

METAL + ABRASIVE PAPER A BRILLIANT ALLIANCE!



Ahlstrom-Munksjö deciphers the latest market needs and trends to offer you new strategic opportunities. Our company is also pushing back the limits of what fibre backings can do to help you meet your technical challenges and increase your eco-friendly credentials. That's what a proactive partner is for!

This newsletter places the spotlight on a segment of the metal working market that favours papers with cloth backings. As the CEO of Alinox, a company specialised in metal cladding explains, paper backings achieve precise high-performance sanding of stainless steel and aluminium plate. Requirements that are already met by our range, which now goes even further, also offering solutions for heavy duty and calibration sanding with **TEX-STYLE™**.

In our supplement, we look at an essential step in the process of manufacturing endless abrasive belts: the joins. You will find some expert advice on how to obtain a perfect result. Also in this issue, our commitment to alternative solutions that combine sustainability with competitiveness. In this pivotal period when great societal changes are required to guarantee the future of our planet, we thought it was essential to back the FEPA's SEAM label. Because we are certain that a collective initiative like this is a constructive development for the future of the coated abrasives industry.

So Ahlstrom-Munksjö invites you to take advantage of the positive effects of its proactivity. And don't hesitate to ask for our help!

Nikita Mulard
Abrasive Business
Vice President

SUMMARY

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THE MARKET OF METAL

BREAKING NEWS

ABRASIVES FOR MORE DURABLE PAPERS

THE EXPERT'S SUPPLEMENT

SPECIAL FITTINGS ON TAPE

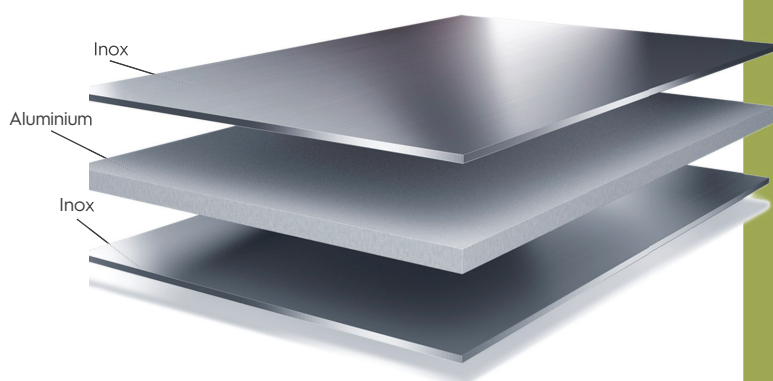


PAPER IS THE IDEAL ALLY FOR FINE METAL SANDING

In the metalworking industry, sanding is usually done with very heavy duty coated abrasives, with cloth backings. However, in certain segments of the market, such as stainless and aluminium sheet production, paper backings are preferred for some steps and users are keen to find solutions to optimise this decisive step in their process. This is the case of Alinox whose CEO, Manuel Morson we met recently.

The A Vision ▶ What do you use abrasive papers for?

Manuel Morson ▶ In our niche market, we have a specific and sophisticated area of know-how which consists of assembling a layer of aluminium between



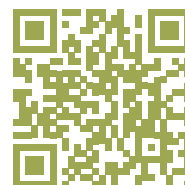
two layers of stainless steel. For that assembly to be perfect and the sheets to bond into one, it is necessary to prepare the surfaces before cladding by sanding them with abrasive paper. We also use it for final surfacing to give the products a slightly shiny polished finish, as you can see inside the grill-plates you can buy in stores.

T.A.V ▶ How do you prepare for the cladding process?

M. M ▶ Each sheet of stainless steel and aluminium is sanded to obtain the surface needed for cladding. This is a key stage in the process as we do not use adhesives. It is important to eliminate the slightest impurity that could lead to an imperfect bond between the plates and lead to delamination during the forming of the finished products. The preparation involves fine dry sanding to «scratch» the surface with precision. We use belts of F-paper 2 metres wide. Paper is particularly suited to this work, which only requires light pressure and no heating. And it enables us to obtain an optimum surface for the perfect cladding of the plates.

ALINOX SWISSPLY

Alinox's speciality is creating a sandwich combining aluminium with stainless steel. Requiring high value-added know-how, this type of plating often involves custom operations or small exclusive runs for the manufacturers of top-of-the-range saucepans or planchas, mainly in Europe and the United States. The company is also innovating by incorporating digital components in its products:



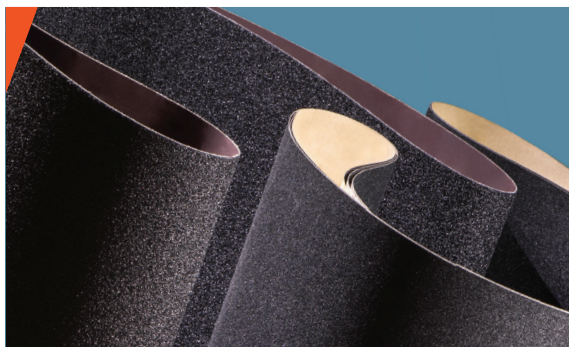
> <http://alinox.com/en/#swiss-ply-movie>

T.A.V ▶ And for the final polish?

M. M ▶ This type of sanding is done by hand or using a wet sanding machine. We use non-woven belts for uni-directional sanding to correct imperfections in the surface. This stage in the process is all the more important as our customers, especially saucepan manufacturers, demand irreproachable surfaces without any defects or roughness.



A NEW COMPOSITE AS EFFECTIVE AS CLOTH?



In the metalworking industry, heavy duty sanding and calibration are an important part of the process and this operation is most often done with cloth-backed abrasives.

Today, though, a **composite backing** like **TEX-STYLE™ Wet** is perfectly capable of rising to the challenge since it offers **excellent strength** and **very high performances in wet environments**. Innovative fibre-based solutions using composites that are more eco-responsible than cloth can be imagined: **don't hesitate to contact us!**

THE CHALLENGES OF THE MARKET: OPTIMISATION SOLUTIONS WANTED



For companies in this sector like Alinox, sanding products are selected on one key criteria: **performance**. Today, they are faced with a decisive issue: how to optimise this essential step in their process? The aim would be to **reduce sanding time** – or increase the speed of the operation – whilst controlling and **achieving precisely the level of quality required**. Alinox counts on its suppliers to provide technical support in this area.

Manufacturers of abrasives who want to rise to the challenge take note: the CTS team at Ahlstrom-Munksjö is here to provide you with its expert help!

HELPFUL HINTS

STAINLESS STEEL

Stainless steel is a 100% recyclable steel whose anti-oxidation properties, which make it relatively insensitive to corrosion, have made it an essential in many sectors, such as kitchen utensils, tools, the building and automotive industries, not to mention mechanical engineering, agrifood, chemicals, and many others.

ALUMINIUM

Aluminium has excellent temperature distribution features, is also appreciated for its corrosion resistance, but also for its remarkable lightness



and the varied shaping possibilities it offers. A highly technical metal to work with, it is used pure or in alloy form in the aviation industry, transport and construction.





AHLSTROM-MUNKSJÖ COMMITS TO MORE SUSTAINABLE ABRASIVES

Ahlstrom-Munksjö has already been taking account of the environment and the health of its workers in product development for a long time. Today the company is pushing that reflection even further as it works with its customers to implement solutions that can make the finished product more sustainable, as marketing manager Estelle Seibert explains.

The A Vision ▶ Can abrasive backing paper play a role as a facilitator in the ecological transition?

Estelle Seibert ▶ Yes, because it's made from a natural, renewable and sustainably managed material. It is essential if the different components in abrasives are to be recycled. Wood cellulose is a sustainable alternative to other traditional backings. Cloth backings, for example, are often impregnated with resins containing high



levels of formaldehydes, which are very volatile compounds. And new composites also have very good tear resistance, such as the innovative new product **TEX-STYLE™**. Likewise, the latex papers in the **Blue Line** are more environmentally friendly than kraft papers saturated with solvents, whilst also meeting all the requirements: wet strength and tear resistance, flexibility/rigidity, stability, etc. By choosing «ready to use» backings, our customers can make sure their products stand out and reduce their impact on the environment and human health, not only during the manufacturing of the backing, but also during the global supply-chain and even during use and disposal.

T.A.V ▶ Paper's surface is another of its advantages...

E. S ▶ Choosing polyester film, a by-product of fossil fuels, just for the quality of their surface is no longer justified. In fact today abrasive papers offer ever more sophisticated surfacing/smoothness and barrier solutions. They are perfectly suited to use on the makers and to coating with finer and finer grit, as fine as P5000, i.e. 2.7 microns!

T.A.V ▶ In concrete terms, how does the Arches mill assume its social responsibility?

E. S ▶ Certified ISO 14001 and 50001, our site has taken many different actions: rigorous day-to-day

management of its water and energy consumption, tight control of impregnation levels, among other things. Water recycling went from 17% to 40% between 2009 and 2018, which has led to a reduction in the amount of water abstracted, and we have introduced an ambitious plan to continue this progression. Formaldehyde was completely abandoned in 2015: 100% of our backings are formaldehyde-free, quite an industrial feat! In addition, the papers and composites are made with at least FSC® controlled wood pulp. This certification guarantees that they are sourced from sustainable forests. Proof that sustainability is gaining importance in the industry, the list of customers that have signed up to the traceability chain is constantly growing. Finally, we are currently introducing an internal evaluation tool to assess the ecological impact of each new development.

T.A.V ▶ With what innovations and sustainable developments are you supporting the coated abrasives industry?

E. S ▶ With our «Imagine Fiber» offer, we are working closely with our customers and suppliers of raw materials to adapt our papers and to develop new composites. The aim: to move towards more environmentally friendly abrasives which are just as effective and economically viable. Backings that facilitate the use of low temperature resins are another significant example. The use of aqueous binders instead of solvents is facilitated by new-generation multi-purpose barriers and custom backings.



And to boost this movement and encourage positive synergies in the development of more sustainable abrasives, we thought it was logical to become a member of the FEPA's **SEAM*** programme (Sustainable European Abrasive Manufacturers) in 2020. A programme with a future!

* www.fepa-abrasives.com

THE VISION

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Photo credits: Fotolia, Istockphoto, Adobe Stock
Ahlstrom-Munksjö, Shutterstock, Yvon Meyer, Alinox, Bastien Massot

Design and editorial work, graphics: www.2s3v.com

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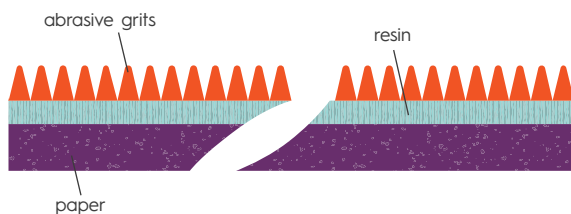
<https://www.ahlstrom-munksjo.com/products/abrasive-backing>



BELT JOINTS: CHOOSING THE BEST OPTION

Producing an endless belt (e.g. for wide and sectional belts) requires making a joint between the two ends of the belt. How to know which is the best type of joint and obtain a product of optimum quality? Here are the Ahlstrom-Munksjö expert's answers.

1 OVERLAPPING JOINT



Principle	overlap and glue the two ends of the belt together
Applications	paper belts or combinations of heavy paper/light cloth
Advantages	<ul style="list-style-type: none"> ▶ very limited extra thickness ▶ the joint remains flexible and synchronous with the rest of the belt ▶ economical type of joint especially if making the joints is automated ▶ regular sanding without leaving chatter marks

- ▶ After being chamfer-sanded, the two parts of the backing are assembled, placing the glue in the rounded space. The overlapping joint requires a high level of skill, but is the joint most commonly used for paper backings and combinations with a mainly paper backing as it allows sanding without leaving any marks. Applicable to all sizes of long and sectional belt, this type of joint implies respecting one direction of rotation.

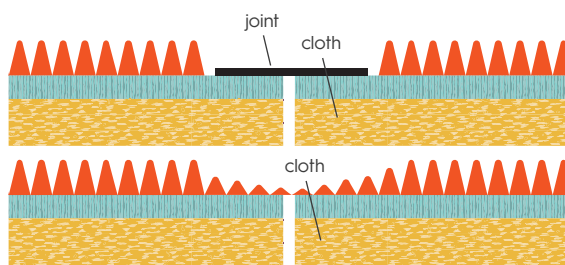
THE IDEAL JOINT WITH TEX-STYLE™

TEX-STYLE™ is perfectly suited to overlapping joints. With Ahlstrom-Munksjö's innovative new backing which combines the best of paper and cloth, this solution is both economical and efficient since it provides a perfect joint, reducing the risk of leaving linear marks after sanding.

WHAT IS THE RIGHT ANGLE?

If the joint requires chamfering, this will usually be done at an angle of 55/60° or 75°. This angle has an influence on the strength of the join as well as the quality of the «mark-free» sanding.

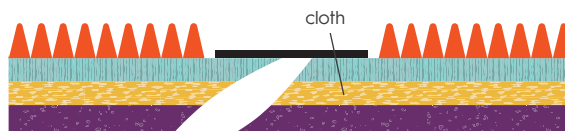
2 BUTT JOINT



Principle	assemble the two ends of the belt with joining tape
Applications	heavy duty cloths & combinations (heavy cloth/heavy paper)
Advantages	<ul style="list-style-type: none"> ▶ no need to use the belt in only one direction ▶ maintains rigidity, the joint does not become flexible as the rest of the belt does

- ▶ Applicable on both sides of the abrasive product, butt joints are less suitable for paper due to the risk of delamination between its surface and the reinforcement film. That is why it is mainly used on rigid products like cloth.

3 COMBINATION OF OVERLAP/ BUTT JOINT



Principle	mix of the two previous techniques
Applications	cloth/paper combinations
Advantage	joint with high resistance to shearing

- ▶ After overlaying and glueing the two ends of the belt, a joining tape is placed on the abrasive side to reinforce the joint. This technique makes for a longer-lasting assembly.

7 POINTS TO CHECK TO ENSURE A SUCCESSFUL OVERLAPPING JOINT

1 The paper must be perfectly flat and its humidity homogeneous over the entire surface.

It is also important to check the level of ambient humidity using a hygrometer to ensure that it does not impact the paper, the joint or the belt in general.

Recommended relative humidity and temperature:

- + Relative humidity of the ambient air of 40 to 70%
- + Temperature: 15 to 25°C/59 to 77°F

2 The belt must have similar properties in terms of strength, flexibility/rigidity and thickness over its entire length, in particular at the join.

This will ensure the correct operation of the belt and guarantee the joint lasts.

3 The paper backing must be ground to obtain a regular thickness over the full width of the belt.

4 The grinding width must also be suitable for the thickness of the backing:

- + 6-7 mm for fine grit (i.e. above P120)
- + 8-9 mm for coarse grit (i.e. below P120)
- + 12 mm for heavy combination grit products

The grinding width influences the strength of the joint: the wider the grinding, the larger the specific surface of the joint will be; hence greater solidity

5 It is important that the chamfer be slightly rounded.

If it is too flat, it will not be possible to deposit enough glue, which can lead to a risk of breakage/delamination of the joint when the belt is in use.

6 The drying time required for the glue must be respected.

Once the glue has been deposited, there is a waiting time before forming and pressing the joint to ensure the elimination of the solvents and the effectiveness of the glue.

7 Just as essential, the last step involves respecting the pressing time as well as the temperature of the heated press.



THE EXPERT'S TIP

What's the point of having a paper with excellent mechanical properties if the joint is weak and likely to break? To achieve an optimum result, it is essential to **choose a good quality paper AND make a perfect joint!** If you are having difficulties, work with us to optimise the final result by playing on all the levers.



INVITATION

Discover a new world of possibilities for coated and bonded abrasives!

INTERNATIONALE
EISENWARENMESSE
KÖLN



Ahlstrom-Munksjö
at the **INTERNATIONAL HARDWARE FAIR / Cologne**
From 1 to 3 march 2020 from 9 am to 6 pm &
4 march from 9 am to 5 pm **Hall 10.2 - Stand D-031**

Come to the spectacular launch of the new World of Colours collection which focuses on bi-colour solutions and come and discover our new backings that will appeal to all those working in the bonded abrasives market... 2 events that are well worth the trip!

To get **free admission tickets reserved for Ahlstrom-Munksjö customers and partners:**

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To find out more:

WWW.EISENWARENMESSE.COM