# impressive

ISSUE 1/2023

## Press Section Audit Part 2

Detailed diagnosis promotes
further efficiency improvements

## Closing seam felts quickly and safely

Good to know - with valuable tips

## Felt conditioning, done correctly

Your key to better runnability

**Imprint**

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*Dear readers,*

*Increasing productivity and efficiency:*
*Is there anything that has been dominating your life recently?*

*This year, the challenge has just grown again. The subject of performance has become a central and critical focus due to massive increases in the cost of energy. Now, more than ever, keeping fit and ready for the future requires customised and sophisticated solutions.*

*You will find Heimbach right at your side where this task is concerned. Not only with high performance paper machine clothing and services, but also as an experienced trouble-shooter.*

*In this issue of Impressive, we will illustrate how it is possible to further optimise production using practical examples and experiences.*

*What is the best means of felt conditioning to ensure that clothing remains in good condition for as long as possible? It seems that sometimes this topic does not receive the attention that it deserves. We will be happy to shed light on this subject for you.*

*We will also show you how seam felts should be changed both quickly and safely. Perhaps even professionals like yourselves will find one or two valuable tips.*

*And finally, in part two of our „Press Section Audit“ article, you can see how our TASK teams can help increase paper machine efficiency using different diagnostic methods.*

*As the saying goes: We can't change the wind, but we can set the sails differently. With this in mind, I look forward to our continued co-operation and wish you an interesting read.*

*Best regards*

*Marco Esper*
*Chairman of the Management Board (CEO)*

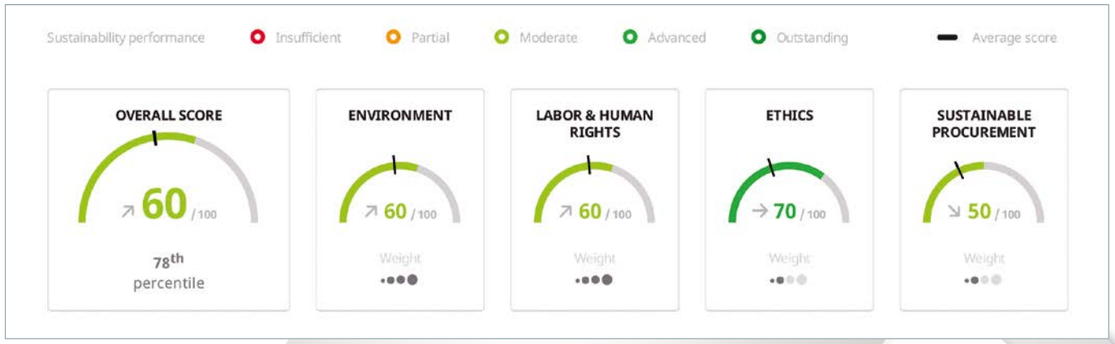
# Sustainability means: Continuous improvement!

*Points scored again with EcoVadis. Within the „Other textiles“ industrial segment, Heimbach was placed within the top 12 per cent of manufacturers in the overall ratings. How are things going in general within the Corporate Social Responsibility area? The new sustainability report provides detailed information.*

**Silver medal awarded by EcoVadis**
Following EcoVadis audits in previous years, we went through another assessment at the beginning of this year. As before, we were put to the test in numerous indicators in the categories of environment, labour and human rights, sustainable procurement and ethics.

Our efforts in the evaluation period 2021/2022 have paid off! Particularly in the areas of the environment and labour & human rights we were able to improve once again. With a points total of 60, Heimbach is placed inside the top 12 per cent of manufacturers in the overall ranking of the „Other textiles“ industrial segment.

And that is by no means the end of the story. On the contrary, we see the subject of corporate social responsibility very much as an ongoing process. This is certainly reflected in our latest Sustainability Report, which can be read online here:




Ecovadis Scorecard



**Heimbach's second report**
How have we continued to carry and implement our responsibility for the environment, our employees and society since our first report covering Europe and China was published in 2020?
What are the goals that we at Heimbach will pursue in the coming years to ensure that we progress to become even more sustainable?
What are we doing regarding labour and human rights?
What is our procurement strategy?
Our updated summary of CSR activities and objectives across all our locations will provide readers with detailed answers over 77 pages. As with the EcoVadis award, the publication is far more than just a presentation for us. This has to be so, as the interest of all stakeholders in our commitment to the subject is clearly gaining momentum. What we have noticed above all, is that true awareness of the ecological, social and economic challenges facing both business and society can only come when corporate actions are taken and presented from the ground up.

**Do you have any questions or suggestions beyond the report?**
**Do you need help to become more sustainable yourself?**
**We would be happy to support you.**
**Your interest is much appreciated.**

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# A clean case

*The market for sanitary papers is in a period of constant growth. New sales areas are opening up for tissue producers. At the same time, demands on production are rising even higher. More than ever before, the paper machine and its clothing must perform together in perfect harmony. Intelligent clothing concepts are much in demand. Where this is concerned our customers can, as always, rely on Heimbach. We now have a core team dedicated to this special segment, created to enable products and service to be continually adapted to customer needs.*

**Everybody wants it**
There are habits and customs that have become so self-evident that the numbers behind them have the capacity to astonish. Or would you have actually considered that each one of us, worldwide, uses an average of 55 kilos of toilet paper, paper towels and handkerchiefs every year? It does not matter whether we are in the office, cafe, gym or shopping mall – in all these locations and more, we reach for the hygiene products that are always available.

And demand is steadily on the increase. In the 11 years spanning 2010 to 2021 annual production increased by 14 million tonnes to a total of 44 million tonnes. In Europe alone the market is worth 10 billion Euros. Tissue already has a 10 per cent share of the total trade in paper and board – and that trend is on the rise.

There are many reasons that account for this significant upswing. Above all, there are for sure improvements in the standard of living in emerging economic powers such as India and China, as well as growth in tourism and gastronomy both before and after the Coronavirus pandemic. At the same time, consumers have become increasingly aware of the importance of hygiene and health.

**The fine art of tissue**
The market for soft, absorbent and multi-layered tissue is therefore playing an increasingly important role in the tissue business. Actually making this universally popular product is, however, something of an art form. Everything is demanded from the paper machines. You only have to think of the extremely high production speeds and the very short formation distance, to say nothing of the enormous initial dewatering.

Conditions such as these require specialised clothing designed and produced to harmonise the essential characteristics of the tissue machine. More than ever, forming fabrics, felts and belts have to be individually designed and configured. This is exactly what we do at Heimbach and our product portfolio in forming, pressing and belting for tissue is strong and versatile.

*Sven Bauchmüller*

*Jochen Pirig*

*Uwe Hentschel*

*Uwe Berg*

**A core team built for tissue**
Bearing in mind the market for tissue papers, as well as the performance of our customers, Heimbach is strategically expanding its commitment in this area and investing in additional resources. We have now established a team that deals exclusively with the specialised requirements of the tissue segment.

*How can our proven products be adapted and tailored to these?*

*What contribution can we make towards reduced energy consumption by making targetted modifications?*

These and many other topics are regularly addressed by our expert group comprising sales personnel, engineers and technicians. In the last year this team has been substantially strengthened by the arrival of Uwe Berg, who has many years of international experience in customer service and troubleshooting on tissue and paper machines.

**A tissue clothing concept from Heimbach**
Maybe you know us primarily as a supplier for graphic grades, speciality and packaging papers?

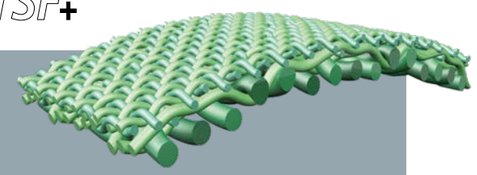
Get to know our tailor-made solutions engineered specifically for hygiene papers and see for yourself the cost and energy savings for your production needs.

**Your questions will be happily answered by:**
Uwe Berg, Phone +49 (0) 2421 802 355
uwe.berg@heimbach.com



Performance in the forming section

## primoselect.TSF+

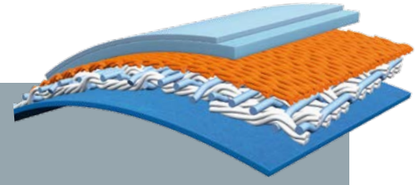


### Primoselect.TSF

- A binder concept that sets standards in the ratio of open paper side surface and active fibre support.
- Polarised warp system in the machine direction allows sheet formation over a very short time.
- High FSI, low fabric caliper and low void volume (VV) guarantee excellent dewatering results and clean machine conditions.
- The patented fabric guarantees high dimensional stability. This brings higher wear resistance and optimal lifetime.

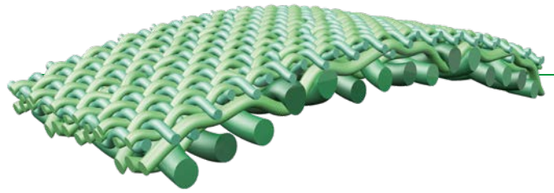
Efficiency in the press section

## atrojet.T



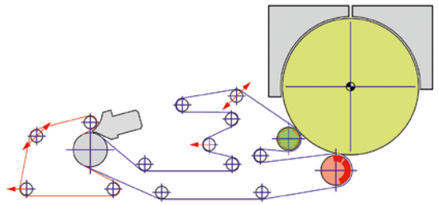
### Atrojet.T

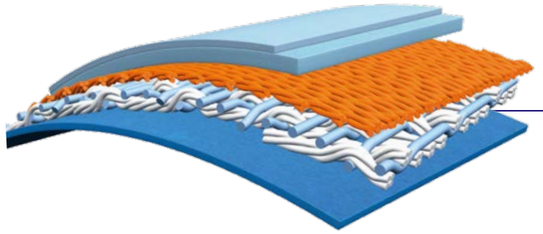
- Modular concept means that press felts can be adapted to the tissue machine and paper at all times.
- Fine and homogenous base structure ensures first class drainage as well as speedy start up curve.
- Modular design helps provide a fine-pored structure. This prevents accumulation of dirt on the surface of the felt which helps achieve high paper quality.
- The felt allows perfect saturation which in turn leads to efficient hydraulic nip pressure.
- Greater contact area and good uniformity across the felt width result in ideal nip pressure and pressure distribution to the Yankee cylinder.
- The choice of carrier structure means target speeds can be achieved more quickly, dry content can be maximised and energy requirements minimised.
- Open structure on the roll side means efficient felt cleaning and cleaner machine run.



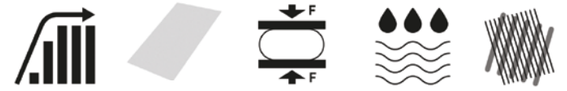
## primoselect.TSF+


| | |
|---|---|
| **Configuration:** | Single Width, Crescent Former with suction press roll and blind-drilled press |
| **Speed:** | 1600 m/min |
| **Paper grade:** | Household and sanitary tissue grades |
| **Grammage:** | 11-20 g/m² |
| **Raw material:** | virgin pulp and mixed pulp DIP |

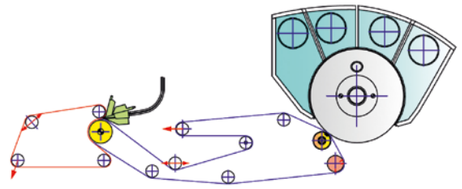




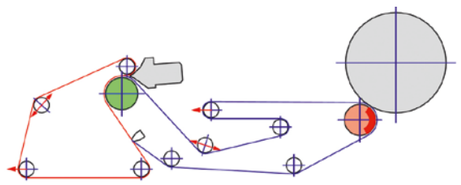
## atrojet.T




| | |
|---|---|
| **Configuration:** | Double Width, Crescent Former with shoe press |
| **Speed:** | 2000 m/min |
| **Paper grade:** | Household and sanitary tissue grades |
| **Grammage:** | 11-20 g/m² |
| **Raw material:** | 100 % virgin pulp |



| | |
|---|---|
| **Configuration:** | Single Width, Crescent Former with suction press |
| **Speed:** | 2050 m/min |
| **Paper grade:** | Household and sanitary tissue grades |
| **Grammage:** | 15 -18 g/m² |
| **Raw material:** | 100 % virgin pulp |



# Good to know:
# Closing seam felts quickly and safely

*When it's time to change a piece of clothing, every move has to be perfect. It must be quick, but also safe. This also applies to installing and closing a new seam felt. As professionals, you are all aware of this. Nevertheless, we would like to pass on some tips to you. It may be that one or other of these tricks is new to you!*


## Tip 1
**Communication at an early stage**

In general, we recommend that local and machine conditions for the felt installation and the closing of the seam are co-ordinated in advance.

**The following questions should be clarified:**
**1.)** Which installation method is possible or advisable – manually, using a driven roll, or an alternative method?
**2.)** Which direction of installation?
**3.)** Where are the unwinding and closing positions?
**4.)** Which installation and seaming aids are required?

## Tip 2
**Keep it nice and even**

First and foremost, it is important that the felt is placed parallel to the rolls. The installation process should be even and completely distortion-free. By proceeding in this way, you will be guaranteed a completely straight seam at both ends in the closing position.

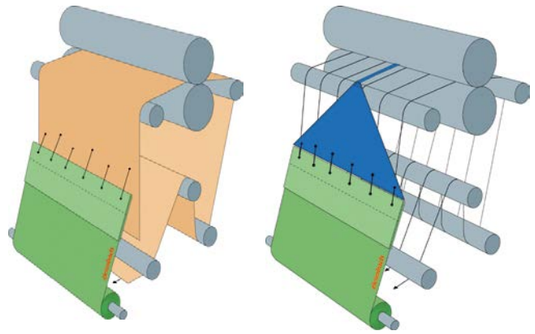
**But first things first…**



## Steps 1 to 4

- **Check position**
- **Install installation rope**
- **Insert the felt into the unwinding device**
- **Remove protective film**

**Before unwinding the felt, the first thing you should do is check both machine and drive side of the felt. Then install the installation rope** with either the old felt, or the new, in the loop.



**Next, place the felt in the unwinding device.**
Ensure that the felt is parallel to the unwinding device, by doing so it will be easier to close the seam later on.
**Please note, the protective film should only be removed shortly before the installation process begins.**
This helps to protect the felt from moisture (Fig 1).


*Fig. 1*

## Step 5 to 7

- **Connecting the kite**
- **Pull the felt through evenly**
- **Loosen the kite**

**Do not use knots when connecting the installation rope to the kite.** The buckle that is provided (see Fig. 2) ensures that forces are distributed evenly across the width of the kite, to avoid local overloading. Otherwise, there is a risk that the kite could tear.

*Fig. 2*

**Pull the felt through as evenly as possible and without interruption.** This way you can avoid tension peaks. Through this process, colleagues on both machine and drive side following the kite will ideally ensure that neither kite nor felt gets caught anywhere – on the Uhle boxes for example. This way it is possible to react quickly in the event of complications.
**Next, loosen the kite where shown on the stitching,** but only there and always starting from the coloured marking.

**Attention:** Yellow stitching can be opened before the seam is closed, red stitching **only after** the seam is completely closed.

## Step 8 to 9

- **Pull zip**
- **Remove protective wires**

**You can now proceed to close the zip –**
ideally not under tension (Fig. 3)

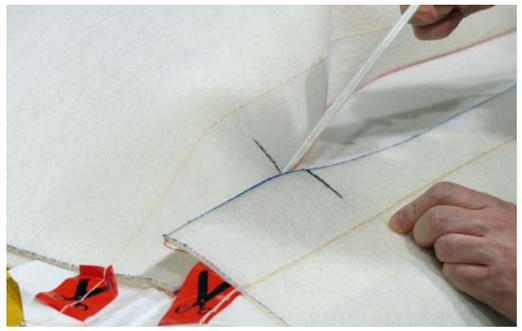


*Fig. 3*

**In parallel, remove the protective threads,**
preferably at moderate speed so as not to damage the seam loops. (Fig. 4)

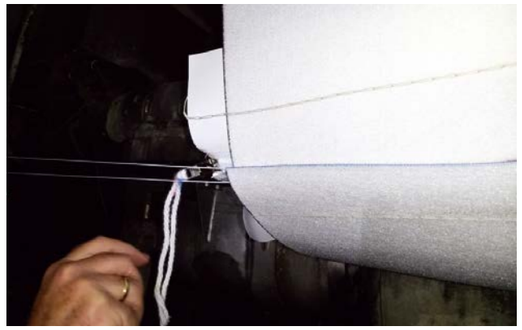


*Fig. 4*

## Step 10 to 11

- **Insert the tip of the pintle wire with good illumination**
- **Check the seam**

After these preliminary steps you can proceed to close the seam. To do this, please use the easy.TOOL (Fig. 5).
In line with our sustainability goals, we do not include this seam closing aid with every seam felt. If a new tool is required, please contact your local sales representative.

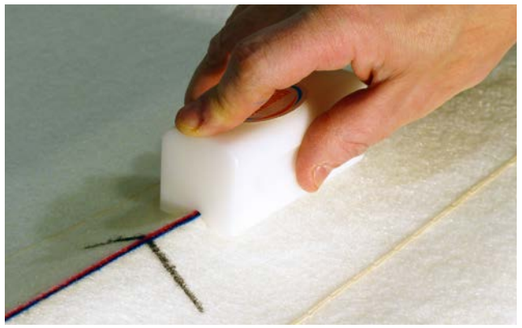


*Fig. 5*

**Attention:** To avoid guiding problems, it is essential to start seam closing at the edge where the guide palm is located.

**Begin by inserting the steel tip of the pintle wire.**
For this part of the installation, it is necessary to ensure a good illumination of the seam channel. **Ideally, place a torch directly next to the seam. By doing so it is possible to visually check that all seam loops have been connected, and where the tip of the pintle wire is located.** (Fig. 6a and 6b)


*Fig. 6a*

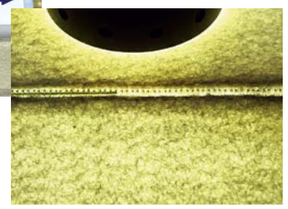


*Fig. 6b*

## Step 12 to 14:

- **Pull the remaining pintle wire through**
- **Fix**
- **Remove installation and seaming aids**

As soon as the steel tip of the pintle wire has been pushed across the entire width, check the seam for any loops that have been missed out. **Only then should you pull the rest of the pintle wire through.**
In this phase also, it is important to maintain a steady pace.

**You can now tuck back the ends of the pintle wire to fix it.**
The same rule applies: **do not knot it!** Instead, place the ends back next to the seam. When doing this, tie the outer loop properly, as per the sketch. This ensures that the seam ends do not come loose later in the life of the felt.

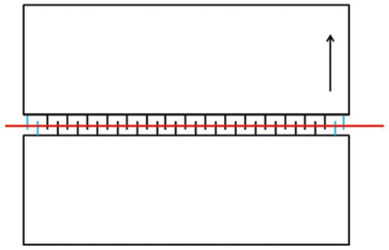


*Fig. 7*

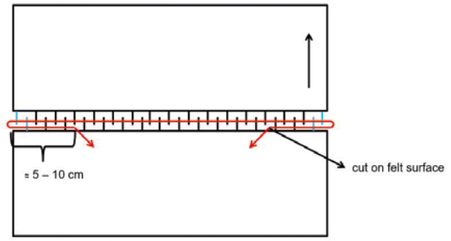
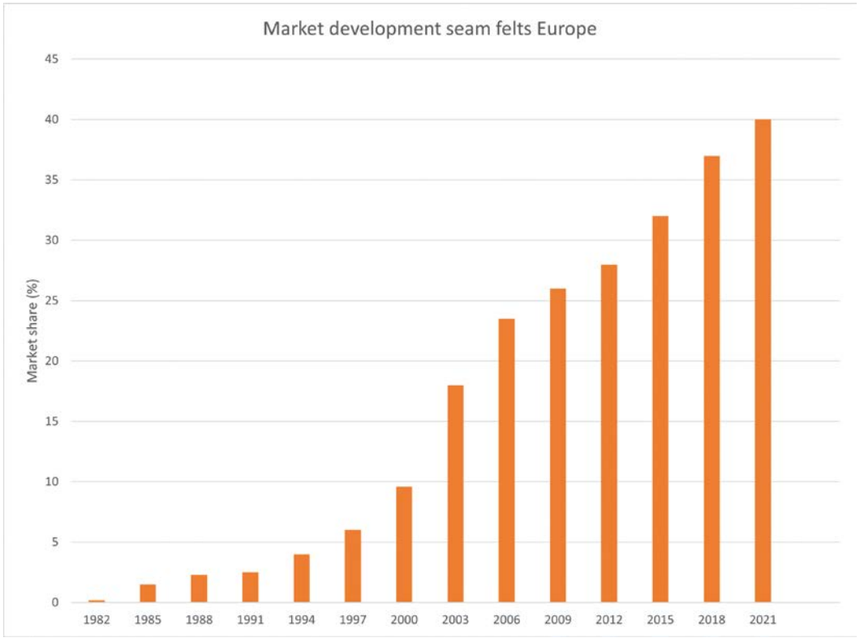



*Fig. 8*

We do not recommend bonding with silicon, which is not necessary and can be counter-productive. Application of additional material like this can cause problems as there is always a risk it gets stuck somewhere – on the Uhle box, for example.
**Last but not least, you just need to remove any remaining installation and seaming aids and tidy up the workplace.**
This, of course, includes removing all remaining tools and equipment.




## Current seam felt references from Heimbach

**Rather fast**
Paper grade: Newsprint
Width: 920 cm
Speed: 1630 m/min
Position: 1st press, 3rd press

**Rather wide**
Paper grade: Standard WFC
Width: 1020 cm
Speed: 1400 m/min
Position: 1st press bottom

## Now New
## The Atromaxx.Connect family gets bigger

The successful Atromaxx.Connect family has recently been extended downwards in term of weight. In addition to our tried and tested carrier layers, Heimbach is now offering substantially lighter variants able to cover all demands.

**We will be happy to provide more detail on request.**


## Film on!

**A film tells more than a thousand words.**

In our latest video, Paper Pete shows just how easily and quickly you can change a seam felt from Heimbach.

We wish you every success!

# Press section audit part 2

*In part one of our section audit, we focussed on the interaction of rolls, felts and doctors as the sheet passes through the press section. In this second part, we will present various diagnostic methods that are available to help improve your pressing efficiency.*



**Optimising water content in the press section**

Optimum operating conditions in a press section are much easier to control when Ecoflow systems are in use. With access to a variety of felt suction box vacuums, operators can easily determine at which point total dewatering reaches a maximum via online trend readouts. Optimised nip dewatering, which is normally associated with a simultaneous increase in dry content after the press, can lead to enormous savings: Namely by means of

- reduced vacuum consumption (possibly switching off individual vacuum pumps)
- lower drive energy in the press due to reduced felt abrasion
- less felt wear and optimal conditioning in the nip, leading in turn to longer felt lives

If the press felt concept allows it, a grooved press roll design is advantageous when compared to blind drilled rolls. This is due to the fact that machine direction water flows are likely to provide improved dewatering in the nip. This aforementioned flow movement tends to counteract any contamination of the storage volume in the roll cover, normally creating a positive effect on conditioning in this area. Nip dewatering is, in fact, the most efficient way to clean a felt (Fig. 1). Ideally, it would replace the HP shower and felt suction box.

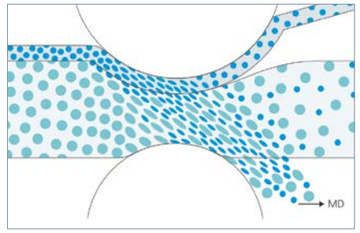



*Fig. 1: Press roll with dewatering in the nip*

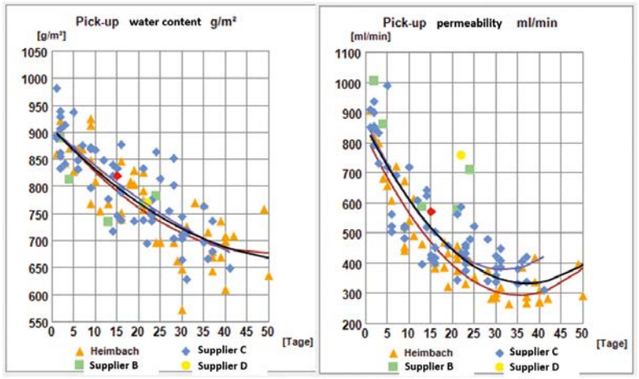



*Fig. 2: Evaluating historical felt measurements on the paper machine*

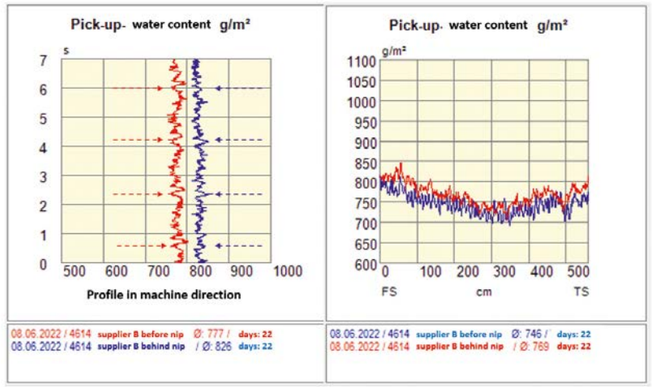



*Fig. 3: Water content: left in machine direction showing periodic peaks, and right in cross machine profile*

**Planning clothing changes**

Dewatering elements must be maintained in such a way that paper machine efficiency and availability is kept at a high level. Successful functioning of nip dewatering requires that savealls and doctors are always correctly adjusted, and the latter must be replaced when necessary as wear occurs. The timetables for changes in clothing are planned according to both the experience of machine operators and the recommendations of PMC service personnel. Roll servicing is also scheduled according to expected roll life or is determined by the specifications of the machine manufacturer or supplier.

**Routine inspection of the press section**

In the course of a routine inspection precise statements can be made regarding both press felt condition and press section operation. This clothing service would normally include water content and felt permeability measurements. Dimensions of the felt, recording both distortion and tension would also be carried out in order to detect any possible problems at the earliest stage. Figure 2 shows the statistical evaluation of water content and permeability as a function of felt running time. This provides the opportunity to make a comparison of different felts over their lifetime. Excessive deviations may be an indication of a requirement for further investigation and measurement.

In addition to cross-machine profile measurements of water content, machine direction profile checks can provide clarity in terms of the possible generation of peaks in the circulation frequency of the felt (caused, for example, by the seam - see Fig.3 left). Using this machine direction profile, the exact interference frequency can be determined with FFT analysis. This information can be of great assistance in further troubleshooting.



**Conditioning**

An efficient felt conditioning set-up makes an important contribution to good cross profiles in the sheet and correspondingly uniform felt permeability.
The requirements for HP shower cleaning vary with paper production. Shower parameters would include the number of nozzles, nozzle diameter, pressure, oscillating speed and the total stroke.
The latter must correspond exactly to the spacing of nozzles, or its integral multiples, so that there is no overlapping or missed sections. The oscillating speed is calculated from felt speed, jet diameter and felt length as follows:

$$\text{Voz}\left[\frac{\text{mm}}{\text{s}}\right] = \frac{\text{Feltspeed [m/min] x Jet Diameter [mm]}}{\text{Felt Length [m] x 60}}$$

As a result, the feed rate of the shower pipe per felt revolution should be exactly the same as the diameter of the shower nozzles so that each point of the felt is conditioned exactly once, or exactly several times, per total stroke. Suspended particles, or excessive water hardness, can clog the shower pipe nozzles and thus negatively impact on cross-machine sheet profiles. We recommend regular checks for aggregates during the production process , particularly around the „spinning“ system of the shower pipe brushes. Contamination in the area of the shower pipes can often lead to profile disturbances and thus to quality defects.

*Fig. 4: shower pipes showing dirt deposits and partially clogged nozzles*

If accumulations of dirt suddenly become detached, this can become a risk to the operational safety of the press (Fig. 4). If larger clumps of dirt pass through the nip it is possible that damage could even occur inside the press section. For this reason, we maintain that keeping the press section clean is a basic prerequisite for the successful operation of the paper machine.
Settings and functions of all showers should be optimised before new felts are installed, in order to eliminate potential causes of faults. Where felts may have run for several days with poorly adjusted shower units, uneven compaction in the cross machine direction can sometimes solidify.

Manual felt tension measurements can be carried out by PMC specialists at a distance of 1 metre from the tension roll and at several points along the paper width. This opens up the possibility to compare the results to values displayed online.

**Laboratory analyses**

Another favoured method to localise the cause of various defects would be laboratory analysis of used felt samples. By this means, for example, it is possible to measure residual strength in comparison to new values for the purpose of assessing the safety reserve.

Different impurities within the felt can also be the subject of laboratory analysis. A cross profile caliper measurement can provide information on uneven distribution of nip pressure, or causes of wear such as clogged low pressure shower nozzles. If this should occur, increased abrasion may result due to a lack of lubrication over the felt suction box cover. A cross direction air permeability profile with large deviations to the mean values indicates uneven conditioning (Fig. 6).

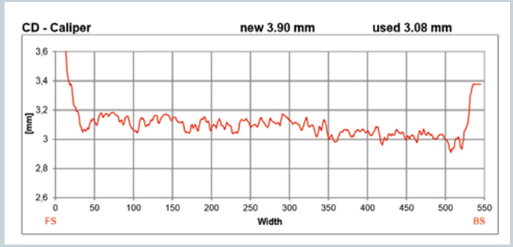



*Fig. 4: Cross direction caliper measurement of returned felt sample*

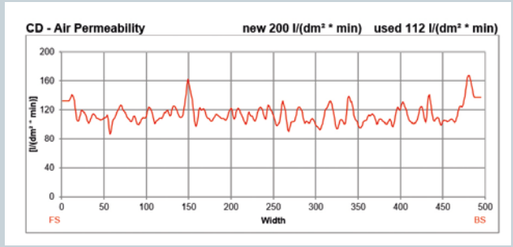



*Fig. 6: Cross direction permeability profile of used felt sample*

**In addition to the above routine supplier measurements and analyses, further measurements can be carried out by specialists from the application technology department (for example Heimbach TASK) in the event of more complicated problems.**

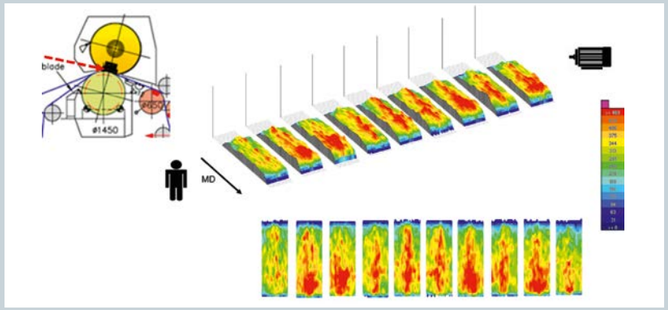



*Fig. 7: 3D presentation of Nip profile measurement of a shoe press*

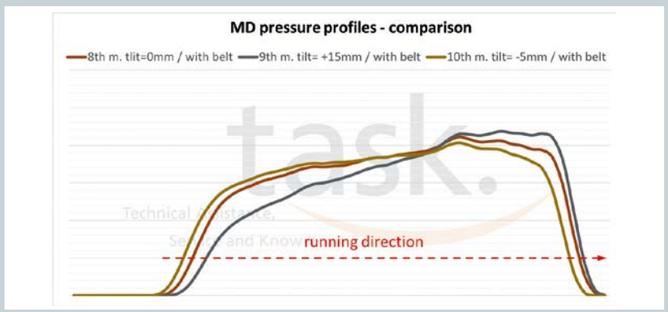



*Fig. 8: Pressure curve of shoe press in the run direction with different tilt settings*

**Nip profile measurement**

A nip profile measurement gives a 3D view of pressure distribution as well as the nip width and force distribution (Fig. 7). Depending upon the results corrections can be made, if necessary (adaption of the roll crowning to the applied nip load and correction of nip symmetry). Optimisation of cross profiles generally leads to higher production and better sheet quality.

For example, in the nip of a shoe press the run direction pressure curve is influenced by the geometric adjustment of the press shoe to the grinding diameter of the counter roll, as well as the combined total thickness of felts, paper web and belt. Furthermore, depending on design, the shoe tilt can be adjusted in order to control the pressure curve. A steep pressure drop towards the end of the nip can be advantageous in order to minimise sheet re-wetting.



**Speed measurements in the press section**

Knowing exact speeds and their differences is fundamental for a stable run, as well as a high quality product. Speed measurements can be used to determine the actual draws of the paper web taking into account felt thicknesses and optimise if necessary. This could reduce the real strain on the paper web (Fig. 9).

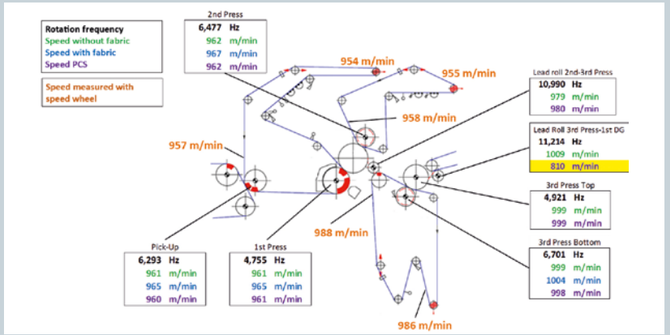



*Fig. 9: Speed measurements in the press section*

**Periodic MD mass variation**

High-frequency machine direction fluctuations in the paper can be detected with the help of the ODIN system (Fig. 10). If periodic irregularities can be detected at the reel they can subsequently be traced back along the length of the paper machine to the point of origin. A supplementary vibration measurement can then help to clearly localise the roote cause. Rotational frequencies determined in the stock approach system and their comparison with the disturbance frequencies can also provide information regarding causes that may be outside the paper machine.

A point measurement on the felt using a press tuner and subsequent FFT analysis of run direction fluctuations can be used for comparison with results from the ODIN measurement. Should the causes of run direction fluctuations be eliminated using the above error analysis, downstream problems such as quality losses, barring, winder problems can be avoided.

**Thermography in the press section**

On modern, high speed machines there are only a very few positions with a suitable perspective for meaningful IR images of the sheet. It is certainly not uncommon to find the cause of cross machine profile deviations by taking pictures of the felts.

These deviations can be caused, for example, by a temperature difference between spray water and the felt or by uneven pressure in the press nip.

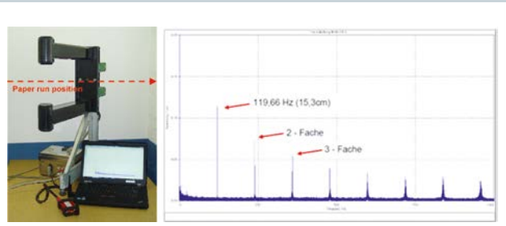



*Fig. 10: ODIN measurement equipment and FFT display*

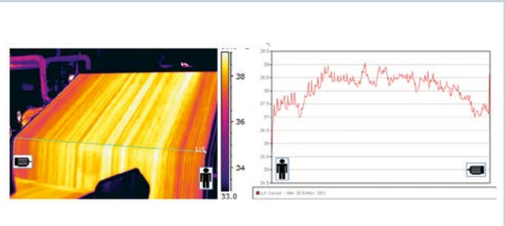


*Fig. 11: Infrared photo of pick-up felt and temperature profile*

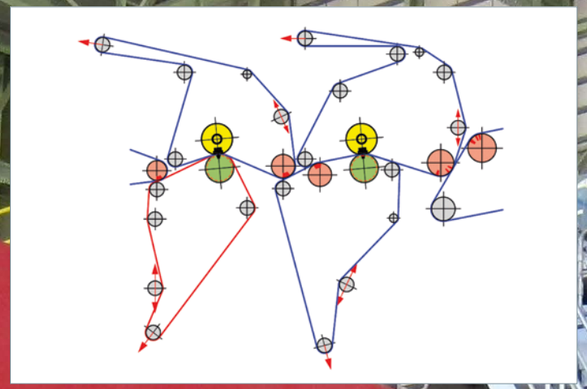
**Conclusion**

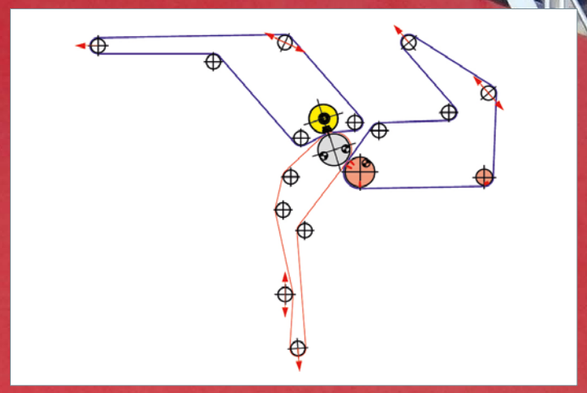
There are a wide variety of influencing factors that can lead to unwelcome disruption of the production process and affect the efficiency of a paper machine. Audits and measurements carried out by application specialists can certainly help you in both detecting and eliminating the contributing factors at an early stage.

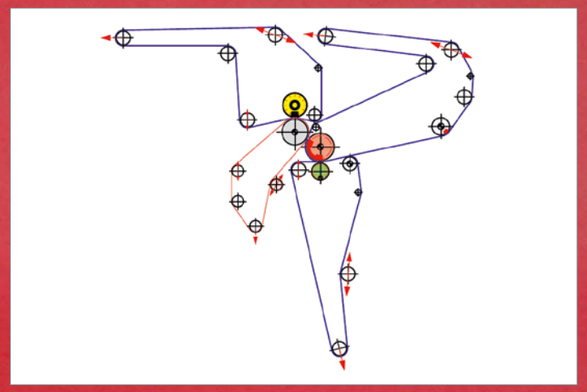
Detailed information on our extensive range of services, as well as interesting and relevant case studies, can be found in the TASK catalogue and at www.heimbach.com

**Do you have questions regarding this article, or would you like information regarding our services?**

Michael Loenißen
Phone +49 (0) 2421 802 463
michael.loenissen@heimbach.com







*Typical machine configurations with Webmover*

# Non-stop development

*Closed sheet transfer using Webmover can now be applied to paper grades using re-cycled papers. Alongside these expanded application possibilities, numerous configurations have been added. At the same time, basis weights are continuing to trend lower. High time, therefore, to rethink the transfer belt. With Webmover.NewTech, Heimbach has successfully applied NewTech technology – which has been successfully applied to felt design and application since the 1990's – to belts. For users, this means even longer lifetimes, and further improved performance.*

**Webmover – for lasting performance**

300, 500, up to 600 days and more than that: Modern transfer belts are true long distance runners. And yet, less than 20 years ago, 120 days life was considered to be a remarkable result. It always surprises, how quickly we can get used to progress. The main reason for the major enhancement of belt life was, and still is, an innovation from Heimbach. In 2006 at our Düren location we introduced Webmover, the first transfer belt with a base weave completely embedded in polyurethane. The high-performance plastic used as a coating matrix provides the belt with very high abrasion resistance on both paper and roll side.

The central goal of the machinery builders was to increase machine speed by means of a closed web transfer. Heimbach's goal was to significantly extend service life. Both were doubly successful in every sense of the word: thanks to the poly-urethane layer on both the paper and reverse side the moist sheet adheres easily to the surface but detaches from it without problems.

It is the secret of success for the reliable transfer of the sheet from the press section into the first dryer group. Just as important, the PU-based coating is resistant to contami-nation from foreign substances which helps give the transfer belt a durable quality.

Thus a belt life of 18 months, for example, is not uncommon on high speed machines. At moderate speeds, up to 21 months has been recorded. With lifetimes such as these a targetted replacement of the belt can be perfectly planned into 6 monthly or annual maintenance cycles.

*300, 500, up to 600 days and more than that: Modern transfer belts are true long distance runners.*

*Cross-section view Webmover.NewTech in run direction*

**New: The first multi-axial transfer belt**
Our research team have now arrived at the next phase of development with *Webmover. NewTech*. Tensile strength and stability of our already very robust transfer belts has been further enhanced. A proven technology that has been in successful use with press felts for a considerable time has provided us with the means to achieve this: the multi axial base layer. Here, upper and lower structures are positioned at different angles to each other. The symmetrical and multiaxially placed base layers mean the structure is even more able to resist mechanical forces that are continually on the increase. As a pioneer and market leader in the supply of non-woven and multi axial press felts, we have been applying this technology for over 30 years and are therefore in the perfect place to employ it in the design of transfer belts.

A further plus point are the so-called „tack and release" properties: this is a reference to the sometimes difficult-to-influence change from sheet adherence to the belt surface when leaving the press nip to release and transfer of the sheet once entering the dryer section. The more homogenous pore structure of the PU layer provides a porous surface that can be constantly maintained which in turn guarantees optimum adhesion and release properties.

**A powerful answer to new and difficult demands**
The new *Webmover.NewTech* is a response to the changing requirements of the market. Conceived initially for the mass-produced markets (SC,LWC,Newsprint, graphic papers) transfer belts are increasingly in use for other grades (White Topliner, packaging papers based on recovered paper, specialty paper and tissue). Today, 17 years after the premiere, the product range extends way beyond the „standard" Webmover.
There is the „HD" (heavy duty) version for positions subject to high mechanical loads, as well as Webmover.T for tissue grades.

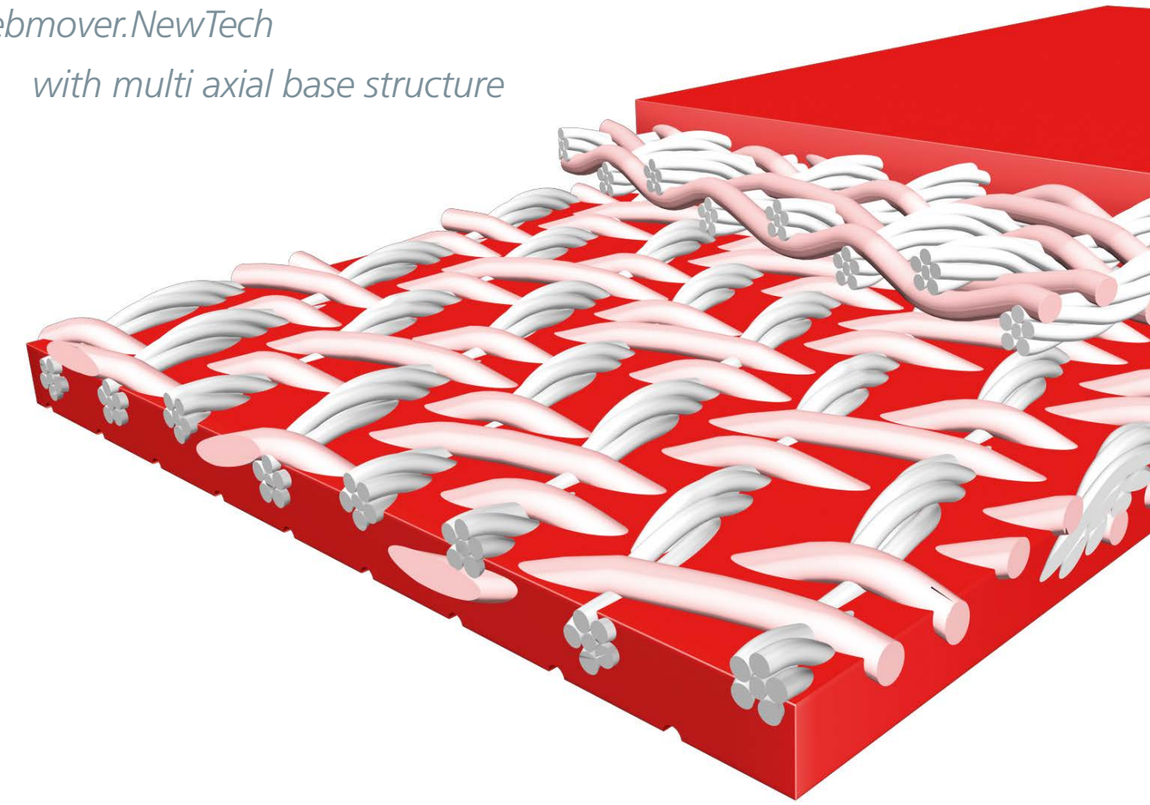
**More and more configurations and positions**
Basically, we can say that transfer belts have to cope with a great many more configurations and positions than was initially the case. Just one example, among many, would be press configurations where the centre roll itself is covered by a transfer belt.
With this centre press roll configuration the transfer belt passes through two press nips - either a hard nip followed by the shoe press, or two hard nips.
Due to the compact design of the centre roll, the circuit is rather short. The load capacity and resistance of the transfer belts must, therefore, be all the higher if they are still to fit in with targetted lifetimes and shutdown intervals.

**Changing with the times**
One of the most important examples of changing trends is the move towards papers with lower basis weights. This does not stop at packaging papers where grammages are approaching the same basis weights as certain graphic papers. The need for producers to offer flexibility means that machine configurations for paper qualities that are quite different are becoming increasingly similar allowing for so-called swing production on existing lines.

Requirements and conditions in the market are in a constant state of change. Our declared objective is not only to meet them, but to be a step ahead of the times. For this reason, we have been investing heavily since 2021 in the expansion and modernisation of our transfer belt production facility.



## *Webmover.NewTech*
## *with multi axial base structure*



***Webmover.NewTech* –**
advantages all the way

- 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

Are you interested in the new *Webmover.NewTech* and would you like to know more about its potential applications for your machine? I would be happy to answer any questions personally:

Jochen Pirig
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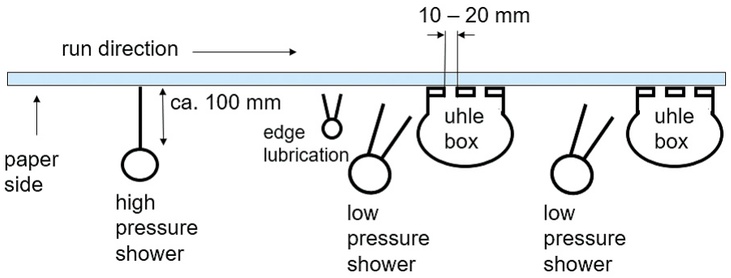
jochen.pirig@heimbach.com

# Felt conditioning done correctly
# Increase lifetime, improve runnability

*Do you know that felt conditioning plays a key role in the increased efficiency of your production?*
*On the other hand, if conditioning is either neglected or incorrectly set up, this can lead to premature removal of the clothing.*
*We often notice that this issue does not always receive the attention that it deserves. For this reason, we would like to highlight some recommendations that can help to keep clothing in good shape for as long as possible.*




## How should the showers be set up?

Generally speaking, conditioning starts with a high pressure shower. If necessary, this is followed by an edge shower. This should then be followed by a low pressure shower and a Uhle box. This order should be strictly adhered to. With this setup, the felt surface is adequately lubricated before coming into contact with the agressive ceramic coatings of the suction box covers. All these elements generally interact with the paper side of the felt.

## High-pressure shower for deep cleaning

Dirt, fines and fillers are introduced into the process via the paper stock, which can subsequently lead to compaction of the felt.
This can result in diminished dewatering over the lifetime of the felt. Numerous settings must be taken into account to ensure that mechanical felt cleaning is effective. The more precisely this is carried out, the more efficient the felt performance.

## Cleaning must be continuous and even

The basic objective is the removal of dirt and deposits from the inside of the felt in a continuous and balanced manner. This needs to be done over the entire length and width of the clothing. It is important to ensure that every square centimetre of the felt is cleaned equally well. If this is not done, it is likely that there will be different levels of contamination and, therefore, different levels of felt compaction.
This can then lead to cross-profile variations in the felt and paper, or can incur locally increased wear. And, last but by no means least, to premature removals.



**The needle jet**

There are several key factors in the correct operation of a high-pressure shower pipe. We would like to draw your attention to two of them in particular: The highpressure needle jet must always be laminar. This is the only way to ensure that the full energy of the jet reaches the felt surface. A turbulent jet that is inclined to break up before reaching the felt will lose energy and therefore be unable to apply its full cleaning power (Fig. 1). We also recommend that a distance of 100 mm from the shower nozzle outlet to the felt surface is respected. We have had good experiences when the needle jet works at a 90-degree angle to the press felt.

**The nozzles**

All nozzles need to be in perfect condition in order to ensure that the felt is evenly cleaned across its full width. They must not be either polluted or clogged (Fig. 2). Unfortunately, this is often not the case in practice. It is for this reason that our service team frequently encounters felts with varying degrees of contamination (Fig. 3). The distance between individual nozzles should ideally be between 100 and 150 mm. The exact distance depends on the required cleaning intensity in the respective felt position. This leads on to another important aspect of felt conditioning: the correct oscillation of the high-pressure shower pipe. In order to reach every single point of the felt with a thin needle jet, the high-pressure shower must constantly traverse across the width. For the most homogenous and effective felt cleaning, a single or multiple of the nozzle spacing should be selected as the stroke.

**As for nozzle quality, two further questions arise:**
What should be the optimum diameter? How high should the pressure applied reach? For some years now, the trend has been towards smaller-diameter nozzles. They certainly offer better cleaning – provided they do not become prematurely clogged due to poor water quality. Diameters between 0,7 and 0,9 mm are common today.



*Fig. 1: Turbulent vs laminar jet*

*Fig. 2: Functioning and clogged nozzles*

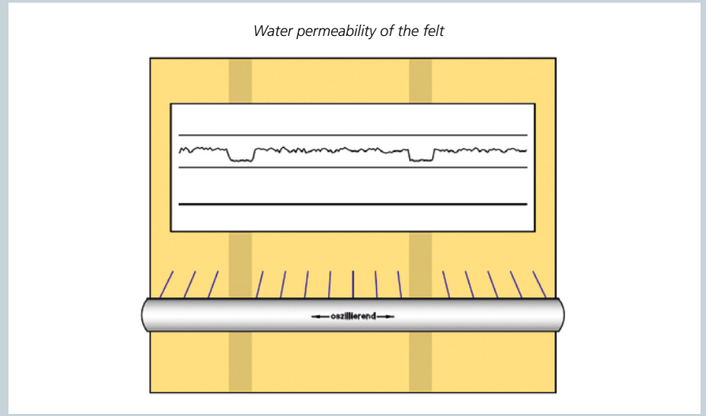



*Fig. 3: Irregular cross direction profile due to misplaced HP nozzles*

**Water quality**
Central to the service life of the shower nozzles is the quailty of water in use. We advise fresh water or alternatively super-clear filtrate. The aim is always to keep the amount of suspended particles introduced into the system via the water as low as possible. Otherwise, there is a risk that nozzles can become clogged or nozzle filters polluted.

**As much as necessary, but as little as possible**
The higher the pressure, the more the stress on the felt surface. Of course, finer fibres will have less resistance than coarser ones. Overall, the felt should be treated under moderate pressure (up to 10 bar) over the first few days with the intensity then increased over clothing lifetime. For continuous HP cleaning, 25 bar should be regarded as the upper limit. For short periods, around 30 bar can be acceptable.

**Ultra-high pressure showers for even better felt life**
The above specifications should not, however, be set in stone. This is because newly developed ultra-high pressure shower systems now promise new opportunities. We have seen numerous positive results on packaging grades when using units with a nozzle diameter of 0,25mm and a pressure of 50 to 160 bar. This has not led to any negative impact on felt wear, but has provided positive results in terms of cleaning – and fresh water consumption.

**Low-pressure showers for lubrication**
With its fan nozzles, a low-pressure shower will introduce large quantities of water to the felt. This keeps the felt moisturised throughout and provides a potent lubricating effect before the Uhle box.

**Uniform water application**
For ideal low-pressure spray shower operation, we recommend that the following parameters are respected: Water should be applied from all fan nozzles with a slightly overlapping jet at a distance of 100 up to 150mm maximum from the felt surface and at a slightly inclined angle to the direction of felt travel. If water is applied unevenly (Fig. 4+5), trouble can develop quite rapidly. First of all, moisture variations will occur in the felt, which will be reflected in moist and dry areas (Fig. 6). The irregularities can be quickly picked up by measuring water content, or in many cases can be seen by the naked eye.

*Fig. 4: Uneven water application due to disturbed fan jet*

*Fig. 5: Uneven water application*

*Fig. 6: Result: wet streaks in the felt*



Wet/dry streaks such as these in the felt rapidly transfer to the sheet, leading to irregular cross direction moisture profiles.

**Slightly overlapping fan jet**
The graphic opposite (Fig. 7) illustrates clearly the importance of an overlap of fan jets. Either no overlap, or too much, will cause irregularities in cross machine profiles.

Dry streaks can, in some cases, lead directly to increased felt wear (Fig. 8+9). This is due to a lack of lubrication and the resulting increased friction over the Uhle box cover. This then can be a cause of premature felt removal.

Unlike the high-pressure shower, the low-pressure version usually does not oscillate. Clear filtrate water is generally used to pressurise the fan nozzles with water.

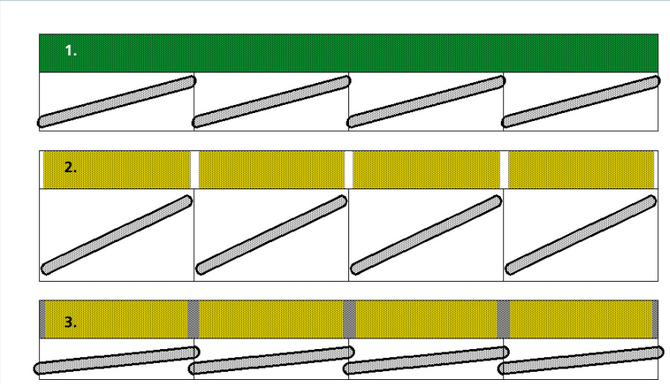



*Fig. 7: 1. Good profile 2. Dry streaks 3. Wet streaks*
*Set-up of flat jet nozzles for an even application of water © PMS*


*Fig. 8: Zonal felt wear visually identifiable in the used felt*

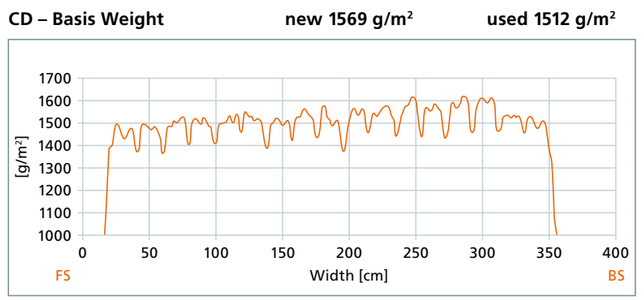



*Fig. 9: Zonal felt wear recognizable in the basis weight profiles taken from the removed felt*

*Fig. 10: Total loss of batt in the felt edge area*

*Fig. 11: Raised edge deckles on the Uhle box*

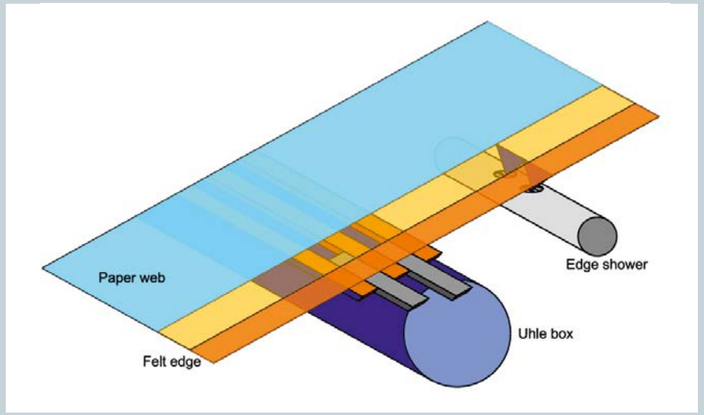



*Fig. 12: Ideal edge deckle settings on Uhle box*

**Uhle boxes for dewatering**
Uhle boxes have the added task of indirectly dewatering the sheet via the press felts. Using vacuum, some of the water transported in the clothing is sucked away by the units. This means high stress for the felt, as it is in permanent contact with the Uhle box due to the set vacuum. We should also note that this happens at speeds up to 2,000 m/min. In this case, contact also means friction, which occasionally can lead to loss of batt from the felt.

**Correct adjustment of the edge deckles**
With the Uhle box, there is always a risk of adjustment errors which could cause the press felt to suffer premature wear, causing early removal from the paper machine.

In the left side example, the felt had to suffer premature removal, as the whole of the fibre batt had been removed in the edge area (Fig. 10). This was due to incorrect setting and positioning of the edge deckles (Fig. 11).

These should ideally be aligned with the plastic or ceramic blades of the suction box. Otherwise, the felt rubs permanently against the edge of the raised deckles and as a result continuously wears away the fibre batt.

Admittedly, that was a great deal of theory. Nevertheless, we do hope that this article will provide you with good support towards a trouble-free production process.

Do you have any questions or would you like more information?

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## Special care with seam felts

We often observe that edge deckles are not optimally set. Just as with the low-pressure shower units, a deficiency like this can lead to uneven moisture – this time in the sensitive edge area of the press felt (Fig. 12). This can become very critical where seam felts are concerned:
Such fluctuations put a lot of stress on the MD yarns and seam loops. As a result there will be risk of seam opening.

## Correct vacuum settings

There is no rule of thumb for the correct vacuum in a Uhle box.
It can be stated, however, that higher vacuums generally lead to higher felt wear. This is one of the main reasons why Heimbach clearly favours nip dewatering at medium and high speeds. In these cases, it is possible to run with a substantially reduced vacuum or even completely shut down with Uhle boxes. This reduces felt wear but also saves energy.

## Replace worn, sharp-edged covers

It is important to ensure that nothing is deposited on the suction box cover that could lead to burn marks in the press felt. Worn or sharp edged covers must be replaced as they can have a negative impact on felt service life.

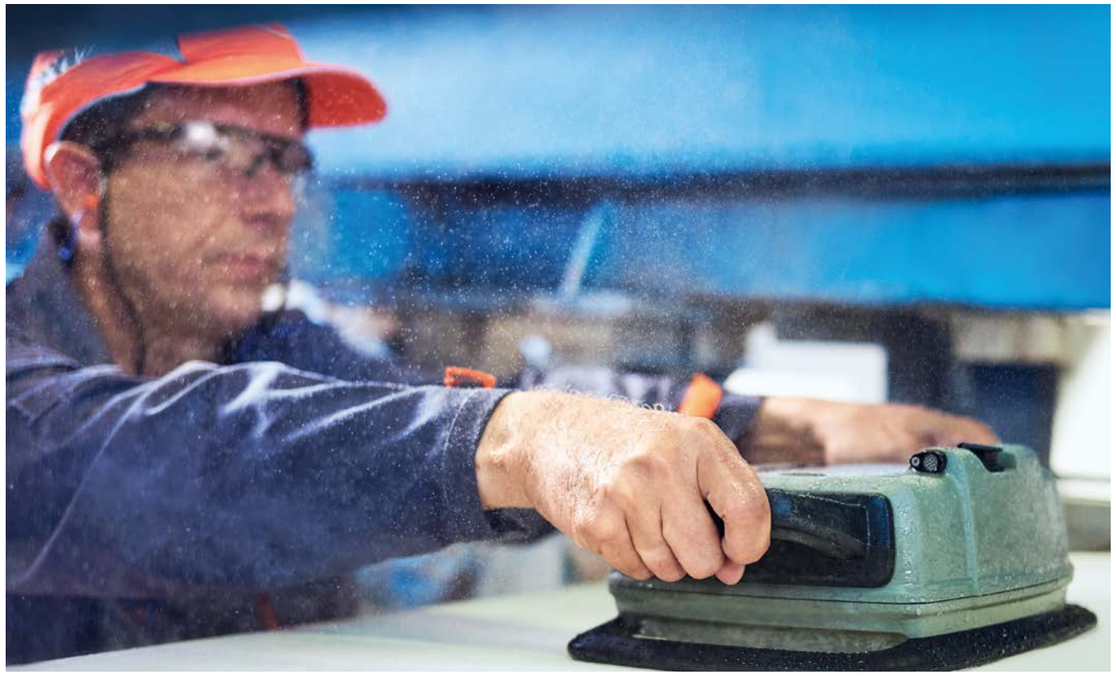
## Slotted or drilled suction box covers?

Slotted covers remain the standard here. It is, however, true that drilled covers have become more popular. As clothing experts, we can certainly see the benefits of this cover design type: be it through reduced felt wear or improved profiles of felt and sheet.

*The following rule applies:*
good conditioning ensures long lifetimes and maximum dewatering.

# Safety first – for all of us!

*Slipping, tripping, falling. Trapping, crushing, burning yourself. The risks directly on the paper machine are omnipresent. You know them better than anyone. In spite of this, operational blindness can creep in quickly when allowed. That is why we would like to present you with a guide to enhanced occupational safety. Easy to explain why, since the protection of all employees is the top priority.*



If you want to get the best out of your paper machine, our field staff and TASK experts are always at your disposal. This includes helping to identify problems at an early stage, support in planned maintenance or rebuilds and avoiding unplanned shutdowns.

The continuous measurement of certain clothing properties can certainly play a key role in this respect. Much of this is now carried out automatically. However, especially with older machinery, this has to be carried out manually. And this means making measurements while the machine is running.

**Risks at every turn**

Quite often the measuring positions on a paper machine are so unfavourable that a „safe“ measurement is not possible. If perimeters or boundaries are missing or incorrectly mounted things can quickly get troublesome. You experience this in your daily work and know that special care must be taken when the machine is running. For one example, even the briefest of contacts with the edge of a forming fabric can cause serious cuts. No measurements of any kind can be taken in the incoming nip. Slipping or tripping hazards due to rolled up hoses, head injuries – the sources of danger are many and varied. Fortunately, dramatic scenarios are rare.

**Accident prevention using the safety sheet**

Nevertheless, even a single accident is one too many. That is why it always makes good practise to thoroughly assess the situation in advance. This is especially true bearing in mind that every plant is individually configured. It is not possible to apply standard procedures here, and every job is special.

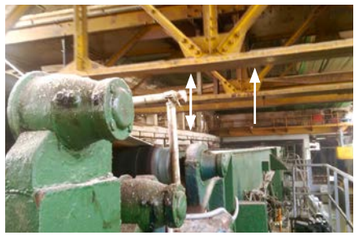
From now on, we will support you in this task by means of a safety sheet. This checklist is filled out during a prior on-site inspection and we then share the results with you. It can be extremely helpful in better classifying dangers and taking appropriate measures. This applies whether we are carrying out routine inspections with our field staff or troubleshooting with TASK.

Maybe the safety sheet can serve you as an aid in accident prevention without the need of a direct service order. As we said, routines creep into daily life all too quickly!

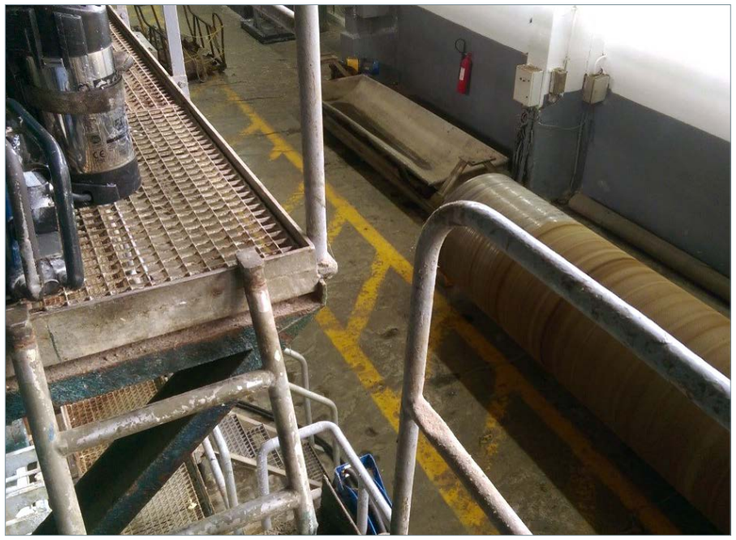



*The topic of safety is ever present at Heimbach - even our screensavers call for caution*

*Risk of slipping*



*Risk of impact*



*Risk of falling*

**Setting the best example**

By the way: Our employees have been trained internally using occupational safety software since 2022. Using individually assigned software modules, all employees receive a wide range of specific further training so that they themselves can set the best example when it comes to „safety first“.

You can find out more about how we prevent accidents and promote the health of our workforce today and in the future in our latest sustainability report:

# 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 four more committed Heimbach colleagues to you today.*

## Shari Klinkhammer

**Role/Position:**
Dispatch clerk
**My professional background/training:**
Training as an industrial clerk
**I have been with Heimbach since:**
August 2019

**My tasks are:**
Shipping management and letter of credit processing
**The best thing about my job is:**
The flexible working hours and the relaxed interaction among colleagues
**I have a weakness for:**
My cats
**In my free time I enjoy:**
Cooking and trying out new recipes

## Abel Alonso

**Role/Position:**
Applications based at Heimbach Ibérica
**My professional background/training:**
Chemical Engineer
**I have been with Heimbach since:**
2014

**My tasks are:**
Tailoring the appropriate product designs for each individual customer.
**The best thing about my job is:**
That every day brings with it new challenges.
**I have a weakness for:**
Chocolate and sweets of any kind.
**In my free time I enjoy:**
I have two small children who frequently challenge me in my free time with outdoor activities (football, cycling, running), for example. I also enjoy reading books with them (made of paper, of course).



## Christophe Rogeboz

**My tasks are:**
My job is to help papermakers to get the best out of their paper machine.
**The best thing about my job is:**
The high level of personal responsibility in the fulfilment of my tasks.
**I have a weakness for:**
Morbiflette, a typical winter meal full of cheese.
**In my free time I enjoy:**
Since my childhood I have tried all types of cycling: Road bike, mountain bike, BMX... Today I prefer to spend time with my family.

**Role/Position:**
Sales and Service Engineer East of France
**My professional background/training:**
Apprenticeship as papermaker, Master's degree in paper engineering
**I have been with Heimbach since:**
January 2022

## Urban Kohler

**My tasks are:**
Developing and implementing various service strategies, providing advice and training to field service personnel, evaluating service-related information, optimising measurement reports and application software.
**The best thing about my job is:**
The cooperation with colleagues and customers! If problems are solved in a team, I get a feeling of great pride and satisfaction.
**I have a weakness for:**
Paper machines and Lego. If there was a PM made of Lego, I would be the first in line to buy it.
**In my free time I enjoy:**
Spending time with my family, of course. I also play guitar in a rock band.

**Role/Position:**
Strategic Product Manager Service
**My professional background/training:**
Papermaker / Industrial foreman
**I have been with Heimbach since:**
01.01.2008

# When it comes to performance

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