

impressive

ISSUE 1/2020

Optimisation of pocket ventilation

Small interventions, big effects

Savings potential uncovered

New-Tech press felts in field trials





Dear Customers,

Well, here we are then: 2020.

Seems a bit like Science Fiction, don't you think?

Many Utopias have caught up with us already. With digitization the Paper Industry is also experiencing a transformation of historic proportions. This much is clear, everything that can be digitized, will be digitized.

*But is this really something to worry about as we look ahead?
At Heimbach, we also see opportunities for the Paper Industry.*

In the global online trade, packaging papers are the message bearers of the 21st century. And there is always a market for graphic papers too.

What has changed are the requirements for paper products, and their production itself. For you and ourselves this means, more than ever, standing by bold ideas and consistent advances.

We want to walk this exciting path together with you. So please find out in this edition of impressive how your operation can start the new decade with increased productivity, quality and interaction.

Let's stay curious and look to the future in a positive way.

Sincerely yours,

*Peter Michels
Managing Director*

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Beyond all doubt

The VDP campaign "Paper can do more"

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Designed for maximum profitability

Cost savings and growth in earnings together with achieving the highest quality were, are and will remain the central challenges for all paper producers. With its New-Tech Press Felts, Heimbach has been unlocking many doors and pathways to this for a considerable time. Below are some convincing practical examples of this.

Paper is not alone in being heavily pressed! The entire paper industry is under more pressure than ever through digitization and globalisation. Battling against this and scoring points with innovative technologies is the key challenge, and where Heimbach has always been your reliable partner.

Setting the course early

Already in the 1990's, with the growing demands of the paper industry always in mind, we sought ways to preserve and develop proven existing press felt technology whilst at the same time complementing this with new and meaningful developments. The result of this long and intensive process was the introduction of a completely new press felt family: The New-Tech generation. This pioneering position has been continuously expanded to the point where New-Tech press felts account for 80% of our total supply. There is an obvious explanation for the extremely high and rapid growth: significantly better paper quality with lower production costs.

New-Tech press felts are based on a modular design with a unique bonding technology. This lends itself in particular to individual and specific application for every machine and position and takes into full account the steadily rising expectations and needs of paper makers and process specialists.

Our New-Tech family

Non-woven technology

*atrocross.
atronet.*

Multiaxial technology

atromaxx.

Multiaxial Non-woven technology

atrojet.

Base technology

Almost 30 years ago, we were the first producer to bring non-woven press felts to the market, thus opening up the benefits and savings potential of nip dewatering to all paper producers. In the meantime a lot of water has flowed through paper sheets and the process has become the preferred drainage concept on faster paper machines across the world.

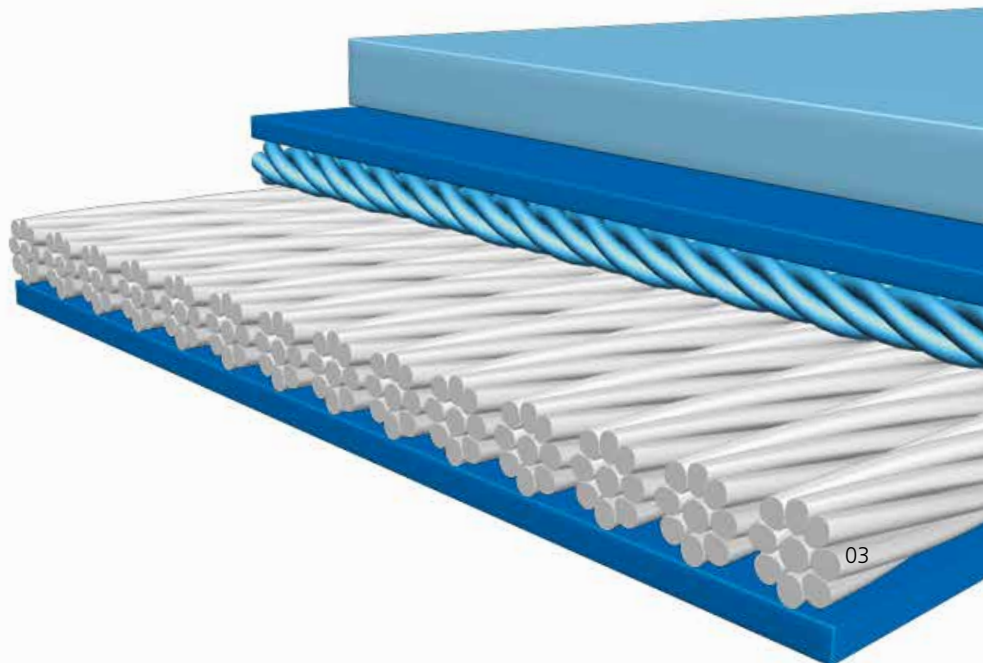
Truly exemplary

Thanks to the know-how gained over many years in both manufacturing and application, Heimbach is the established world leader for non-woven press felts. Countless practical examples document time after time the great successes of this technology.

Non-woven press felts Benefits and gains

- Significantly faster start-up
- Outstanding nip dewatering (best in class)
- Higher dryness
- Effective self-cleaning
- Possible high savings: Vacuum energy, steam

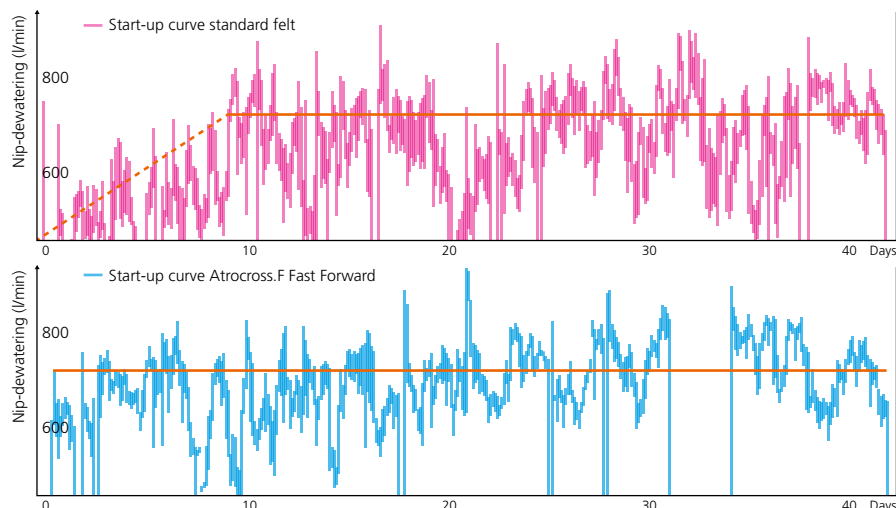
*Atrocross for the fastest starts
and nip-dewatering*



CASE STUDY 1

Fully saturated after just one hour

Here is just one example of many: On a 7.15 metre wide paper machine producing LWC papers the average start-up time with a competitor's conventional felt in the 2nd press pick up was almost 10 days. Introducing Atrocross.F Connect with the Turbo start-up component "Fast Forward" from Heimbach led to a dramatically reduced start-up time. After only one hour, the felt was completely saturated and normal production speed was attained.



Multiaxial technology

The market introduction of multiaxial felts began at the start of the new millennium. Since that time more and more papermakers have been placing their trust in this future leading felt construction. Multiaxial technology is also, in fact, a development from Heimbach.

The modular construction results in a high universality. There are multiaxial felt types available to suit every paper grade. Compared to conventional press felts, multiaxial designs are much less susceptible to compaction and contamination due to their diagonal structure. It is also possible to fine tune these felt types, using the appropriate combination of modules, to the specific requirements of the application. Multiaxial felts have proved to be

particularly successful producing packaging papers. On fast, modern machines, dry contents of 54-57 per cent are now the norm. In many instances, the use of Atromaxx felts has been a factor in these peak values.

CASE STUDY 2

Savings: 200.000 Euro...per year

The multiaxial principle, by the way, works equally well in the production of graphic papers. This is clearly demonstrated by a case study involving a paper machine producing copy papers.

20 per cent higher drainage values.

This was the result achieved by a customer on the first application of an Atromaxx felt. Accordingly, all further felts were delivered in the same design. Now completely converted to New-Tech felts, machine productivity continued to increase. The values determined one year after the change of type were impressive across the board:

Steam savings: Close to 70 per cent

Electricity consumption: Reduced by two thirds

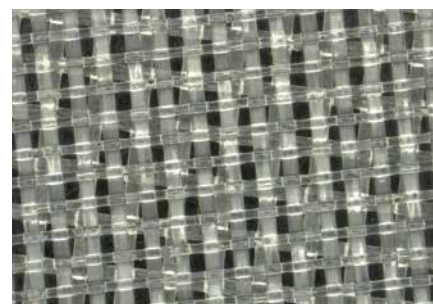
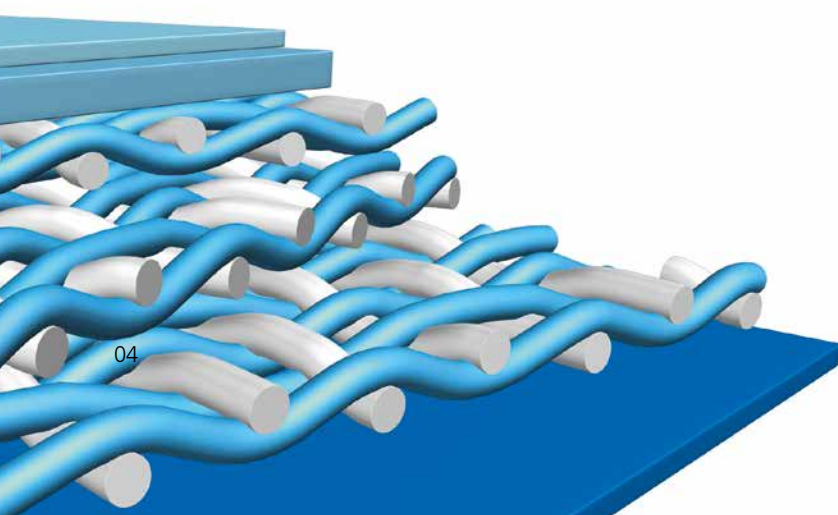
Productivity: Eleven hours additional production time due to reduced breaks

Savings: 200.000 Euro per year

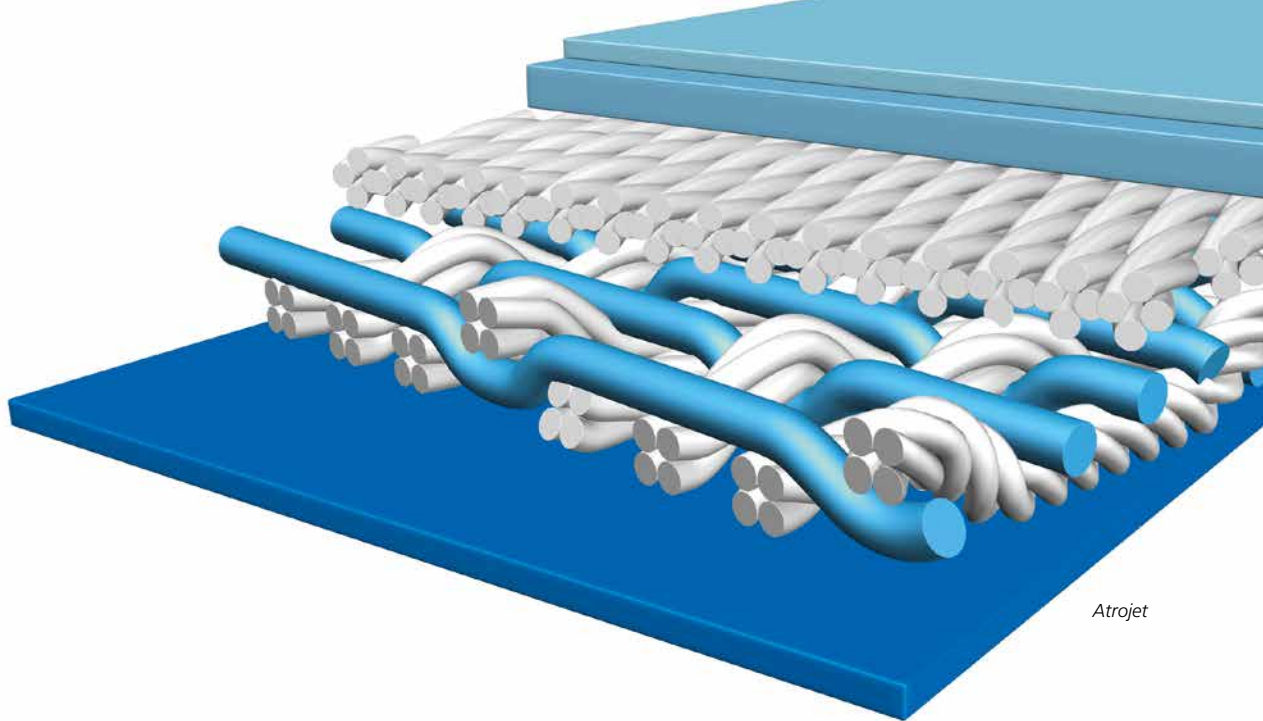
Multiaxial press felts Benefits and gains

- Allows customised solutions
- Various dewatering concepts possible (nip or Uhle box dewatering)
- Fast start-ups with higher dewatering and longer lifetimes
- Excellent runnability

Atromaxx – the multiaxial module concept



Atromaxx – viewed through microscope



Atrojet

Modern production technologies in combination

As the recognised specialist in non-woven and multiaxial clothing, Heimbach has gone on to successfully further develop these proven production techniques.

So Atrojet combines woven modules with a multiaxial non-woven structure. This new technology has now also entered the market, proving its' strengths on a daily basis.

Multiaxial non-woven press felts Advantages and gains.

- Excellent start-up and drainage behaviour
- High uniformity of paper profiles
- Minimised hydraulic disturbances in the paper
- High residual strengths for given surface dimensions
- Very robust (e.g. very resistant to intensive treatment from HP showers)

CASE STUDY 3

Successful as a set of 3

The operator of a high speed LWC machine (1.800 m/min) runs with three New-Tech generation designs: Atrojet in the pick-up position, Atrocross+ in the first press and Atromaxx in the second press. Atrojet started up with excellent dewatering values. Atrocross+, the crossless felt with intermediate batt, worked without suction boxes. Nip dewatering occurred immediately and start-up speed could be increased by 100 m/min.

The so-called "cost triangle" could be eliminated right from the off. Suitably convinced, the customer proceeded to order a further trio.

We firmly believe that there are many more treasures to be unearthed from the use of New-Tech press felts. We see, above all, high potential for optimisation in all applications still persevering with conventional press felts.

Any questions?

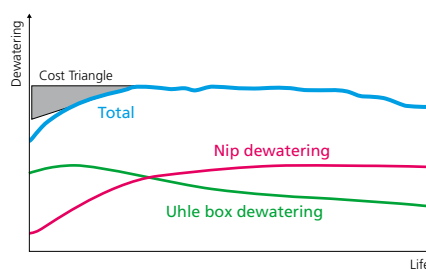
I am happy to help.

Franz Kiefer

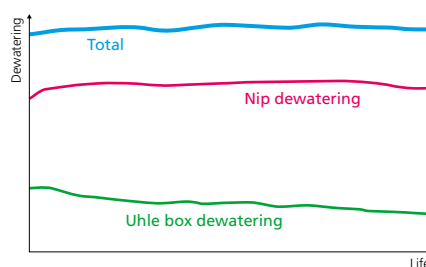
Strategic Product Manager Pressing
 Phone: +49 (0) 2421 802 274
 email: franz.kiefer@heimbach.com



Conventional woven felt



New-Tech Heimbach





Open-heart surgery

Measuring tension during ongoing production. TASK calibrates exact dryer fabric tension using mobile measuring devices without causing any downtime. At 100 degrees Celsius, that is one hell of a job.

Correct dryer fabric tension is vital for paper machines. Just like blood pressure, too much or too little tension really can have significant adverse impacts.

When the first symptoms occur consult the specialist immediately

When tension is too low the dryer fabric has the potential to slip over the guide rolls, the dryer cylinder or the paper web itself. Also, the paper is not pressed strongly enough against the surface of the dryer cylinder. The consequence: Heat transfer to the paper is reduced and therefore the entire drying process is impaired.

Too high dryer fabric tension is equally critical. The guide rolls can suffer from deflection and the seam shows a bowed profile over the machine width. The dryer fabric literally has its breath taken away. Air permeability and with it drying performance are severely reduced. Too much tension may even lead to a break of the guide roll shaft, which means heart failure for the paper machine.

For this reason, at the first suspicion of a discrepancy it is vital to contact our specialists. This is what happened in the present case: A papermaker suspected deviations between actual and displayed values in the process control system. A case for TASK.

Staying cool at over 100 degrees Celsius

How to measure tension without interrupting ongoing production? TASK has the right technology for just this kind of challenge. Equipped with mobile measuring devices our colleagues step into the danger zone, the upper area of the dryer section. Depending on machine and paper grade the heat in there can exceed 100 degrees Celsius. Added to this there is extreme humidity. Nobody can survive this without wearing a special heat protection suit.

From the factory's compressed air system heat protection suits are supplied with compressed air via an air hose with an upstream pressure regulator and air filter. This forms an insulating layer between suit and body. Cooled in this way, tension variations in the dryer fabric can be measured with the necessary calm and time.

In the case described, values determined in this way were compared to those in the process control system and the customer received the necessary recommendations for long-term restoration of optimum dryer fabric tension.

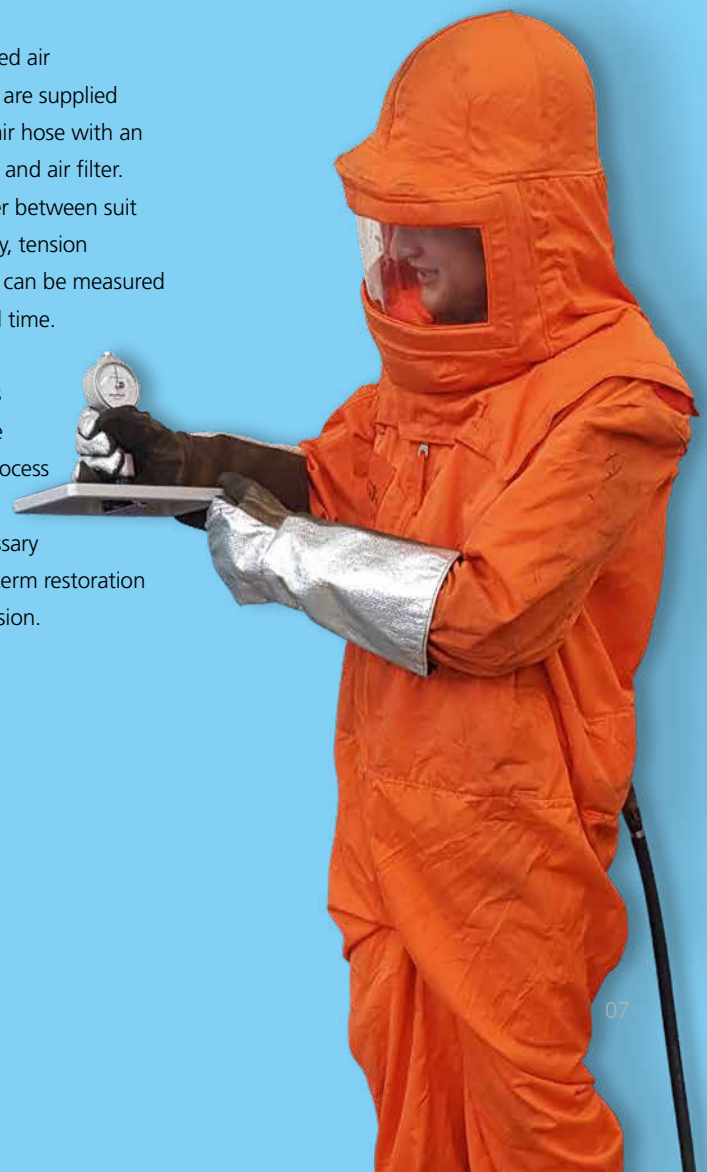
Any questions?

I look forward to your call.

Lars Breuer

TASK Service

Phone: +49 (0) 2421 802 421 or your email to lars.breuer@heimbach.com



Still plenty air up above

Small interventions, big effects

Optimising pocket ventilation

Exploding energy costs can tear deep holes. But who are we telling this to. As one of the most energy-intensive industries, you are particularly affected by it. But there is good news, too: Paper production still has high potential for savings. Even small optimisations can have a great effect, especially in the dryer section. You just have to know exactly where and how.

TASK – finding the devil in the detail

This is exactly the knowledge that we possess within TASK. Our experts from Düren are constantly measuring a wide range of paper machines. Always there with us: specially developed diagnostic equipment. This allows us to put the entire process flow of your machine to the test. We have learned

from long experience, the devil is in the details. You have to be pretty persistent until you have located and diagnosed the often minute mistake or troublemaker. Directly afterwards, our machine specialists start working on the necessary corrective measures. And of course, we do not leave your side during the implementation.

Pocket ventilation – frequently neglected potential

Where else can the most energy be saved in paper production than where the most energy is actually consumed – in the dryer section. Close to 65 per cent of the total energy requirement is needed here.

One thing our work shows us again and again: The effects are at their most efficient when supply air is fed directly on to the paper web. Any detours through the dryer fabrics or the basement (undercurrent) will reduce the impact. As a result, pocket ventilation is becoming an increasingly important driver of efficiency as far as we are concerned.

On the next page, we have selected four concrete examples from our database for you. They serve to illustrate how pocket ventilation can be modified, and savings potential maximised.



Marcus Neumann (left) and Lars Breuer

task.

Technical Assistance,
Service and Know-how

CUSTOMER EXAMPLE 1

Productivity increase plus 17 per cent

A paper mill produces newsprint at 1,000 m/min. The dryer section was gradually converted from conventional to slalom based on our recommendations. The direct result of this was significantly better runnability and fewer breaks at the same production speed.

As far as pocket ventilation was concerned, however, there was still an undercurrent from the basement. We therefore suggested to the customer that supply air should be re-routed directly into the pockets of the slalom groups, which provided a further boost to efficiency.

Since then, air is directed where it is needed to pick up water vapour from the sheet and transport it effectively away from the pockets. Installation costs were relatively low. The increase in productivity all the more remarkable – close to 17 per cent and thus a considerable increase in turnover for our customer.

CUSTOMER EXAMPLE 2

Plus 14 per cent

The starting position was similar for us with a manufacturer of printing papers (1100 m/min). The air tended to flow past the paper web and therefore failed to contribute 100 per cent to the drying of the sheet.

Our colleagues on site recommended a conversion to blowboxes. The works were rapidly executed and the customer was almost as quick to enjoy a significant increase in productivity: up to 14 per cent. For sure, our TASK team was delighted too.

CUSTOMER EXAMPLE 3

Repositioning

Our third case shows: even a pocket ventilation setup that is functioning well can often produce further significant savings as a result of small improvements. A paper producer (LWC 1300 m/min) asked for our support. After thorough analysis, we recommended that he replace and reposition eight blowboxes. As little as the effort was, the result had a lot to offer:

Steam savings since the modification amount to 40 kilograms per tonne of paper. The annual savings are just under 160.000 Euros. The cost of the eight new blowboxes was just 8.000 Euros. Return on investment was actually achieved within 17 days. Fair to say, that such examples remain long in the memory.

CUSTOMER EXAMPLE 4

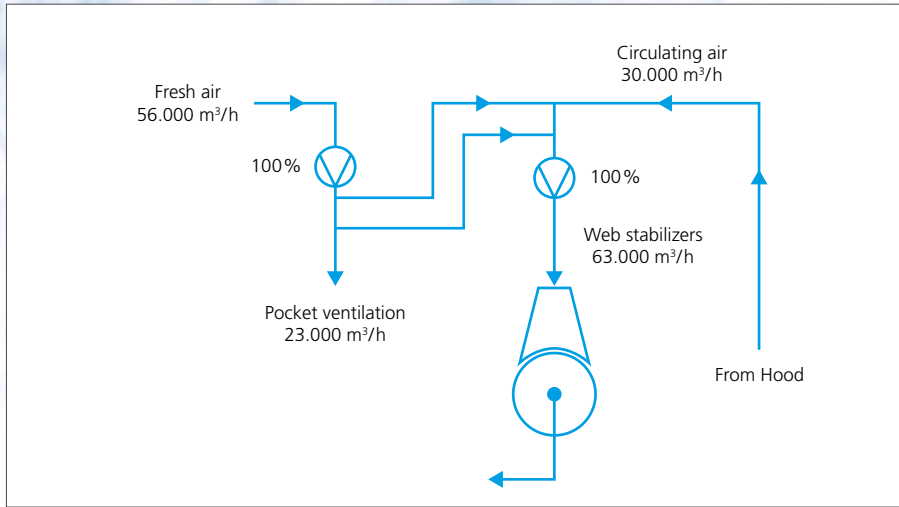
Optimise in the per thousand range

Finally, we would like to highlight worthwhile small improvements on "Formula One" machines. The wider and faster the paper machine, the higher the production

and the more rewarding the optimisations. This applies mainly to what we call per thousand and machines. One of our customers making newsprint at 1600 m/min complained at the highest level about edge lifting in the slalom groups and bottlenecks in the dryer section. Also seen was creasing at the edges of the sheet in the conventional groups.

Our analysis showed that in general the situation in the dryer section was good. The water load of the pocket air was at a good level. However, a more in-depth look showed:

- The stabilizer settings were not perfect – a must on high speed machines. This was an explanation for the edge lifting.
- The air circulation in the pockets was not optimal. A large part of the fresh air supply was being used to stabilize the sheet and was therefore not available as pocket air for evacuation of the evaporated water (Fig 1).
- Opening the last gate of the dryer section during production to prevent drop formation in the hood indicated a shortage of exhaust air.
- The layout of the air ducting was much too complicated. Unnecessary branching caused air to travel longer distances with a resulting loss of energy.

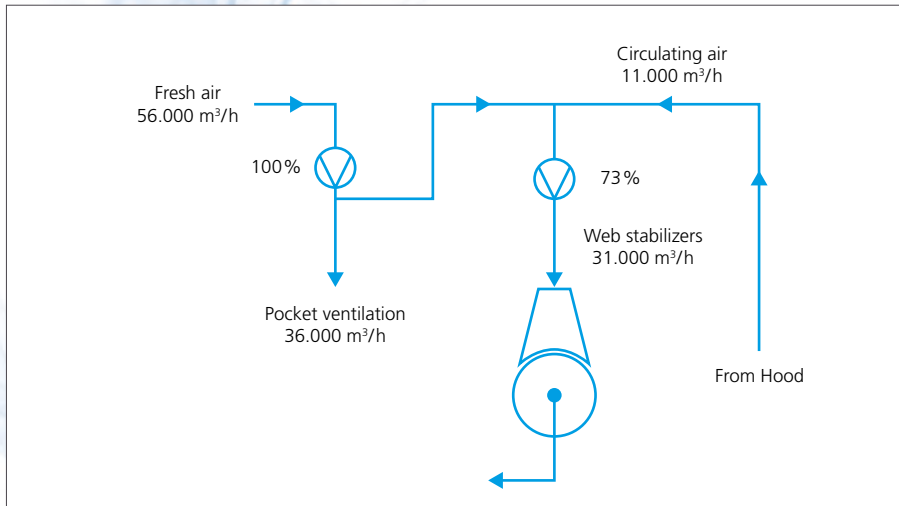


Initial conditions (Fig 1)

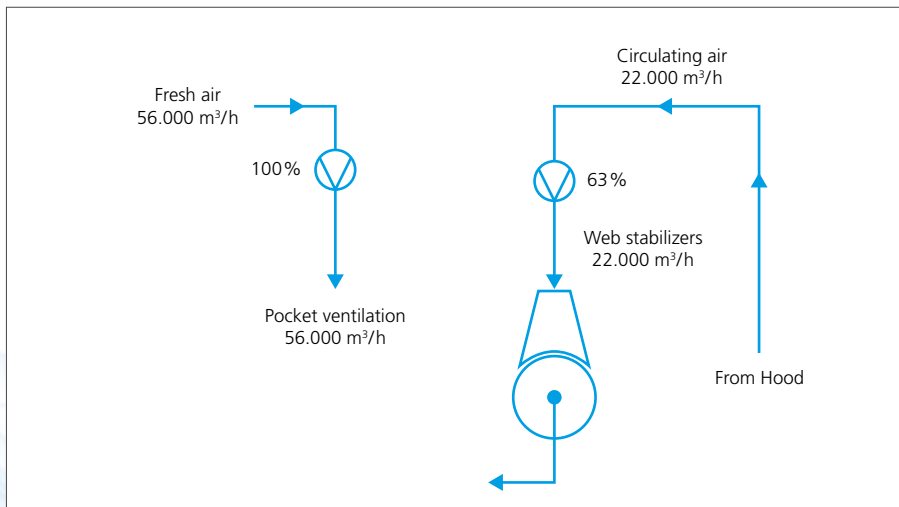
**Phase 1:
Dryer Groups 1 – 4**

Actions and Results

- Optimum adjustment of web stabilizers, thus no edge lifting
- Provision of fresh supply air to the stabilizers has been reduced (Fig 1 to 2) and later completely closed (Fig 2 to 3)
- The Hi-Run ventilator runs only with circulating air out of the hood. Power consumption fell from 100 to 63 per cent. Annual savings in the 5-digit range
- The fresh air saved benefits pocket ventilation (Fig 4)



Step 1: Fresh air to the stabilizers reduced (Fig 2)



Step 2: Fresh air to the stabilizers turned off (Fig 3)

Steps 1 & 2 :

Fresh air to the stabilizers turned off

(Fig 4)

- More supply air for the pocket ventilation, thereby:
- more drying capacity in the cylinder range 8 – 12
- No effect on cylinders 1 – 7, as there is no pocket ventilation.

Step 3:

Expansion of pocket ventilation = Air Doctors installed in pockets 4 – 6 (Fig 5)

- + more supply air in the pockets
- + leads to higher drying capacity in this area

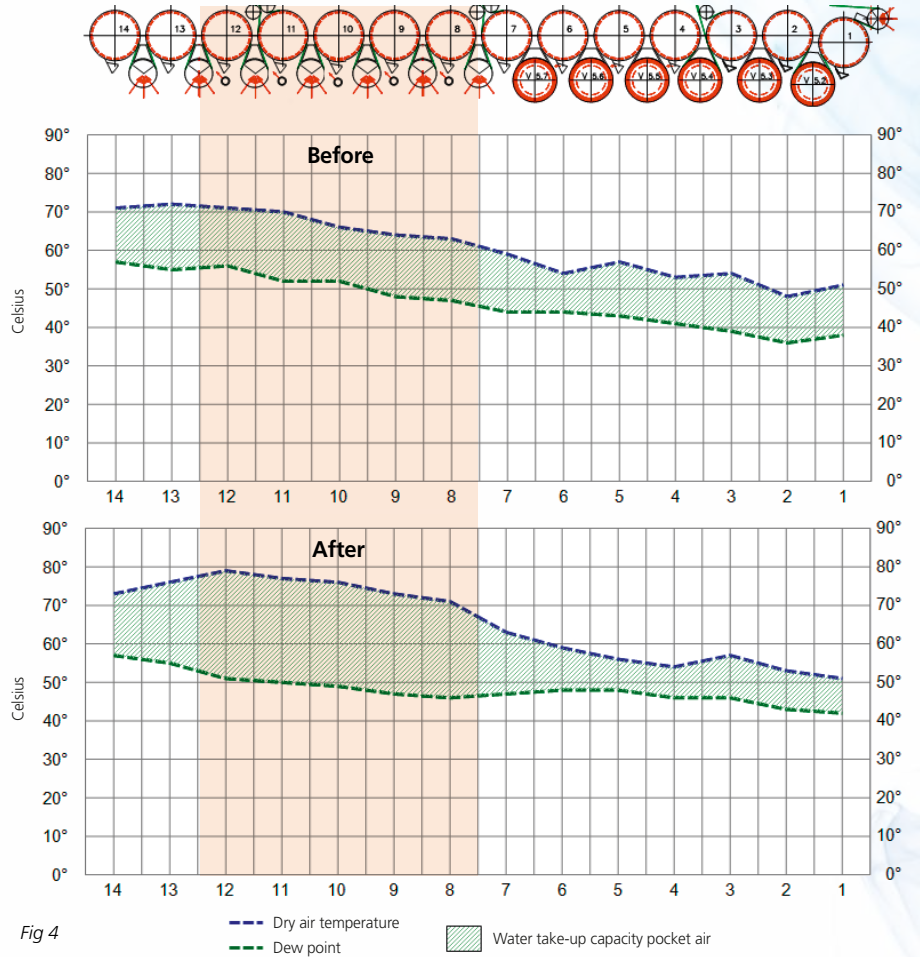


Fig 4

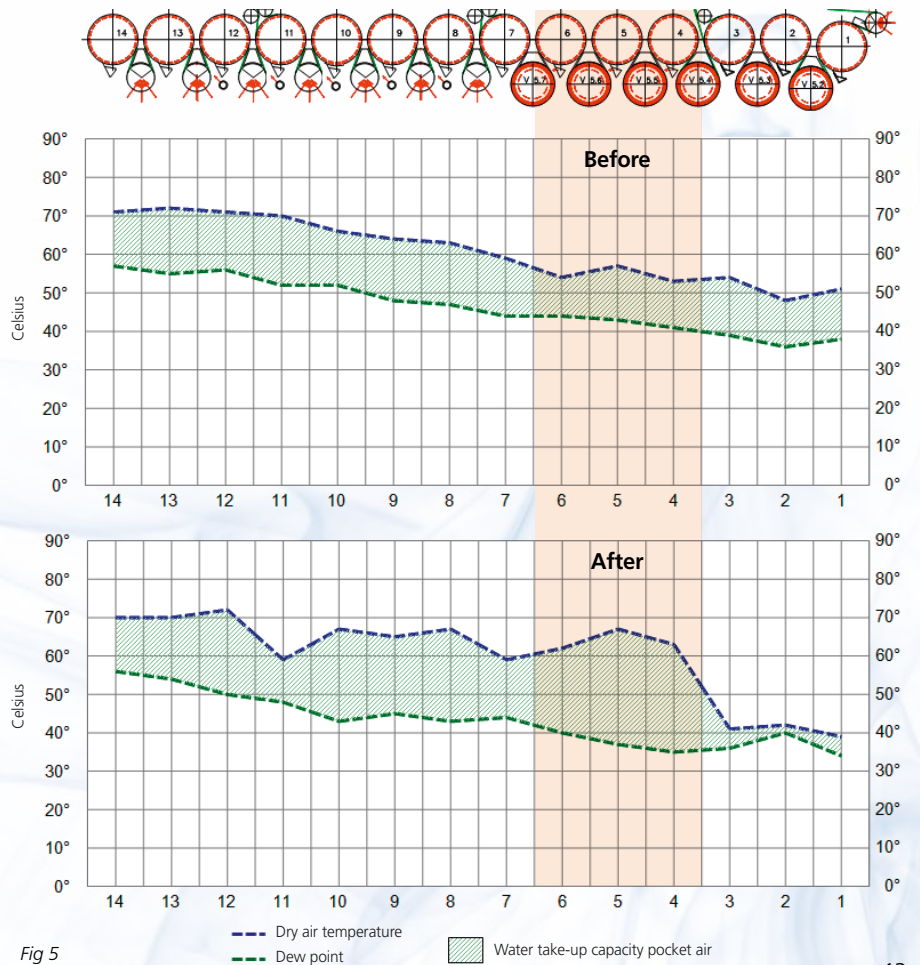


Fig 5

Phase 2:

Dryer Groups 1 – 5

Actions

- Alignment of the blowboxes in the Slalom groups (1 – 4) was optimised.
- Air doctors were fitted in the 5th group (Pockets 18 – 21) and connected to the existing supply air

Results

- further stabilization of the paper web, thereby:
 - + Edge creases greatly reduced
 - + Scrap due to edge tears reduced from 17 to 7t/year
- more supply air for pocket ventilation (Fig 6) thereby:
 - + increased drying capacity
 - + more even moisture profile over the web width

With these concrete findings we could rapidly and precisely clear the obstructions to efficient sheet drying.

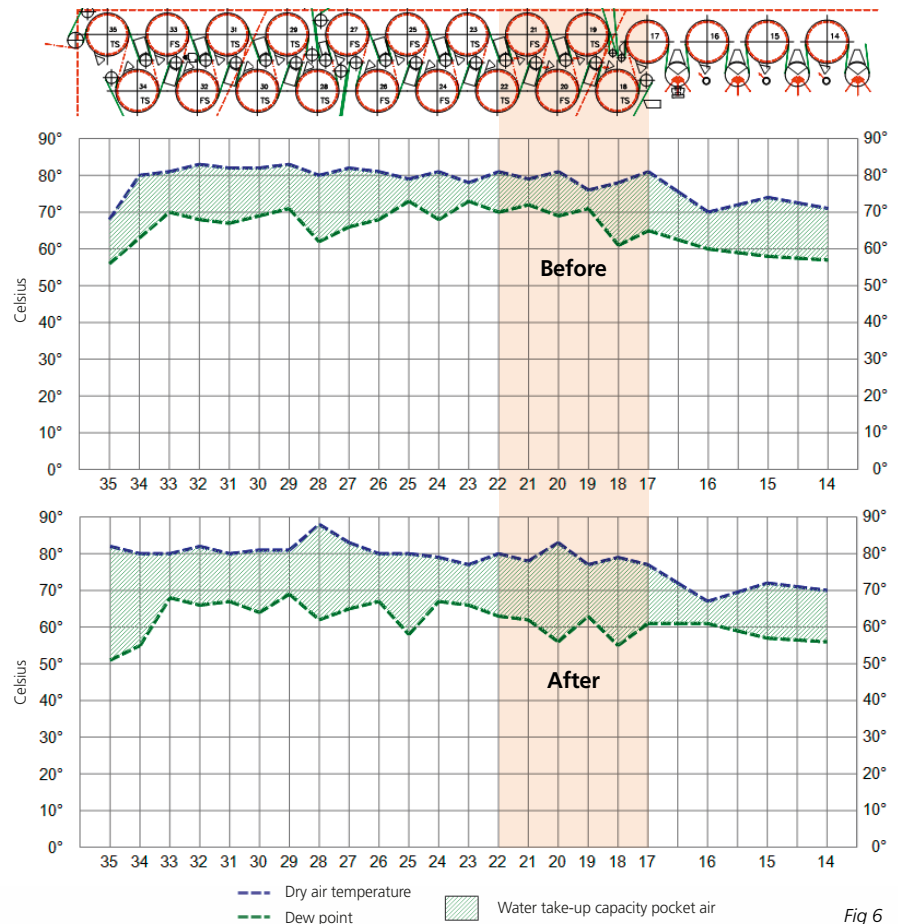


Fig 6

Results of the overall optimisation

- More even moisture profile, thereby:
 - + Higher drying capacity
 - + Specific steam consumption reduced from 1,16 t steam/t water to 1,12 t steam/t water. This equates to a saving of over 120,000/year* on this machine.
- Stabilization of the sheet, thereby:
 - + Edge cracks significantly reduced
 - + Production increased by 7,32 t/day, which equates to an annual turnover increase of over 1mio/year.
- Machine speed could be increased by 50 m/min to 1650 m/min.

* - 0,04 t steam/t water
 x 20 t water/h evaporation
 = - 0,8 t steam/h
 - 0,8 t steam/h
 x 24 h x 330 d
 = - 6.336 t steam/year
 - 6.336 t steam/year
 x 20 EUR/t steam
 = - 126.720 EUR/year

We hope our Case Studies were not too “dry” for you. But small, interesting optimisations in the dryer section, and

especially the pocket ventilation, are almost always worthwhile. Whether it's reduced energy consumption, higher efficiency or improved product quality – we are always happy to put your machine under the microscope.

Would you like to learn more?

I am happy to help.

Georgi Slawtschew

Phone: +49 (0) 2421 802 466

email: georgi.slawtschew@heimbach.com



At full throttle for 35 years

Birgit Gorissen *Head of Finishing Department*



We are in the year 1985.
Modern Talking has just reached the top of the charts with Cheri Cheri Lady as Birgit Gorissen's success story at Heimbach begins.

Two years of apprenticeship at Heimbach are followed by two further years of study at the technical school for industry. Since 1997 our industry master (textiles) has taken on management responsibilities. Keep at it! This is the motto that Birgit Gorissen has maintained whilst succeeding in a man's world.

Today the dyed-in-the-wool Heimbacher is responsible for 90 members of staff at our Düren site.

Background: Qualified product tester and industry master (textiles)

At Heimbach: Since 1985 and on and on

Areas of activity: Finishing, seaming, spiral fabrics, transferbelt, testing, packing and shipping

Milestones: Co-initiator of Heimbach project
"The changing face of management"

Motto: Keep at it!

Quote: "I am very proud to be a part of Heimbach. Particularly as our team achieves a lot by working together."

Private passions: Decorating, gardening, cycling, reading crime novels and much more



A very useful square



QR Codes – With the introduction of the smartphone thirteen years ago the small informative square experienced a period of mega-hype. It was visible everywhere: On posters, cars, packaging, adverts, business cards, etc. In the meantime this trend has dropped off sharply in Europe. But the QR Code has not gone away by any means.

On the contrary: Overseas the small black and white symbol has become an integral part of hundreds of millions of people's everyday lives. This also applies to the logistics sector. Here the pixelated square has been of valuable service since the 90s and has paid for itself many times over. Heimbach, too, now uses the QR Code on its packing cases for your benefit. It's time to take a closer look at this coding miracle.

From heliport to digital revolution

QR Codes are two-dimensional versions of the barcode. QR is short for Quick Response – meaning immediate access to the information contained in the code.

The QR Code was developed in the early 1990s by Masahiro Hara on behalf of Toyota. The carmaker found that the simple one-dimensional bar code was no longer sufficient. The company needed a method that was able to process much more machine-readable information to suit its finely synchronised production. And fast.

Initially Hara and his staff experimented with extended and two-dimensional bar codes. This enabled a lot of information to be packed into the code, but the

scanners took far too long to retrieve the data. It was only during a stroll along a heliport that the resourceful engineer came up with the answer. The scanner needed a distinctive geometric pattern. Thus was the QR Code born.

Whilst the classic one-dimensional barcode can only code 20 characters, up to 7,089 characters or 4,296 letters and/or punctuation and special characters can be found in a QR code.

China and others are leading the way

With the smartphone as a scanner, virtually everybody can use the QR Code today. The benefits for companies, customers and consumers seem unlimited. Even so, the process is still being used

rather cautiously in most European countries. Nations on the other side of the globe have developed much further in this respect. In the USA, Canada, Australia, Indonesia, Malaysia, Singapore, Hong Kong scanning by smartphone has become part of the daily routine for large parts of the younger generation.

And then there is China. In mainland China public life is inconceivable without the QR Code, and the range of things that can be done with it is obvious. Calling a taxi, going shopping, paying your energy bill, making doctor's appointments – for some time now the coded square has been the most popular method of payment and the digital key for a multitude of services.

Interact even faster with Heimbach

In international comparison Europe's consumers may still be relatively unwilling to accept QR Codes. But in the areas of production and logistics things are very different. Even on the old continent the technology has been firmly established for some time. Its contribution and potential for process improvement and management are indisputable.

In our ambition towards more and even faster interaction with our customers we also use QR Codes at Heimbach. From now on you will find them on all our packing cases. They contain the same data as the actual label:





Item number – order number and position (Heimbach) – order number (customer) – product number – order dimensions (length x width in cm) – machine – application site

Compared to previous labelling practice, digital marking has a number of clear benefits for us, as well as for you, and also creates new synergies.

After retrieving the data you can send it directly to the desired or pre-defined departments. Thus your purchasing department will be made aware without

delay that a product has just been installed in the machine. If necessary a new order may have to be placed or stocks checked.

In turn our sales department and field personnel can discuss a new order with you in good time whilst also keeping an eye on the lifetime and performance of the recently installed product. In this way maximum transparency and efficiency work hand in hand.

For the QR Code reader

Many smartphones already have a QR reader installed as an App.

If not, various scanners from third parties can be downloaded free of charge in the App Store for iOS or the Play Store for Android.

PAPIER

kann mehr.



Beyond all doubt

Boost the image of paper in a sustainable way: With its social media campaign "paper can do more" the Association of German Paper Manufacturers is seeking to break down prejudices and doubts and offers consumers clarity and a clear conscience. All Information is now available at www.papierkannmehr.de

An image is what you would need in order to make others think that you are what you would like to be. Gobbledygook? No, this is exactly the problem that paper has. Its good reputation has been damaged. Hardly anybody knows any more what the truth is.

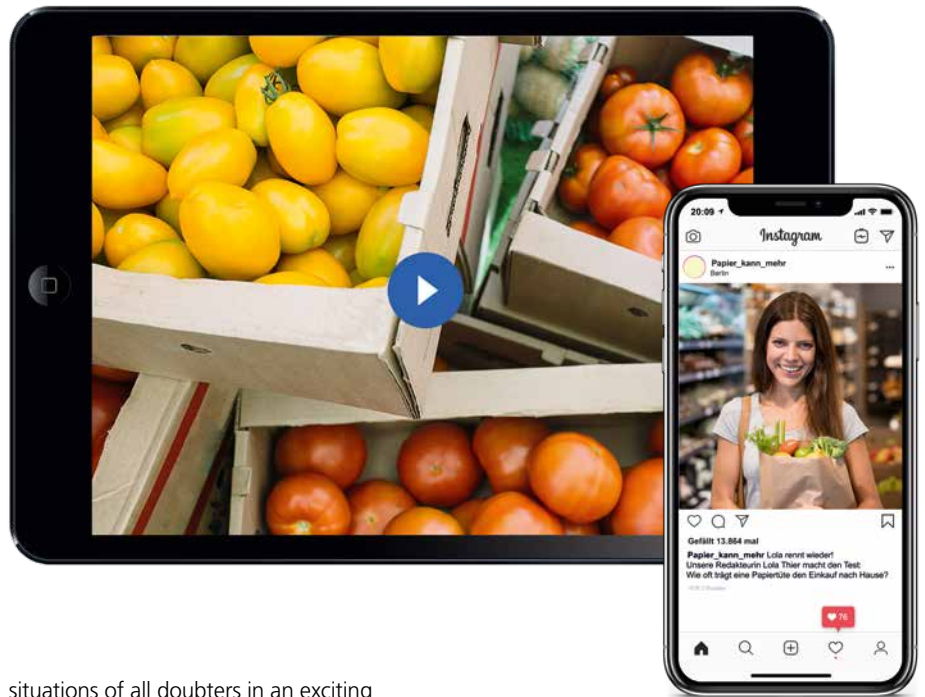
Once a uniformly appreciated means of communication and packaging material, today many people feel uncertain and doubtful. In times of publicly proclaimed climate emergencies and Fridays for Future, going to the paper-recycling bin feels a bit like doing penance.

Just how harmful really are paper and cartonboard to our forests and the environment? Paper bags, printed invoices, our beloved Coffee to Go or the beautifully wrapped gift: Would it be better if we did without them? More and more insecure consumers are asking themselves such questions.

Benefits instead of Prejudices

The appropriate answers have been provided by the Association of German Paper Manufacturers since December 2019. Under the motto "paper can do more" the Federation is leading a social media campaign in order to boost the public image of paper. The primary objective is: to do away with common prejudices and bring out the unique environmental benefits of natural products. Because if there's anything truly sustainable it is the cyclical and recyclable product made from pulp.

The campaign on Facebook, Twitter and Instagram picks up the immediate real-life



situations of all doubters in an exciting and entertaining way. Focusing on matters to do with sustainability, health, household, innovation and leisure consumers learn facts that relate to their own interests and in some cases things that would never have occurred to them.

Why is it that in comparison with paper other packaging materials might as well pack it in? Why is it okay for children at birthday parties to enjoy rustling and ripping? Why does paper offer the cleanest solution in terms of hygiene? Why do we remember printed content better? Numerous short and snappy videos tell interesting stories, provide convincing arguments, and reawaken enthusiasm for paper.

Clearing the path for paper

The campaign is one more expression of the strong drive for sustainability within

the paper industry. Along with sustainable forestry its manufacturers are paving the way for a reorientation of the public's mindset back to paper and therefore hopefully towards the production of large quantities of new reels of paper.

Have a look for yourselves at the new initiative of the Association of Paper Manufacturers. And, even as a seasoned paper professional, you may learn all sorts of new, interesting, and curious things around our favourite material at www.papierkannmehr.de



Atrojet

Towards new shores – with the perfect felt

Atrojet is the unique combination of a Multi-Axial Non-woven module with different bases. For all paper machines, positions and grades.

Benefits at a glance:

- Excellent Start-up: Even quicker with Fast Forward
- Outstanding dewatering and very smooth paper profiles
- Precise matching of modules depending upon application
- Clear reduction of shadow marking from rolls
- Highest stability and toughness
- Maximum tensile strength

www.heimbach.com

wherever paper is made

