very quickly turn into a tear. The cannon must also be fitted with a protective cover as shown in the example here (Fig. 3).
Doctoring should also be renewed at the same time as the new belt (Fig. 4). Profile problems can frequently occur if this is not done.

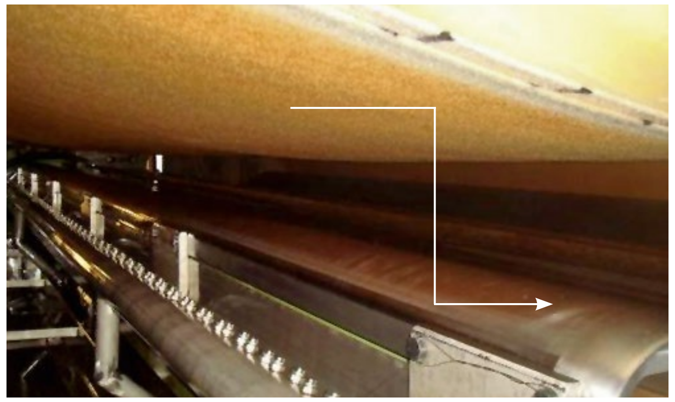


Fig. 1: Scratches on the shoe plate


Fig. 2: Delaminated belt due to scratching


Fig. 3: Cannon with protective cover


Fig. 4: Doctor should always be changed when replacing the belt

Our recommendations for a long and trouble-free lifetime

Check the oil temperature on a regular basis

Especially on hot days, oil temperatures can rise, leading to the possibility of error messages. The cause of temperatures in excess of 70 degrees Celsius can, for example, be clogged oil nozzles or cooling circuit faults within the lubrication system. Also not to be forgotten: Check inlet and outlet temperatures in the oil tank!

Removal of water in the oil circuit

Accumulations of water in either the oil tank or the hoses can be a cause of corrosion. Regular removal can help to prevent corrosion and help to ensure optimum functionality of the shoe press.

Doctor blade contact pressure

Doctoring must be checked on a regular basis to avoid uneven contact pressure or possible damage to the belt surface. The doctors should simply rest on the surface and no strong pressure should be exerted (kissing contact).

Cleaning of tension discs

On spring-loaded shoe presses, drive side clamping discs can easily become very dirty, which in turn can make it difficult to slide freely on the shaft (Fig. 5+6). The spring force of the belt tension may not be sufficient to eliminate the deposits.

Cross machine offsetting of the belt

A regular transverse offset (indexing) can provide protection for the belts from one-sided wear, or cracking (Fig. 7).


Fig. 6: Heavily soiled tension disc


Fig. 7: Formation of cracks in the edge of the shoe press belt

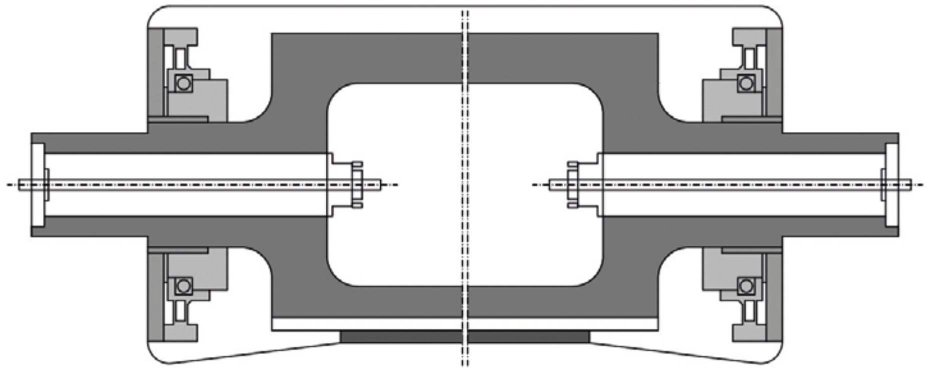


Fig. 5: Functional diagram of a shoe press

Maintaining minimum distance

When moving the belt in the cross direction, distance to the end position must be around 15 mm in the case of spring-tensioned tension discs.

Dry content as an indicator

A reduction in dry content can often be related to a loss of storage volume (void volume retention). The felt and belt effectively form a unit, working within a specified function range throughout their life. When it comes to modifying the clothing both products - felt and belt – must be taken into account in order to achieve maximum dry content at all times. Any lack of co-ordination between the two can be detrimental to runnability (bubble formation, spray mist/machine hygiene, crushing).

Do you have any questions, or require more information?

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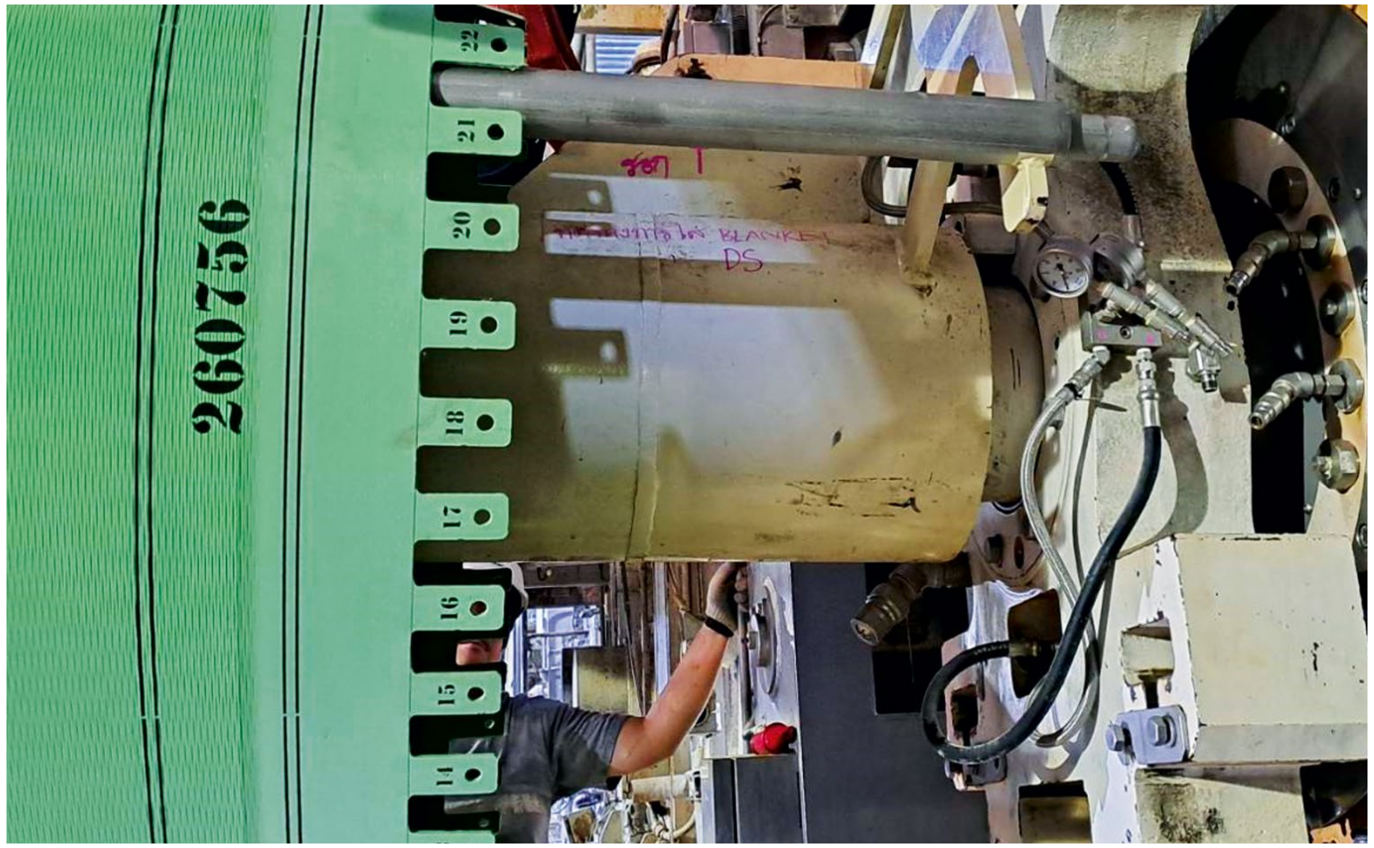
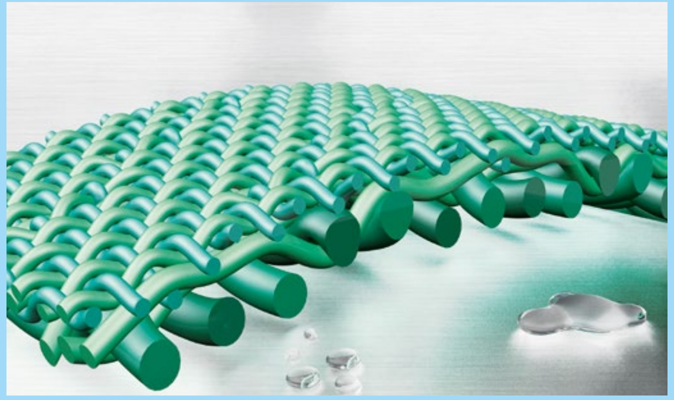
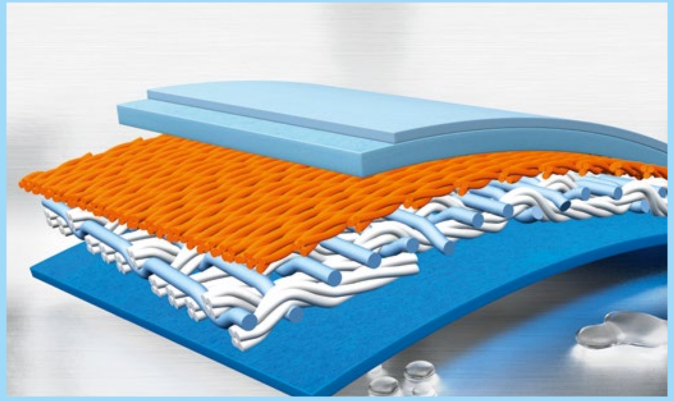
Installation of Atrobelt



Thanks for your trust



Our team at Heimbach UK has once again succeeded in producing and supplying two Primoselect.F forming fabrics for a packaging paper machine within 21 days in an urgent emergency.



A newsprint machine had an urgent requirement for a press felt. Heimbach Switzerland solved the problem by supplying the 4th press with an Atrojet within two weeks!

task.
Technical Assistance,
Service and Know-how

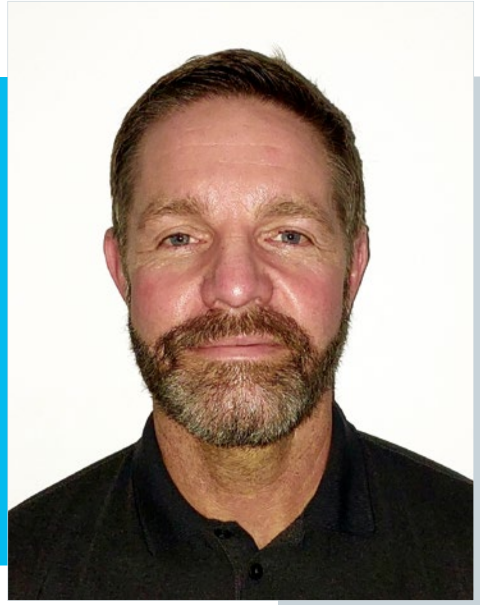
A packaging paper machine was exhibiting signs of heavy vibration and was running at significantly slower speeds than normal. Paper quality had also deteriorated. Our TASK team visited the site, carrying out a dewatering analysis and hood balance, as well as speed and ODIN measurements. In the light of these studies, we recommended replacement of the 2nd press top roll, together with modifications to the headbox and stock preparation. Problems were subsequently solved.

A nip profile measurement provided information that led to the identification of an incorrect press setting. As soon as nip symmetry was restored the machine ran perfectly.

In profile

At Heimbach, many paths converge and employees in Europe and Asia work hand in hand. As representatives of our international team we are happy to introduce two more committed Heimbach colleagues to you today.

Rob Howarth



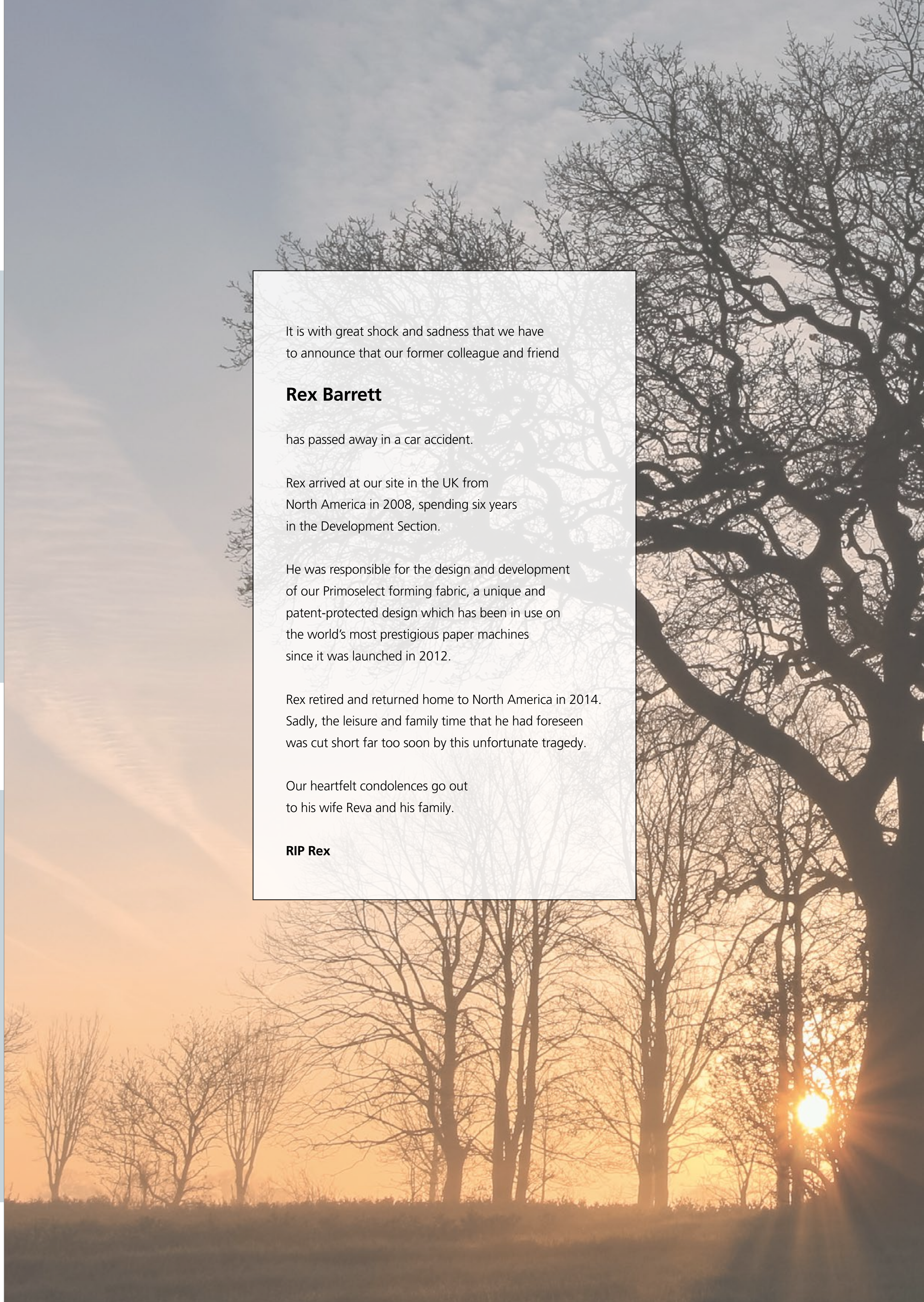
Role/Position:
Plant Manager Heimbach UK
My professional background/training:
I joined Heimbach straight from University with a Paper Technology and Management Degree. My previous roles include responsibility for Applications, Product Management, Quality and Development.
I have been with Heimbach since:
1995

My tasks are:
The safe and efficient operation of Heimbach Manchester
The best thing about my job is:
Working closely alongside a great team where every day is different and brings its own set of challenges.
I have a weakness for:
A good pint of Guinness!
I my free time I enjoy:
Quality time with family & friends, gym sessions & long walks with the dog.

Mike Horsch

Role/Position:
Sales & Service for Switzerland and South West Germany
My professional background/training:
Master Papermaker
I have been with Heimbach since:
01.04.2022

My tasks are:
Paper machine clothing sales, machine servicing, maintain and develop customer relations.
The best thing about my job is:
The contact with customers, working on the paper machine and the new challenges that always come with it.
I have a weakness for:
Fast cars.
In my free time I enjoy:
The three F's: Family, Fitness, Football



It is with great shock and sadness that we have to announce that our former colleague and friend

Rex Barrett

has passed away in a car accident.

Rex arrived at our site in the UK from North America in 2008, spending six years in the Development Section.

He was responsible for the design and development of our Primoselect forming fabric, a unique and patent-protected design which has been in use on the world's most prestigious paper machines since it was launched in 2012.

Rex retired and returned home to North America in 2014. Sadly, the leisure and family time that he had foreseen was cut short far too soon by this unfortunate tragedy.

Our heartfelt condolences go out to his wife Reva and his family.

RIP Rex