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ISSUE 1/2019

Forming Fabrics

What you should know

Machine vibrations

A tricky case for TASK

Open to new concepts

An interview with Hamburger Rieger

Don’t count paper out yet!

There is a future for print!

Technical Textiles

Specialist solutions for diverse applications

Heimbach’s Belgian site has always been geared to meeting highly demanding customer requirements. In addition to special felts and dryer fabrics for the paper industry, textile fabrics are also produced for a wide variety of applications and industries. In our interview, Dr Ralf Kaldenhoff describes the fascination, challenges and future plans for our Technical Textiles business unit.

For more information, please see page 8.

Heimbach-TASK

Process expertise and tailored solutions

Even small improvements in and around the paper machine can often release great savings potential. Your profits can be enhanced by maximising production efficiency and keeping maintenance costs to a minimum. Place your trust in our technical know-how and sound service competence that provide effective support in optimising your processes.

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- Speed Measurement
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Dear customers,

The challenges facing the Paper Industry will certainly not diminish as we go forwards. That much is certain, whether we are talking about the sourcing of raw materials, rising pulp prices and above all progressive digitization. Constant re-thinking and adaptation to current market conditions is a daily part of our business.

And yet, the industry always gives rise to optimism. Plastic is being continuously and increasingly replaced by cardboard, alternative raw materials such as bagasse or grass fibres are becoming more prominent and creative minds are constantly finding new fields of application: furniture, building materials, fashion, leisure, logistics, agriculture and more. There is hardly an area that would not be suitable for paper.

As versatile as paper, we should also not forget technical Textiles. In our interview with my colleague Dr Ralf Kaldenhoff, you can read about the challenges, opportunities and perspectives in this wide-ranging and growing market, as well as the specialized paper industry products manufactured at our Belgian site, Heimbach Specialities.

Important as it is to react flexibly and in good time to changing trends, dialogue with yourselves, dear papermakers, is equally decisive. An example of how a close and established partnership leads to success for both sides can be found in our interview with Mr. Friedjof Kulling, Production Manager Spremberg Paper Mill on page 16.

Enjoy your reading.

Peter Michels

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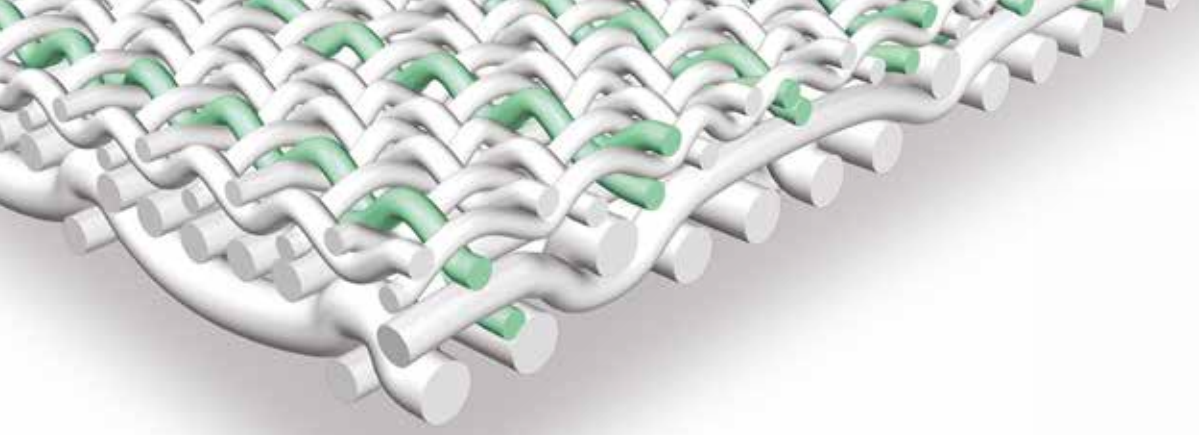


Forming Fabric

Drainage and performance – getting it right!

Fig. 1: Air permeability tester

The product portfolios of forming fabric suppliers have grown considerably over the years. In particular the introduction of SSB fabrics, taking the place of most double layers, has seen the number of design options available to papermakers mushroom. The outcome of this is that the extended and interesting choice comes with the greater risk of making wrong selections. The days when the decision for papermakers was a case of "either" / "or" have gone. At that time the available options were few and many papermakers often made their comparisons and choices based upon the simple value of air permeability. The use of air permeability alone is no longer advisable. This means that Product Managers today must have a detailed and thorough understanding of their design portfolio, together with a deep and precise awareness of the complexities and requirements of every application in which they are involved. In this article, we take a look behind the scenes at the key characteristics and parameters that drive forming fabric design choice and explain these in layman's terms.

Air permeability – exploding the myth

The example of air permeability is very relevant here. The terminology has been in use since single layer times and to many papermakers it has always been the holy grail. Thoughts have in some cases become fixed that a particular machine or position can only run with a specific air permeability. This may have been the case in the past but today Heimbach, for example, has developed various fabric types that dewater very differently – but which may in some cases have the same air permeability. It is clear that not all of these designs would successfully run on a particular application, even if the air permeability recorded is identical. The very term air permeability has become fundamentally unreliable as a barometer of forming fabric performance even though it is a number regularly quoted as critical on specification sheets.

What you want and what we measure

In reality what we actually NEED to measure when considering how a forming fabric will dewater could be described as: "the force required to push several thousand litres of water, fibre and filler through a porous fabric at pressures from 3mm H_2O up to 7m H_2O when the holes in the structure are filled with fibre/filler and the fabric is rotating at 100 km/hour!" What we ACTUALLY measure using industry-standard equipment (see Fig. 1) is: "The amount of air to pass through a 30mm diameter specimen with 12,7mm H_2O pressure drop". Alarm bells ringing maybe? As an easy illustration of the potential for error, take a look at the two fabrics shown below (Fig. 2). One is coarse, the other very fine, yet both fabrics have the same air permeability. As a number, therefore, it is no longer relevant on its' own.

Modern design selection

Today's forming experts will first look at machine, grade, speed (as well as process parameters such as drive load, retention aid use etc.) giving a first idea of whether a Coarse/Heavy Duty, Fine or Superfine design should be used. This determines the range of FSI (Fibre Support Index) and void volume. Analysis of dewatering factors would then come from a balance of Air Permeability, Drainage Area, Caliper and FSI. We already have seen that a high permeability fabric with low drainage area may have the same dewatering potential as a low permeability design with high drainage area. This is, therefore, where the skill and knowledge of the product manager is needed to ensure a perfect fit every time. Let's now take a deeper look at those key terms and parameters in order to understand what they really mean.

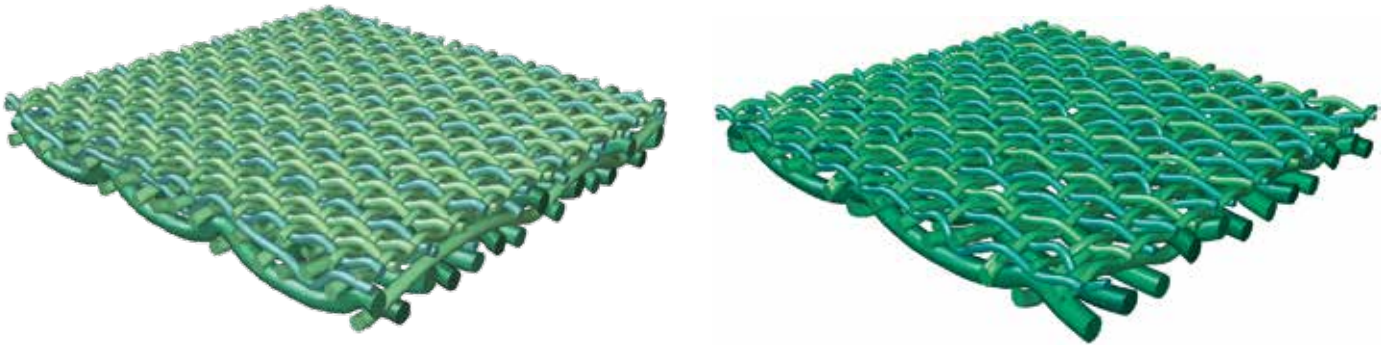


Fig. 2: Fine and coarse fabric with the same air permeability

Drainage Area

This is an important number in the context of determining how effectively a forming fabric will dewater! In essence, drainage area is a two-dimensional measure of the holes in the top (paper side) of a forming fabric expressed as a percentage of the total area. So, in Fig. 3 the orange area of the holes is around 30% of the total area. The easiest way to understand this is to think of a sieve (Fig. 4). If the holes are bigger or there are more of them then it will drain the liquid faster. In this case the drainage area would therefore be quoted at 30%. On its' own, this also is not a reliable guide as to design performance on a specific paper machine. Since it is just a %, a very coarse fabric structure may have the same calculated drainage area as a very fine structure (see Fig. 5). In this graphic the grey squares represent the holes in the paper side of the fabric structure. The larger holes are easier to clean, for example, but worse in terms of capacity to retain fibres or fillers. On the contrary, the smaller holes would be much more efficient at retaining fibre/fillers, but may be more problematic to clean. Everything, of course, comes down to compromise to a certain extent!

Caliper

This at least presents us with an easy number to understand. Quite simply the thinner the fabric the lower the amount of time required for water to pass through the structure. This would then increase the dewatering capacity of the structure. When dealing with higher machine speeds the impact of caliper and therefore the speed with which the forming structure can handle water becomes greater. It comes as no surprise, therefore, that on tissue machines and graphic paper machines running at speeds above 2,000 m/min one of the key parameters considered in design selection is the fabric caliper.

This number also impacts on dewatering performance, but also influences other issues such as machine runnability and power consumption. Simply put, the void volume of a forming fabric is the amount of space in the total volume of a structure not occupied by solid material – yarns in the case of a forming fabric! Water must pass through this area during the dewatering process and, depending upon fabric design, machine type and speed can be carried by the →

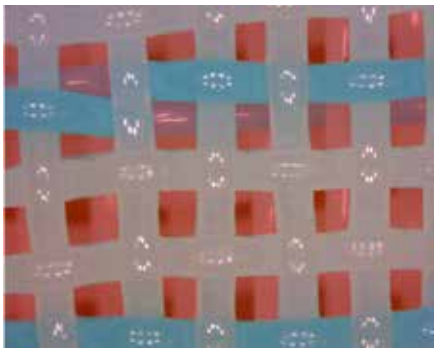


Fig. 3: Drainage area of a forming fabric

Fig. 4: The larger the percentage the faster it will drain

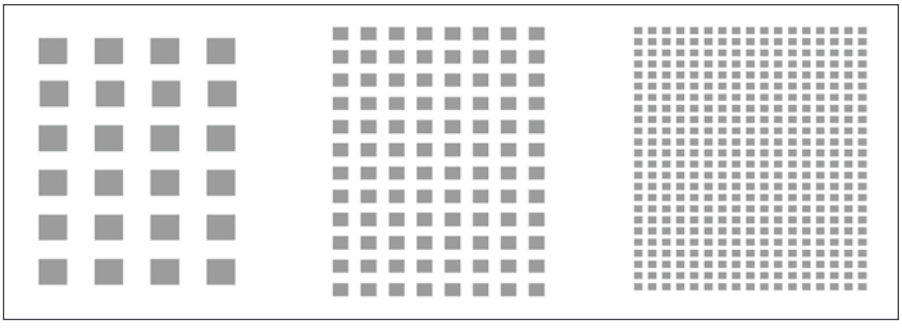


Fig. 5: Illustration of a coarse, fine and super fine fabric with the same % drainage area

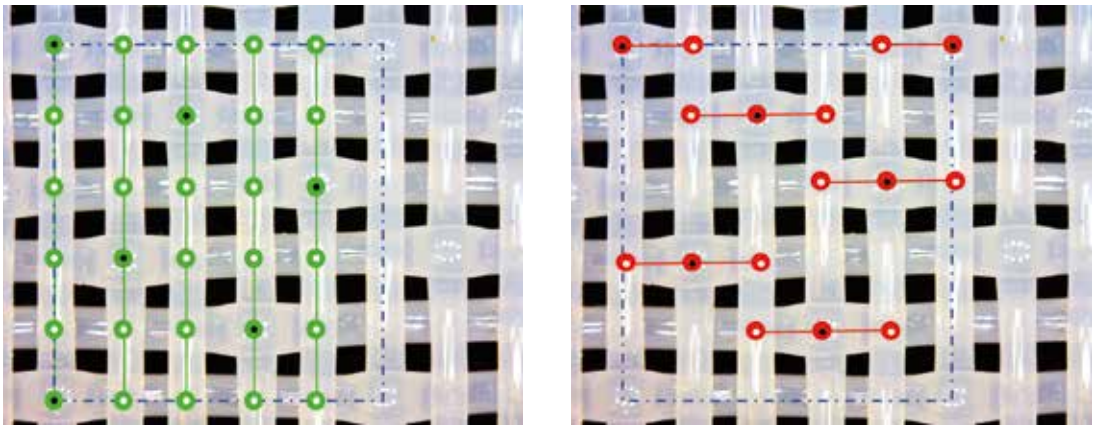


Fig 6: Support points in machine (green) and cross machine direction (red)

fabric around the machine loop. Increases in void volume may lead to an increase in drive load with large volumes of extra water to transport around the loop. On shorter machine loops and top formers, this would also carry a risk of water throwing. As a general rule, reducing caliper would reduce void volume.

Fibre Support Index (FSI)

A term that will be seen on almost all specifications sheets! This dimension-less number was designed to provide a means to compare forming fabrics in terms of how well a particular design supports the paper web. In general, the finer the forming fabric, the higher the number of yarns contained. Where FSI is concerned, the greater the number of yarn knuckles on the paper side of the structure, the higher this number and the lower the possibility that fibres will embed into the fabric. A critical assumption with this index is that the cross direction has more influence on the fibre support than the machine direction (see Fig. 6). This is reflected in the FSI calculation with MD yarns having a factor of 1 and the CD yarns having a factor of 2. Over time, FSI has increased as new machine types and forming fabric designs are introduced and as the demands of customers for better paper quality and machine runnability have grown. The growth has slowed in recent years as levels have approached maximum potential. (see Fig. 7.) As we stand, conventional ranges would be from 100-130 in heavy duty, coarse designs (HD*), 150-180 for finer types (F*) and 180-220 for the superfine varieties (SF*).

Wear volume

Although this number does not affect dewatering performance it is another essential parameter of fabric suitability for a given application. With each and every revolution, a small amount of machine side yarn material will be removed from the underside of the forming fabric up until the point where the structure can no longer safely remain on the paper machine. The speed of this process is

*Heimbach Design-Portfolio

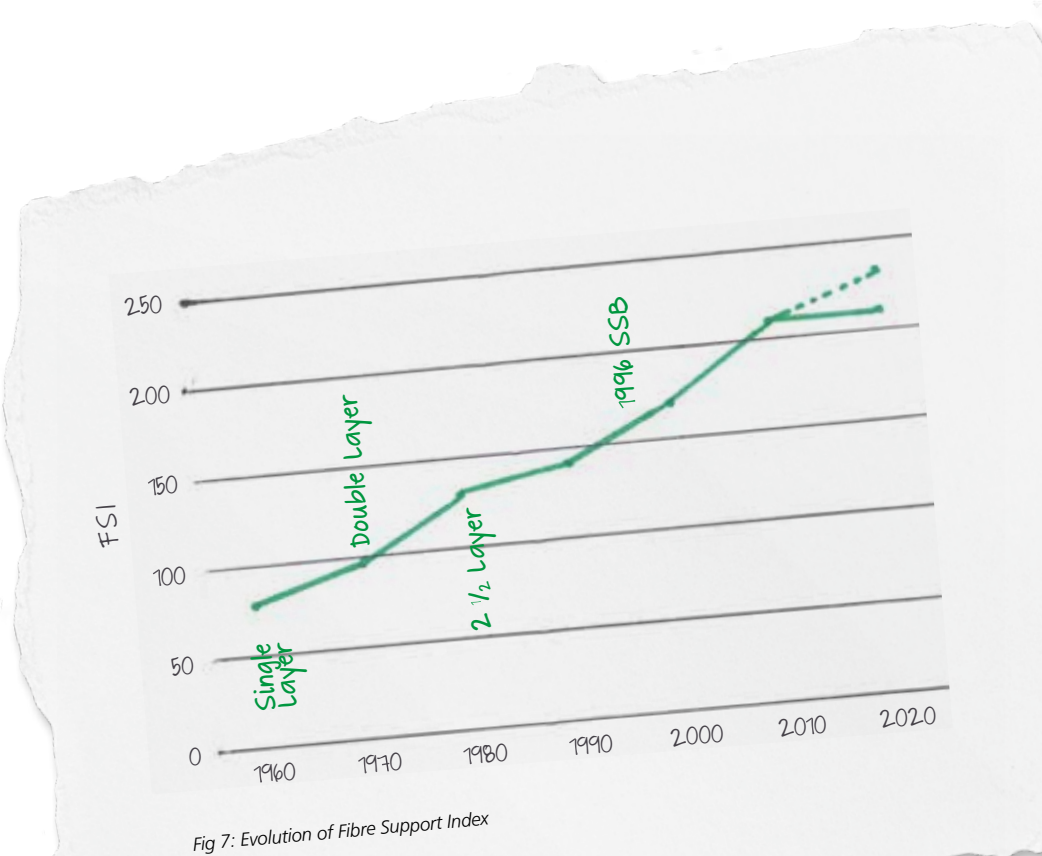


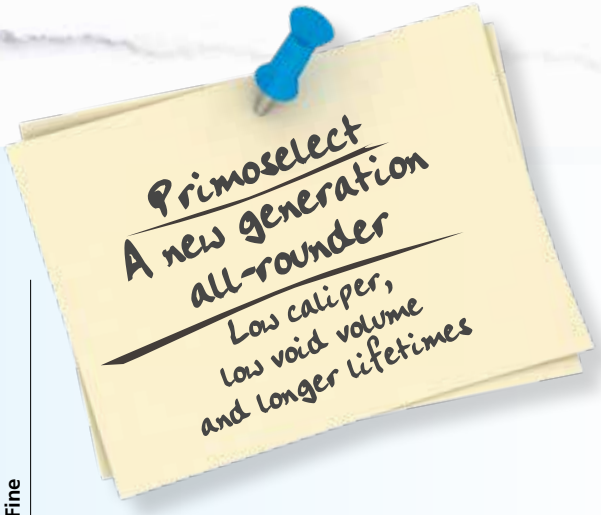
Fig 7: Evolution of Fibre Support Index

highly dependent upon furnish and machine type. Wear volume can be increased by increasing yarn diameter or designing in a longer machine side float to offer more material up for wear. Increasing wear volume will normally lead to longer lifetimes (see Fig. 8).

Art or Science

Though in earlier times forming fabric application may have been considered an art, the plethora of new and critical numbers and parameters to quantify performance now means that science has been well and truly introduced. Of course, there is room for artistic license but measurements and indices play an increasingly important role. Heimbach is among the suppliers who have introduced computer programmes and performance simulations to further intensify the search for the ideal choice for every position. This would certainly be a separate subject for exploration. Suffice it to say here, that a combination of individual portfolio knowledge and experience, combined with a thorough understanding of machine layout, chemistry and quality requirements will go a long way to ensuring that our key objective – Getting it right first time, every time – is achievable.

Fig. 8: Higher wear volume



Product	Suffix	Design	Pulp	Board	Fluting	Kraft	Fine	News	Magazine	Magazine coated	Extra Fine	Tissue
primoplan	HD	Double Layer		✔	✔	✔						
primoplan	F	Double Layer		✔			✔					✔
primobond	HD	SSB		✔	✔	✔						
primobond	F	SSB		✔		✔	✔	✔	✔	✔	✔	
primobond	SF	SSB					✔	✔	✔	✔	✔	✔
primocross	SF	SSB					✔	✔	✔	✔	✔	
primoselect	HD+	SSB (new)		✔	✔	✔						
primoselect	F	SSB (new)		✔	✔	✔						
primoselect	SF+	SSB (new)					✔	✔	✔	✔		✔

primoselect.HD+

primoselect.F

primoselect.SF+

Heimbach's product portfolio for the forming section offers many and diverse solutions

Technical textiles
Challenges and opportunities

Heimbach Specialities was founded in 1874 (originally as R. Bruch & Cie) in Neu-Moresnet, Belgium, for the manufacture of felts for the paper industry. Over the last 25 years production has developed and become orientated towards highly specialised press felts and dryer fabrics for the paper industry with an additional focus on specialised technical textiles and conveyor belts. High-performance textile products are now being produced that are able to satisfy the most diverse requirements of the timber processing and chemical industries, the construction and plastics industries as well as the food industry. We interviewed Managing Director Dr Ralf Kaldenhoff at our Belgian site.

Dr Ralf Kaldenhoff has led the Technical Textiles business unit for more than 20 years

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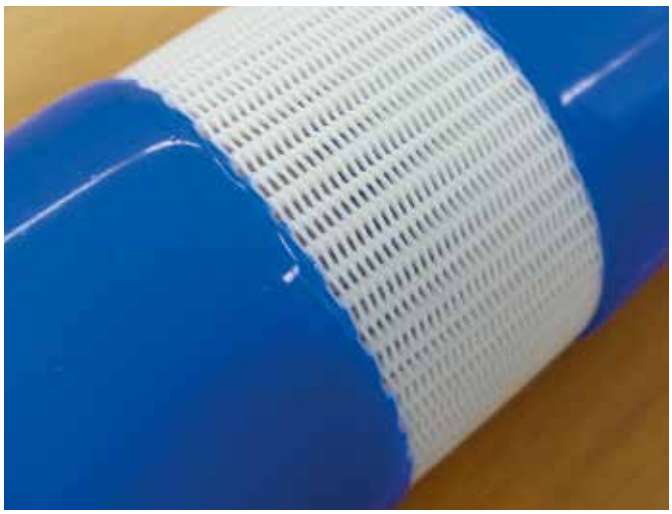
Dr Kaldenhoff, let's talk about technical textiles.

Dr Kaldenhoff

A fascinating topic, at least for me. Although our products are not normally the main factor in the customer's production, they are often the key to a frictionless process. Our task is to determine the applications that make production as efficient as possible. We have a wide range of technologies at our disposal, a very extensive array of machines and, due to our long history, a lot of know-how. In most cases we do not invent completely new products but combine suitable fibre raw materials, textile fabrics and other modules and put this overall textile concept together according to the individual wishes of the customer – comparable to the fabrication of a tailor-made suit.



Coated spiral fabric

Pasting belts for the production of lead batteries

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What is the philosophy that underpins your actions?

Dr Kaldenhoff

Today more than ever, it is important to focus on fulfilling individual customer requirements. And this is especially applicable to our Technical Textiles business unit: There are no "off the shelf" products. We see ourselves as partners of our customers and search persistently for the optimal solution for their process and transport problems. A pre-requisite for this, of course, is that we must begin with the need to understand the individual steps in the customer's process in order to be able to work out the specific demands on our technical textile and the possible improvement potential that its use can bring. This is the foundation for the construction of our technical textiles. We are always particularly successful when we deliver a measurable added value to the customer by using our products.

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Can you give me an example of this?

Dr Kaldenhoff

Conveyor belts with seam closing come to mind straight away. In contrast to using endless belts it is no longer necessary to disassemble and reassemble the production machine when the time comes to change and install a new belt. Within a short space of time the initially open conveyor belt with closing seam can be joined while in the machine and shut times as well as production stoppages can be reduced considerably.

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How do you develop new applications for your products?

Dr Kaldenhoff

We are inquisitive and keep our eyes peeled at all times. Even with regular customers we look at the other facilities and processes in their operation. Wherever products need to be transported under the most varied operating conditions, say for example that they must be easy to remove and without markings, there will be potential openings for our technical textiles. It is self-evident that we have to understand the "language" of our customers, which means knowing the specific specialist terminology, and that we are able to comprehend new complex processes quickly.

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What are the core segments of your turnover?

Dr Kaldenhoff

Our products for the timber-processing industry represent an important segment for our business. These are conveyor and ventilation belts for plaster board production as well as press pads, used in the production of laminate floorings and furniture boards. Over and above this, our strengths lie in specialised belts for textile equipment. We occupy a leading position in impregnated pasting belts for the production of lead batteries. And let's not forget the most "spectacular" application: arrester tapes to assist in the deceleration of jet planes on landing. This shows in a particularly impressive way the enormous forces that our high-performance textiles must withstand and what our specialist multi-layer woven fabrics can achieve.

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How do you assess the future prospects for your business area?

Dr Kaldenhoff

The market research forecasts are very positive. There are almost limitless application opportunities for technical textiles. As I always say: We offer solutions for numerous problems that we are not even aware of yet. Technical textiles are able to offer enormous versatility and functionality because of the ability of fibre raw materials and mixtures, yarn materials, different textile production technologies and finishing with plastic coatings to offer an almost unlimited number of characteristics. The challenges on the one hand are finding the suitable design and/or →

Spiral closing seam in a transport belt for the food industry

Process belts for the food industry

the suitable solution for the relevant application, and on the other finding the application problem that can already be resolved by our existing technical textiles.

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This also implies that your products must fulfil many different requirements, doesn't it?

Dr Kaldenhoff

Yes, and this is what makes our business so exciting. Let's just take a look at the food industry where our textile products must conform to high standards of hygiene. There are always new requirements, standards and certifications that must be fulfilled or complied with. In the paper industry specific characteristics are required to successfully control dewatering on individual paper grades, whilst in the fibre cement board industry the demands are for long lifetimes in high-stress situations.

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The pace of innovation of technical textiles is enormous. How does Heimbach react to it?

Dr Kaldenhoff

By means of regular exchanges about current activities with our colleagues from within the Heimbach Group and our Technical Textiles business area (Heimbach Specialities in Belgium, Marathon Belting in England, Industrie Tessili Bresciane in Italy). Also through collaboration on certain projects and by continually investing in research and development. In parallel we collaborate with national and international external research organisations and institutes. Attending specialist trade fairs and trend-setting fairs – such as the iba for specialist bakery equipment, or the Anuga FoodTec for the food and drinks industries – is essential in order to pick up new ideas and developmental trends and deepen existing relations with potential users.

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At your site in Belgium you also produce for the paper industry. What is the focus of your efforts?

Dr Kaldenhoff

We have always been closely linked to the paper industry. Since the beginnings we have been producing press felts and dryer fabrics not producing fabrics and felts not only for the paper and pulp industries, but also for sludge dewatering. These are areas that will undoubtedly remain attractive and provide growth in the future. The name of our company stands primarily for meeting the challenges of specialities and also for a commitment to the development of tailor-made solutions. When the demands on paper machine clothing are particularly high in terms of type and surface characteristics – such as clothing for the production of artists' or banknote paper – our products have proved very effective. Seams and surfaces free from markings are a must for refined paper grades. In other cases the requirement is for a defined surface structure of the paper. For such applications we produce special marking felts.

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Let's talk about food-compliant textiles, another core competence of Heimbach Specialities.

Dr Kaldenhoff

That's correct. We have many years of experience in this area and offer tailor-made belt solutions for a wide application spectrum. For example, our belts for the baking industry must be able to absorb a certain amount of humidity and pieces of dough must be easy to remove from the belt surface. Moreover, the belts must permit easy cleaning and seams and edges must be very wear-resistant. Of course we conform to the latest EU standards and for some products even the American FDA specifications. And to make the connection to the paper industry: food-safe packaging, minimising mineral oil migration, barrier layers – these are topics that will keep us even busier in the future.

Protective cover for lifting ropes

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What new products or application fields are you focusing on at your Belgian site?

Dr Kaldenhoff

Amongst other things we are very active in the timber-processing industry. As I said earlier, many products are not so much new inventions as further development of established products. So at the moment we are developing optimised press pads for the manufacture of new, particularly durable compact boards. In addition we are working on innovative process technologies for applying coating to conveyor belts that must withstand strong mechanical pressures during use (such as die cutting belts).

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Let's take a look at the other sites of your Technical Textiles business area. Is each company a specialist on its own?

Dr Kaldenhoff

Yes, very much so. And here the overall strength and wide field of products and services under the Heimbach umbrella become obvious. I've already spoken about the core competence at the Belgium site.

In England we produce predominantly heavy duty multi-layer fabrics, heavy duty belts, and textile protective sleeves for lifting ropes and slings. In Italy we specialise in felts with highly marking-resistant surfaces, in silicone-coated or – impregnated felts and belts that can be produced with a polished surface if required. Endless felts with very small circumferences (diameters down to approx. 10cm) can also be produced. The companies that operate within the Technical Textile business area work independently, with their own products, in established markets and at the same time they benefit from the effectiveness of the whole group. In some areas a common distribution network is used worldwide. It is a clear advantage that our group is highly versatile, and that it employs a variety of technologies, collaborating with experts that possess great know-how. This is why we are able to react to market developments quickly and flexibly.

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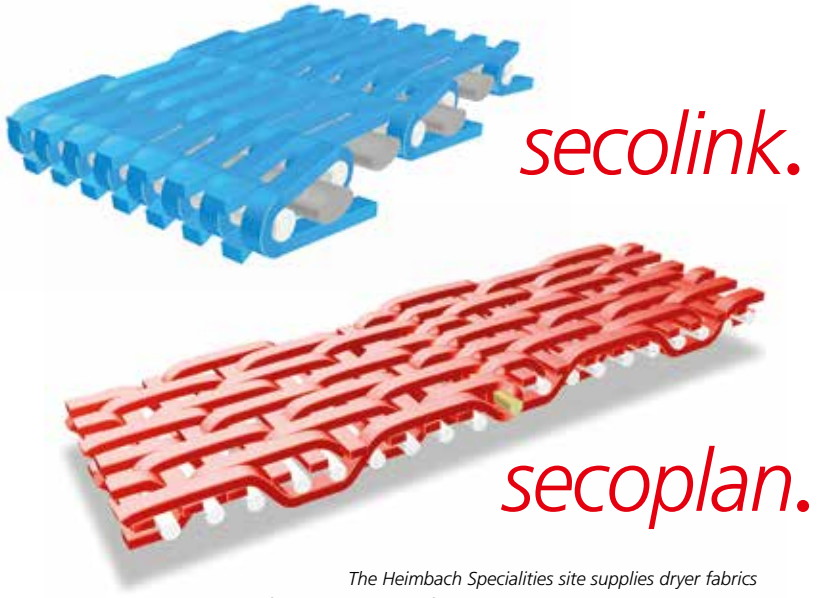
Dr Kaldenhoff, to bring our interview to a close, a question as to your hopes for the next few years.

Dr Kaldenhoff

The market for technical textiles is growing and offers great opportunities. We, too, want to keep growing. With our technical textiles we specialise in niches and we will continue our intensive search for new applications and cooperation partners who complement our areas of activity in a meaningful way. The demands placed on us by the various industries that we serve are in part similar and sometimes even the same. Often it is a case of transportation, dewatering or drying of materials. And this is where our motivated team comes in!



The Heimbach Specialities site supplies dryer fabrics for the production of speciality papers, among other products

Problem solving and profitability
Better quality – higher productivity

Together with some colleagues from TASK, I set off from Heimbach recently to visit a customer producing fluting and linerboard. He had reported significant vibrations across the machine and also complained of barring in the paper. In addition, it was also proving very difficult to meet planned production volumes, a result of being forced to run the machine at significantly lower speeds than normal. It had not been possible to detect any causes for the reduced production speed and barring using on-machine measuring and control technology. This was, therefore, a clear case for Heimbach-TASK involvement. In this article you can see how it was possible, using a combination of proven measuring methods – in particular, ODIN, vibration measurement and hood balance – to locate the source of serious problems.

Right from the start, it was clear to us that not only was the job in hand particularly tricky, but that swift action was essential. Our customer was not only dealing with quality problems, his production capacity was also limited. There was no time to waste and therefore we immediately launched several measurements simultaneously to kick off what was a comprehensive investigation. On a step by step basis we looked at the paper web in the individual sections of the machine using our ODIN equipment. We worked against the machine direction (starting at the reel) to identify the source of the barring through an exclusion process. More on that later!

First irregularities

During the first measurements in the forming and press section, everything appeared to be in perfect order. Our drainage analysis in the forming section showed no abnormalities and the jet speed (jet-wire-ratio) was also satisfactory. Routine felt measurements. Routine felt measurements with Presstuner and Feltperm determined the water content

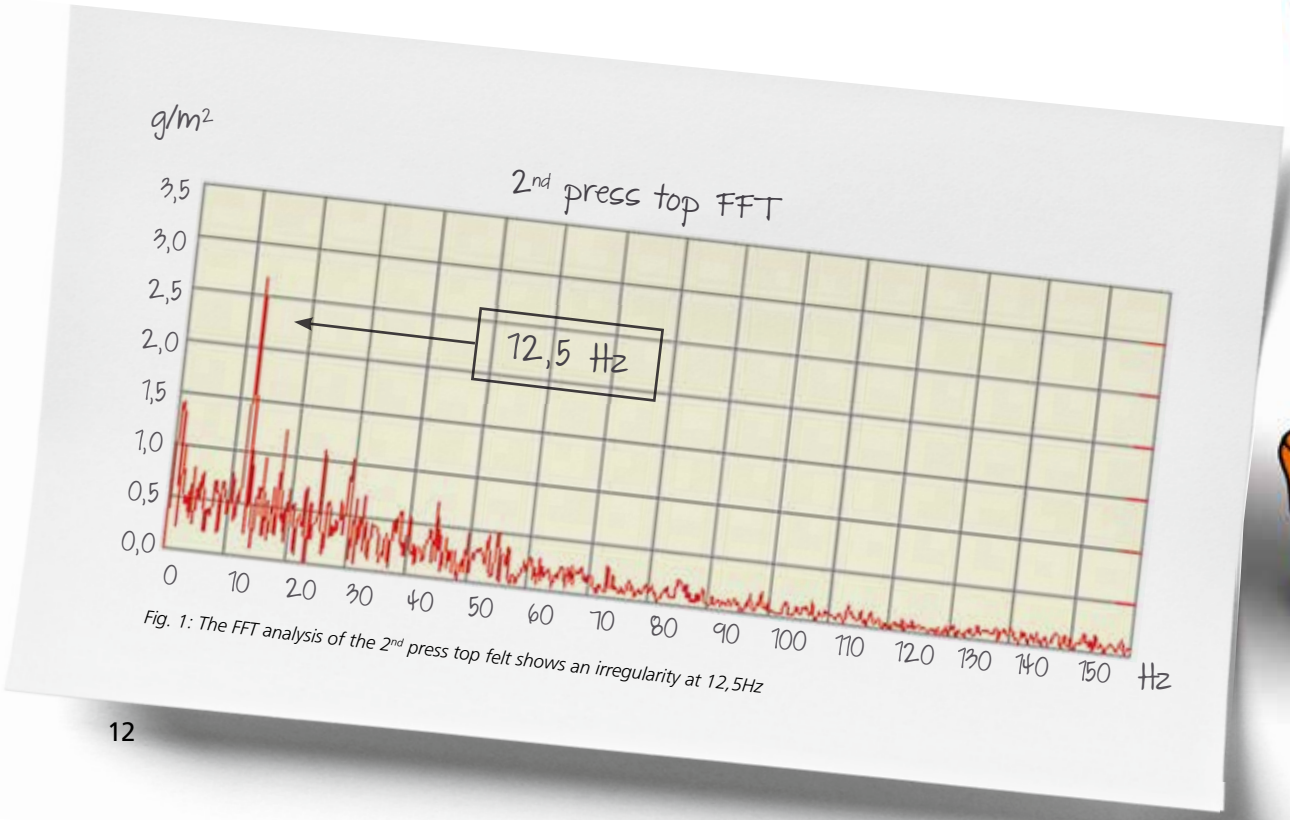


Fig. 1: The FFT analysis of the 2nd press top felt shows an irregularity at 12,5Hz

Photo 1: The ODIN fork in use – directly behind the head box

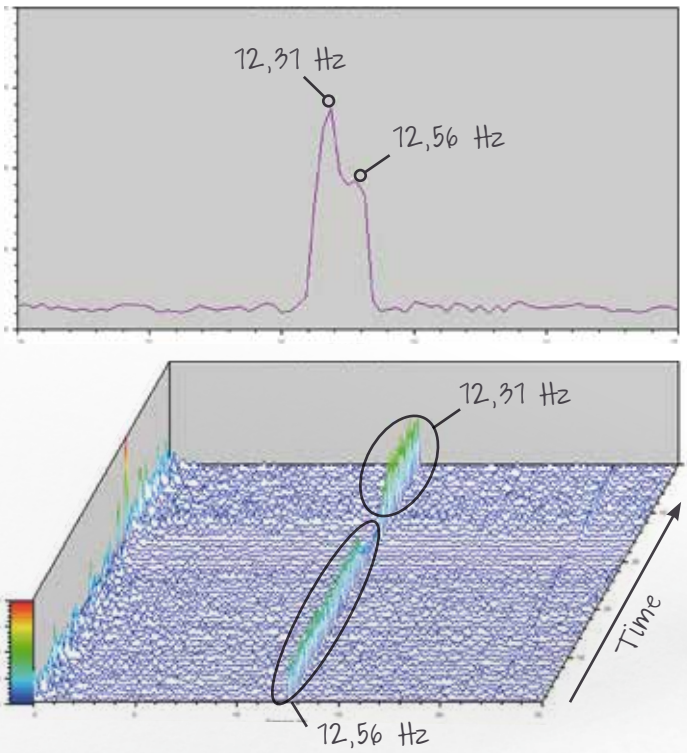
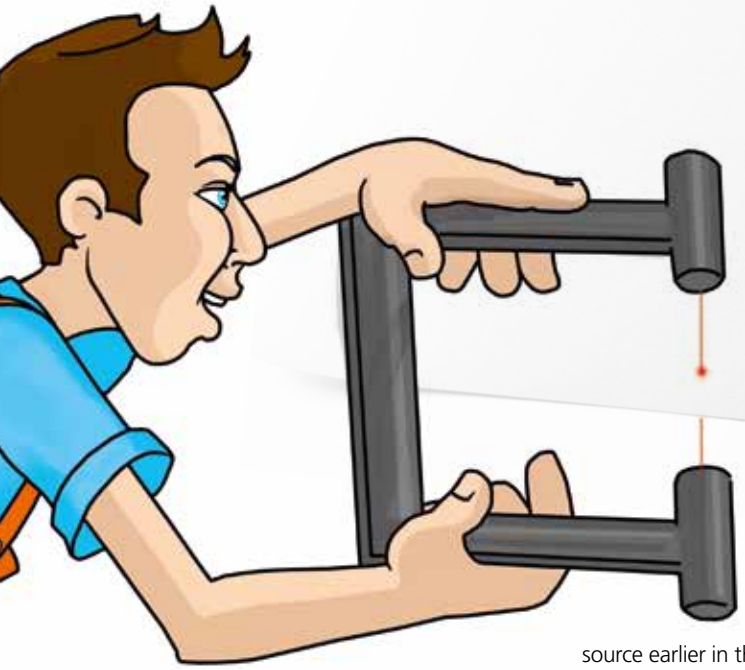


Fig. 2: Barring frequency is directly influenced by the machine speed



and permeability of the press felts. It was here that we found the first clue: In the second press top felt, our FFT analysis of the water content showed an MD irregularity at 12,5Hz (see Fig. 1). We then placed our Odin measuring fork (please see our article in Impressive 2/2018) directly in front of the reel. Lo and behold! A barring was recognizable, and the deviation was also at the same measurement, 12,56Hz. As we set about identifying the origin of the mass variation we chose some upstream measuring points. Both before the suction couch roll and immediately after the headbox (see photo 1) we found the same disturbance frequency at 12,56Hz.

The fault must have its' source earlier in the production process (so we thought at the time) or in the machine components or within the vacuum system of the wire section. We then retreated from the headbox step by step. We looked at everything that affects the wire section: every pump, the pressure screens, even the rotation frequency of the propeller in the pulper. The cause remained undiscovered.

On the track of barring

In order to be certain that the barring frequency stayed at a constant 12,56Hz for a longer period of time, we did a 30 minute continuous measurement – with exactly the same results. We modified the tension of the forming fabric and still saw the same barring frequency. What surprised us most, however, was that the frequency disturbance of 12,56Hz remained unchanged even when we varied the jet velocity. We could therefore rule out that the cause of the disturbance was directly related to the fan pump. If this had been the case, we would have recorded a different frequency after changing the jet speed. Could the mass variation ultimately be related to machine speed? We lowered the speed by 10 m/min. This was a direct hit: The frequency of the barring changed from 12,56Hz to 12,31Hz (Fig. 2). As we proceeded to increase the speed again, the frequency changed proportionately. My colleague and I could now be sure that the barring originated from the machine and was therefore influenced by the machine speed. Next question: where could we find the cause for this? →

Photo 2: Vibration measuring equipment. Data transmitted by telemetric system

Photo 3: Position of the accelerometer on the 2nd press top roll

Heavy vibrations

We noticed very strong vibrations in the press section. Could it be possible that these were the cause of the barring in the sheet? Vibration measurements on both presses showed that, while the first press vibrated, it did not exhibit any serious abnormalities. We then transferred our equipment to the second press (see photos 2 & 3). The counter (CC) roll of the shoe press, as it were a deflection-compensating roll, was generating 5 beats per rotation. It was causing the entire press to oscillate (see Fig. 3) and these oscillations transmitted through the frame and machine foundation to the wire section. We were even able to feel the vibrations in our own bodies and were actually shaken up by it! For now, let us just say that the damage to the CC roll was causing a lot of vibration and this was the cause of the barring. It would have to be changed as soon as possible.

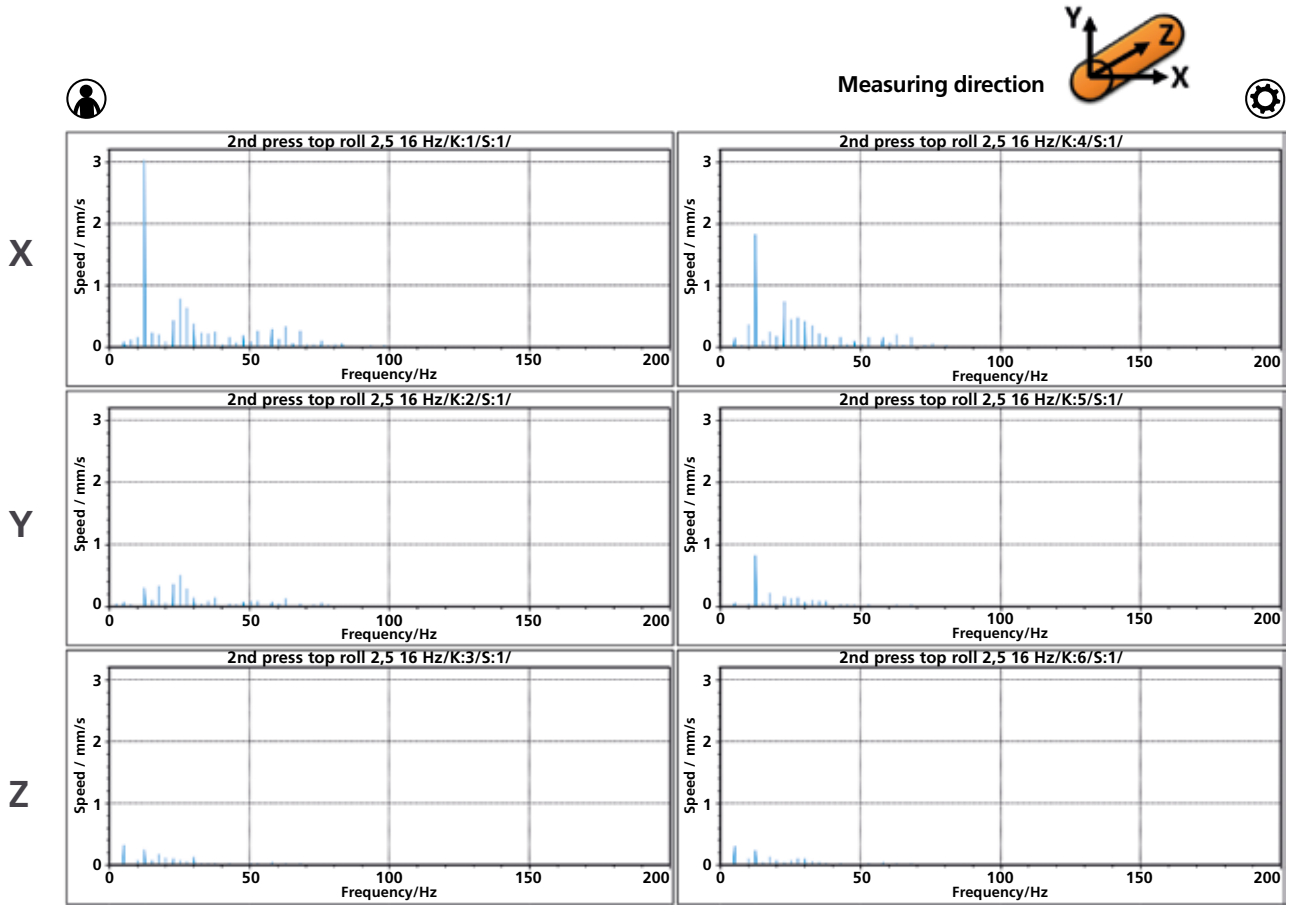


Fig. 3: The oscillation velocity in the cross direction shows a higher amplitude at 12,56 Hz

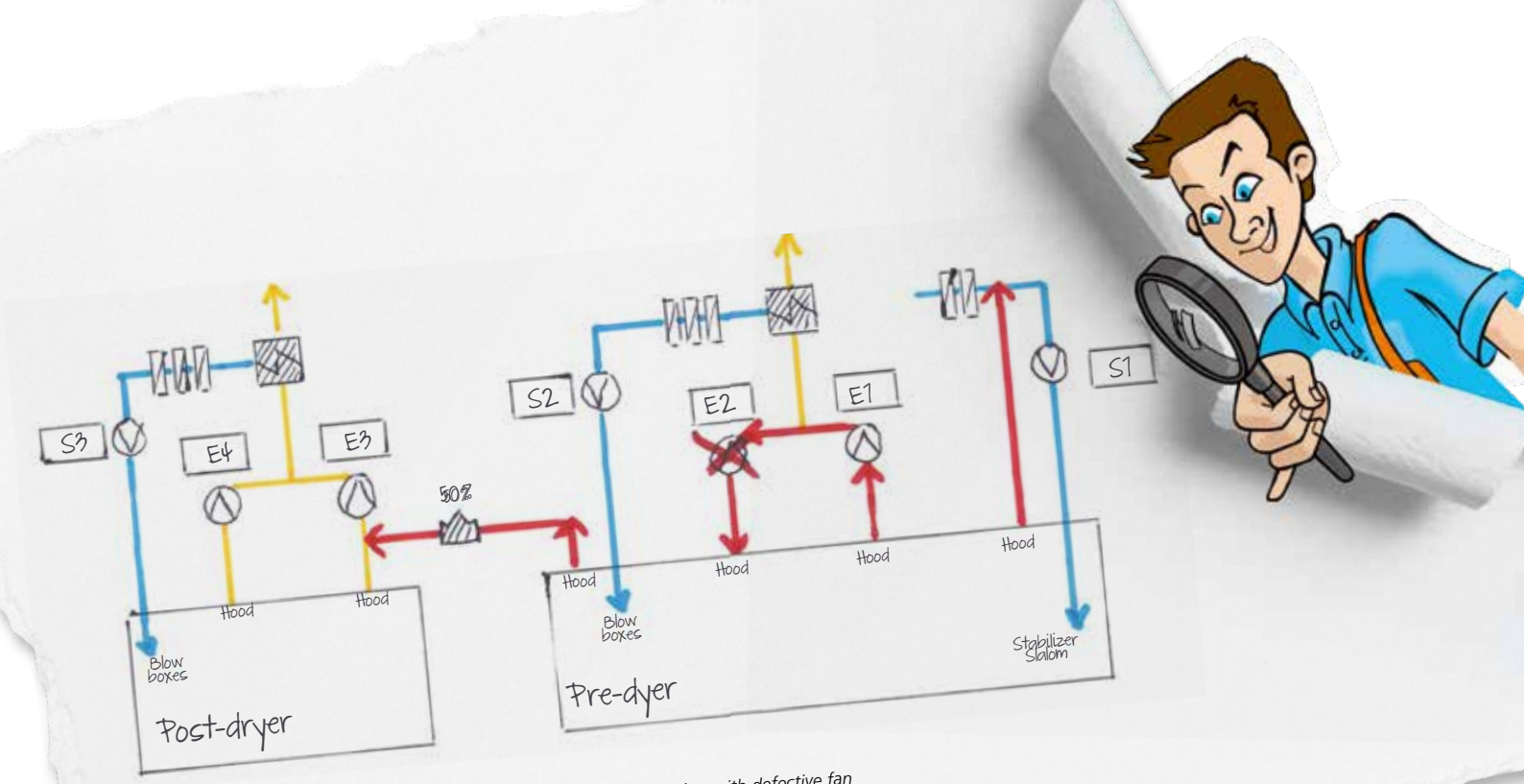


Fig. 4: Supply and exhaust air system in the pre-and post-drying section with defective fan

"Sauna" in the pre-drying section

We carried out a hood balance as we looked for causes of the reduced machine speed that was limiting production. Was the evaporated water from the paper web being removed quickly and efficiently? Are the supply and exhaust air flows sufficiently high? Is the quality and temperature of the supply air in order? Again, we were initially perplexed by contradictory measurement results. Even repeated measurements failed to bring any clarity. The results were simply not logical. So we took a closer look.

We noticed that one of the two exhaust fans in the pre-dryer section was facing in the wrong direction. How could that be? The PLS showed a motor in running order and machine personnel obviously assumed the fan was therefore functioning properly. However, the drive belts from the second exhaust fan were broken and as a result the exhaust air from the first fan was transported back into the hood across the second fan. The hot, moist air would be circulated instead of being transported away (Fig. 4). This effect would be strengthened by the fact that the heat exchanger no longer worked efficiently and the supply air, which should be heated up, became noticeably colder. The consequence of all the above, of course, was that the paper was drying increasingly slowly and our customer had to continually reduce the speed of his machine. And at the same time using more energy!

Simple solutions

So finally we had an answer to the puzzle. The fan was the second problem area, the one that had led to a significant reduction in machine speed. And here also the repair of the hood exhaust fan was able to remedy the situation quickly. Together with the replacement of the CC roll, the machine ran smoothly once more and the customer was again able to meet production targets as speed returned to normal. This case shows once more: Trust is good – control is better! Get your paper machine under the microscope. In an ideal world, proactively! Problems that are detected and corrected early – or even better avoided completely – are of the most benefit to you.

Best regards

Paper Pete

In search of value-oriented solutions

Interview with Spremberg Paper Mill

Friedjof Kulling (left) and Uwe Hentschel (Heimbach)

Hamburger Containerboard stands as one of the leading producers of high quality corrugated board in Europe. At the Spremberg mill in the district Spree-Neiße, white testliner made from recycled paper is made on PM1. Production Manager, Friedjof Kulling has been running Webmover transfer belts for several years, most recently in combination with matching doctors.

impressive

Mr Kulling, what do you attach particular importance to with your suppliers, in our case when selecting clothing?

Friedjof Kulling

We value continuous and on-the-spot knowledge and expertise, preferably with the same contact person. Through their regular presence, our contacts become familiar with our requirements and, in the course of frequent dialogue, they are able to pick up food for thought. More or less automatically, this ensures that any measures necessary for product optimization and continuous improvement are introduced as and when required. Basically, we stay on the ball together.

impressive

You are an established customer of Heimbach and have been using our Webmover transfer belt for many years. How did you begin using our conditioning doctors together with the belts?

Friedjof Kulling

This is actually a good example of the above-mentioned regular customer care! Papermaking processes depend upon a wide variety of factors and interactions. The proper and effective interaction between machine clothing and its conditioning plays an important role and offers corresponding optimization potential for both our products and efficiency. When Heimbach, proactive as always, informed us about the development of WebDoc – the conditioning doctor for Webmover – as a potential process improvement tool, we were of course immediately interested.

impressive

Obviously, you are open to new ideas and product developments. What actually convinced you to go on to use WebDoc in your production?

Friedjof Kulling

To begin with we had talks with Heimbach on site, where the project and various application options were discussed, as well as practical experiences with the new products. The concept was subsequently discussed internally. We always consider possible operational trials by committee using established methods, such as FMEA*.

impressive

So did the basic idea of "perfect interaction – Webmover/WebDoc" seem to be convincing from the beginning?

Friedjof Kulling

We know the Webmover product well. The Heimbach concept of using belt and blade consisting of specially selected and co-ordinated polyurethane materials - working together in perfect harmony - did seem logical and convincing to us, yes.

impressive

What has improved with the new doctor? What do you see as the biggest advantages for your production?

Friedjof Kulling

webmover.

webDoc.

Perfect interaction: Webmover and WebDoc

**FMEA – Failure Mode and Effects Analysis*

F Kulling (centre) in discussion with T Mädel (left) and U Hentschel

Source: Profi Foto Kliche

Ground-breaking ceremony for the construction of PM2

The doctor works well on a technical level – exactly as expected. Next we will begin to probe the limits of Webmover conditioning using WebDoc. The main issue for us will always, of course, be production efficiency.

impressive

There are two different versions of WebDoc available, dependent upon cleaning effect. Did you find the optimal design at the first attempt?

Friedjof Kulling

The first trials were carried out in consultation with Heimbach and with both WebDoc variants. On our machine, WebDoc.coarse has come out on top as the most advantageous in terms of cleaning effect.

impressive

The construction of a second machine has recently made headlines. Can you give us some information regarding the scope and schedule for this major project?

Friedjof Kulling

The construction of PM2 began on September 26, 2018 and, at a cost of 370 million Euros, is one of the largest investments made in the Lusatian economy in recent times. 200 new jobs will be created. The machine is scheduled to start up in mid-2020 and will produce 500,000 tonnes of brown and white testliner annually.

impressive

Could you envisage using Heimbach clothing on the new machine as well?

Friedjof Kulling

Heimbach is already one of the established suppliers to our existing PM1. Decisions regarding the future clothing suppliers to the new machine will certainly be based upon our experiences on PM1.

impressive

What are the biggest challenges facing your company at this time?

Friedjof Kulling

The construction of our new PM2 is certainly a spectacular and major project, which carries its own serious challenges. Fulfilling our raw material needs for both machines from within our region will certainly present further challenges.

impressive

What are you looking for in the future from the suppliers side, with specific reference to the clothing industry?

Friedjof Kulling

We hope that it could be possible to obtain even higher dryness from the forming and press sections, maybe even from higher consistencies in the head box. More than ever, there is a demand for problem-oriented solutions – moving away from isolated product-oriented thinking to a more holistic approach. From our suppliers we need products that are individually tailored to a particular machine and paper production. Also we are looking for expertise that understands the whole process, able to help us locate and eliminate errors through detailed analysis.

impressive

Mr Kulling, many thanks for your participation in the discussion.

Hamburger Rieger Containerboard | We will.

Hamburger Rieger GmbH Spremberg

- Part of the Hamburger Containerboard Division of the Austrian Prinzhorn Group
- White, cover coated testliner, Gypsumboard
- Basis weight: 120-180gsm
- PM1: Working width 530cm, operating speed 1200m/min
- Annual production capacity: 320,000t
- PM2 investment: 370 Mio. Euro
- Brown and white testliner from 100% recycled paper

Your benefits at a glance

- *Information carrier, assists with roll adjustment and rotational speed measurement as well as indicating when a break is detected*
- *Even, precise and abrasion-resistant paint application with specialised ink*

Always well-informed
Trade line printing process

Trade lines are used for product labelling, not just in the paper industry but also in other sectors: Concrete pipes are marked with general information, and so are car tyres or gypsum plasterboard, to name just a few examples. Heimbach has put a new printing process into operation which allows robust, longer-lasting and more uniform trade lines to be applied on machine clothing.

The trade line as a tool, e.g. when roll adjustments need to be made

Trade lines as sources of information

Besides marking basic information on the machine clothing such as felt number, run direction and so on, trade lines fulfill other functions over their lifetime. They are applied horizontally to the running direction and in contrasting colour to the clothing, providing support to papermakers in many ways. Any distortion displayed by the clothing can easily be detected by means of the marking and roll settings can be adjusted in order to rectify this. If some distortion is desired in order to counteract any tendency to oscillate, an adjustment can be made thanks to the alignment bar. It is also very easy to determine the rotational speed by means of the trade line: The time difference is measured at a defined spot as soon as the alignment bar reappears and the speed can be measured accordingly.

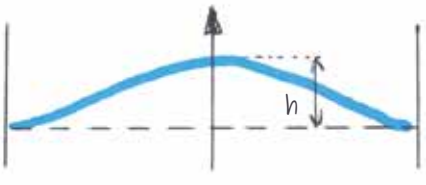
Coloured lines assist in case of sheet breaks

A further important aspect concerns printed coloured lines applied in the run direction on the paper side: as a contrast colour, black is best. They help to determine whether the paper sheet passes through perfectly. After installing the clothing a light beam is directed at the paper sheet. Its reflection is registered by a photocell. In the event of a sheet break the light beam no longer strikes the paper but the clothing with the coloured line applied instead. The light is reflected at a different wavelength. The operator then receives an error message from the photocell's processing unit.

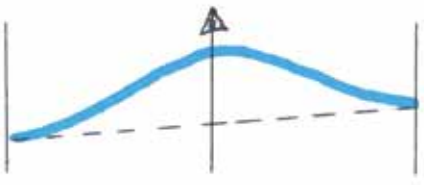
Technology – state of the art

Up to now trade lines were applied by hand using a spray gun and a template. For sure, this is a time-consuming process. If not enough coloured ink is applied there is also a risk that the marking may not remain visible throughout the whole lifetime due to abrasion or contamination.

The latest printing process makes the inking fully automated. This is significantly more reliable thanks to an even and more precise ink application. Our customers can see all information and precisely defined measuring positions at a glance. The specialised ink is abrasion resistant and extremely colourfast, so that the trade line does not "bleed out" and remains visible even in the case of contaminated clothing.



Deflecting guide rolls



Deflecting guide rolls and non-parallel roll position

Non-parallel roll position

Don’t count paper out yet!

Paper has been in existence for more than 2000 years. Digitization has led to the prevalence of “Online instead of print”. Fortunately, we work in an innovative sector that is discovering new niches for paper, cartonboard et al all the time.

From beer mats to insulating underlay

KATZ, a Koehler Group company, has been producing beer mats for more than 100 years and is the global leader in this business area. However, mechanical wood pulp, the raw material, can do so much more. Besides creative promotional products, sound insulation panels are produced, which, under the brand name GREEN LIGNIN, are laid under parquet or laminate floorings, for instance.

Green concepts

Because waste paper and pulp are scarce, science and research have been busy finding alternatives. In 2017 the North Rhine Westphalian company Creapaper received an award for their product idea known as GRASPAP. Paper and cardboard can be processed with a grass fibre content of up to 50% thanks to raw material components that are processed purely mechanically and do not require chemical additives and the use of water. In the food industry in particular, packaging with a proportion of grass has already been widely adopted by REWE, EDEKA and Penny, for example.

A completely biodegradable new development is used in vegetable cultivation. Walki, a world-leading manufacturer of technical laminates and packaging materials, uses mulch papers for weed control – with the great benefit that they decompose naturally. We have reported extensively on this in the past.

Printed information stays longer in the memory

While acknowledging the digitization of information, it is important to point out the findings of the Siegfried Vögele Institute: As early as 2012 researchers concluded that the printed word is retained in people’s memory for longer. Information gained by means of paper activates more brain areas than that acquired via a screen.

In an experiment 100 people were asked to absorb known and unknown logo/claim combinations. 50 of these were presented on paper, 50 on screen. The researchers assessed the learning success by means of a test conducted through an MRI. Looking at the brains of respondents revealed that the print medium triggers a more thorough learning performance. By reading print products respondents were in a better position to learn and match marketing messages and logos.

Olaf Hartmann from the Multisense Institute for sensory marketing in Remscheid confirms this assessment: “The digital revolution will not overtake human evolution in the future either. Research proves that our brain activity multiplies by a factor of ten with each additional sense stimulated: In other words, multisensory intensification has an exponential effect. And print is able to encode messages on different sensory levels: optical, acoustic, olfactory – and above all by touch. Print products can literally be grasped.”

Good news for paper!

The last Otto Catalogue

After nearly 70 years the Hamburg mail order company has said goodbye to its thick main catalogue. The title page symbolises digital change and changed shopping habits. But Otto customers do not have to give up paper altogether. Thematic catalogues are still available.

Atromaxx

Multi-axial construction for maximum dewatering

A universal talent for packaging papers and the master of nip-dewatering

- Dryness of 55% and above after the press
- Fast start-up, now even quicker with Fast Forward
- Tailor-made modules for every application
- Long and safe lifetimes with consistent running conditions and paper quality
- Highest uniformity to avoid marking
- Fewer breaks and reduced downtime
- Also available with seam