

ROBOTS THE SANDER'S BEST FRIENDS?



SUMMARY

ZOOM ON

THE SANDING ROBOTS

BREAKING NEWS

WET-2-SAVE

AN ENERGY SAVING BACKING

7 OBJECTIVES

FOR GREATER SUSTAINABILITY

EXPERTISE

THE COFFEE BREAK SESSIONS

In many sectors of industry, the sanding process is being robotised. The machines used are able to adapt perfectly to the performance of this demanding, repetitive and dusty job, reproducing gestures and sensitivity of the human hand. At the forefront of the latest developments, collaborative robots (known as cobots) rely on operators' know-how and dexterity, whilst bringing them working comfort, precision and safety. In keeping with its position as a pioneer in market innovations, Ahlstrom-Munksjö has decided to put these ultra-connected solutions for the future under the spotlight. To help us to do so, we called in two experts, one specialising in the manufacturing of robot cells, the other in their integration into industrial processes. A fascinating world that we invite you to discover in our special feature!

This newsletter will also reveal how our Arches factory is working to achieve greater sustainability of the entire abrasives supply chain, as well as presenting a new energy-saving paper for wet sanding.

And if you were not among the first abrasives manufacturers to take part in our Coffee Break Sessions, rest assured: there is still time to discover these webinars that we have set up to share our expertise on some key themes of interest to you in your daily work. Ahlstrom-Munksjö is constantly re-inventing itself to bring you more added value and stay in close touch with you!

Tony Lesire
Sales and Marketing Director



SANDING ROBOTS : HIGH TECH SOLUTIONS FOR THE FUTURE

Robotisation is opening up new and innovative possibilities for industrial sanding. The A Vision has met with two leading players on the market to get their perspectives on the subject: Emmanuel Bergerot, Sales Manager responsible for General Industry at KUKA, and Patrick Gascher, Sales Manager at Gebe2.

Our two interlocutors can confirm it: industry is facing a shortage of labour in sanding. It is physically demanding work : workers, as well as being exposed to dust, frequently suffer from MSDs (musculoskeletal disorders) caused by strain, awkward posture, vibration, etc. Robots, designed for repetitive, dirty and/or hazardous jobs, now offer some serious advantages for **improving sanders' working conditions**. Officiating at KUKA, a company that builds and sells robots, Emmanuel Bergerot is quite really definite: *'Automation of certain tasks **eliminates arduous work and guarantees greater safety as well as consistent quality** by limiting the scope for human error. Operators' job therefore acquires more value and their know-how is preserved.'*

Machines able to adapt to every need

- » The possibility of using robots for sanding is still relatively little known. *'History has shown that industry has not always been easily convinced by the idea that machines can provide real added value in finishing operations,'* explains Patrick Gascher. *'And yet it is an obvious fact. And sanding was the first process we started to develop more than seven years ago.'* Specialising in the integration of robot cells, Gebe2 proposes

two types of solutions: **'100% autonomous robots,** which currently account for the majority of the market, are best suited to **large parts** and high speed production lines. The other technology is **cobots**. These collaborative robots allow for **a very high degree of freedom in the geometry of parts that can be sanded** as well as a wide range of applications. They are ideal for slower, smaller scale production processes.' Their other advantage lies in the **total control enjoyed by the operator**, who can generate his or her own programming. *'Cobots allow the strength, precision, endurance, repeatability and reliability of the robot to be combined with the flexibility, sensitivity, agility and creativity of the human. The perfect combination,'* sums up Patrick Gascher. .

The trend is towards interactivity

- » Emmanuel Bergerot notes *'strong demand for hyper-connectivity, both simple and intuitive, between robots and users.'* The latter can **access the machine in real time via a mobile app** *'to see its operating status, identify any faults, etc.'* This technology is also an asset for global companies who do not always have a dedicated expert on every site: **'Factories in different countries can exchange information on the process** or technical problems and take the necessary measures quickly and efficiently.'

DID YOU KNOW?

KUKA

- » A precursor for Industry 4.0, German company KUKA offers complete automation systems. Emmanuel Bergerot's unit sells a complete range of 'off-the-shelf' robots that can be customised with numerous technical options. Each robot is then optimally adapted to the particular process with the assistance of an integrator.

www.kuka.com



EUROPE TECHNOLOGIES

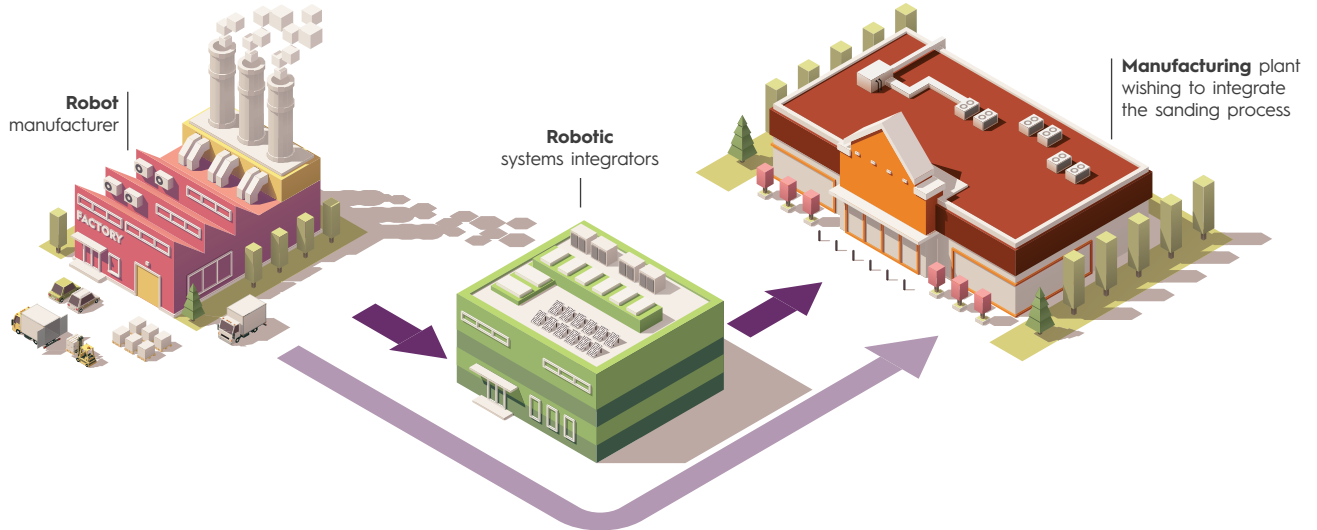
GEBE2

- » An integrator of robot cells, Gebe2 focuses mainly on sanding and finishing robots. The company is a subsidiary of international group Europe Technologies, which is dedicated to providing industry with innovative products, processes and services.

www.gebe2-et.com

INTRODUCING ROBOTS

- Two types of providers will be involved in equipping a company with an automated sanding system: **the manufacturer**, which has the knowledge of the robot and its impact on the process, and the **integrator**, which will focus on adapting the robot to the core process. These two interlocutors with their complementary skills generally work as partners, which enables both of them to advance their level of expertise and well as optimising the entire robotisation ecosystem.



Main sectors concerned



aircraft industry



shipbuilding



railway construction



energy industry

A wide choice of equipment and applications

- The automation of the sanding process can be applied just as well to **surface preparation** ready for bonding or painting as to **cosmetic finishing with matt, brushed or polished effects**. 'Surfaces ranging from 1 mm² to 80 m² can be treated. The only limitation is the size of the robot compared to the space available on the site,' explains Patrick Gascher. 'The robot arm can be equipped with an **electric rotary or roto-orbital sander** – the most common solution – or a belt sander. In this case, the robot can hold either the sander or the piece to be sanded. It is also possible to fit on a **diamond disc grinder**.'

of the lip skins and the anodising done after completion of the sanding process.' The integrator has also developed **the first adaptive sanding robot cell**. Designed to prepare the surface, it is equipped with sensors that 'indicate the corrections to be made to achieve, for example, uniform deformation in the sheet or a specific paint thickness across all of a surface.'

Expertise in some unusual areas

- Robotisation allows for a very wide spectrum of applications, as one of Gebe2's specialities illustrates: 'We have acquired an undeniable body of expertise in industry, particularly in **sanding very large parts such as airplane engine pods**. As the surfaces to be treated are extensive, the robot cell is equipped with three sanders to limit the time the operation takes. We have also created a different device for a more complex and more subtle operation: the sanding of air intake lip skins. To achieve perfect homogeneity, the robot has to take account of the initial deformation



ROBOTISATION & ABRASIVES : CONSTRAINTS AND REQUIREMENTS

From parameters guaranteeing optimum integration to the choice of consumables, here is a round-up of some of the key factors contributing to successful automation of the sanding process.



Robotisation is a process in its own right that demands a sophisticated level of know-how. Hence the specialisation of certain integrators in fields like sanding or machining. As Emmanuel Bergerot explains, *'many different parameters have to be taken into account to adapt to the **metal or composite material to be sanded, to the geometry and environment of the site** where the robot is to be installed, the **production rate required**, etc.'* One of the most important criteria? *'Compliance, which refers to mechanical flexibility. A robot is precise, but not necessarily to within a micron. The objective being to remove the right quantity of material, the **compliance of the device associated with the sander is adjusted to arrive at the desired surface finish**.'* To achieve this, the engineering offices carry out preliminary tests in the workshop.

Consumables: prioritising durability...

- ▶ What abrasives are recommended for robotic sanding? Gebe2's preference goes to **perforated**

discs: *'We have developed our own electric sander, which offers very good dust extraction at source as long as perforated plate and disc are used,'* says Patrick Gascher. There is another criterion that deserves particular attention: **wear**. *'Every disc change means a cost and downtime. We test different makes of discs for different applications in order to select those that offer the longest life. Once the initial tests have been done, the robot knows the wear time and can **automatically change the disc**, including for a disc with a different grain size'.*

...with Ahlstrom-Munksjö's tailored solutions

Ahlstrom-Munksjö offers backings specially designed **to avoid early delamination and tearing of the sanding discs used on electric hand-held disc sanders**.

- ▶ This is the case in particular of **reinforced heavyweight papers** (basis weight > 180 g/m²) containing synthetic fibres (RDS). The **TEX-STYLE™** composite is also an obvious choice due to its incomparable tear strength and internal bond.
- ▶ Among the **lightweight backings** (grammage <180 g/m²), the **latex papers** in the Blue Line range offer an internal bond better than that of impregnated papers. These backings can be reinforced with synthetic fibres that increase their tear strength even further. For instance **Strong**, is a premium paper solution in this respect for dry sanding.

Through Imagine Fiber, Ahlstrom-Munksjö also works with industrial customers to develop solutions that meet the precise requirements of their process. A form of collaboration that has opened the door to new ways to improve performance!

TOGETHER, LET'S MAKE OUR MARK ON THE ROBOTISATION MARKET!

Ahlstrom-Munksjö is looking for abrasives manufacturers interested in committing to propose **high value-added solutions** for robotisation applications. Are you a

member of an R&D team or in charge of business development on the digitalisation/robotisation segment? Please contact estelle.seibert@ahlstrom-munksjo.com

**IF WE COMBINE OUR RESPECTIVE AREAS OF EXPERTISE, WE CAN
CREATE NEW PRODUCTS THAT WILL MAKE ALL THE DIFFERENTIATION.**



7 OBJECTIVES FOR GREATER SUSTAINABILITY

As part of the FEPA's SEAM initiative, which defines environmental, social and economic standards for European abrasives manufacturers, Ahlstrom-Munksjö has voluntarily undertaken to meet six evolving goals in the next three years – plus one!

1 Water management

After increasing its water recycling rate from 17% to 40% between 2009 and 2018, the Arches Mill plans to increase it by another 9% till the end of 2022.

2 Energy management

A machine has been upgraded to help rein in energy consumption per ton produced, with the aim of reducing consumption by 15% within three years.

3 Health and safety

Going above and beyond the SEAM targets, the factory has decided to monitor the rate of implementation of the actions defined as part of its ambitious health and safety plan.

4 Zero accidents

All employees in Arches receive at least 12 hours of

security training every year. The aim being to develop a collective awareness of safety and increase the number of lost time accident-free days.

5 Employee well-being

To support the essential contribution the factory's teams make to the company's success, more frequent #bethechange events will be organised, to reach a target of 18 events a year in 2022.

6 Training and professional development

Every employee at Arches will have at least one annual interview dedicated to sharing their experiences and developing their skills and knowledge.

7 Transparency

We will share in annual reports our sustainable, social and economic progress.

RANGE

WET-2-SAVE : AN ENERGY-SAVING BACKING FOR WET SANDING

Ahlstrom-Munksjö's range of latex-saturated papers now includes a new addition that combines sustainability with productivity: WET-2-SAVE.



Designed for wet sanding, the new WET-2-SAVE offers **exceptional wet strength (WS)** with no need for high temperature drying.

This paper **has indeed a wet tensile strength before drying equivalent to that of Wet AS** after drying.

The latter being already a benchmark the world over for its efficiency.

Furthermore after our drying test, the wet tensile strength reaches a level **15% higher than that of Wet AS**. The process therefore allows the **use of new generations of resins cured at low temperatures** or quite simply the saving of the heating time which would be necessary to obtain better wet tensile strength.

The "2-SAVE" paper generations can be applied to any existing papers of **Blue Line** and is **compatible with all options**: Anti Slip (AS) treatment up to Zero Slip (ZS), addition of reinforced and/or coloured fibres. **An excellent solution for manufacturers committed to a sustainable approach.**

DID YOU KNOW?

- **Wet strength (WS)** refers to the mechanical strength of paper when it is wet.
- WS is the result of an **internal treatment** whose effect is first **reinforced by drying in the paper machine, then again when it goes through the oven in the abrasive paper maker.**
- **WS should not be confused with** hydrophobic properties (obtained by Cobb sizing) as it does not prevent the paper from absorbing water. For example, paper tissues are strong when wet, but they are not sized because they need to be absorbent.



THE FIRST WEBINARS – A RESOUNDING SUCCESS!

Since last June Ahlstrom-Munksjö has been offering a series of interactive webinars which have sparked the interest of many abrasives manufacturers. Estelle Seibert, Marketing Manager, looks back about how a project that looks likely to become a permanent fixture originated.



The Coffee Break Sessions were born out of a setback due to the Covid-19 pandemic. 'It was the cancellation of the International Hardware Fair, which we were due to take part in at the beginning of March, in Cologne, that triggered everything,' explains Estelle Seibert. 'We were looking forward to exchanging with the public at the fair, presenting the Butterfly collection of bicolour papers, sharing loads of tips and advice... We were really disappointed, but that inspired us to bounce back. We took the time to think about **a way of maintaining contacts with our customers and how we could provide them with value added content.** And that's how the idea of organising a webinar came about.'

Exploring key themes with experts

Once we had made up our minds, a mixed team from the marketing, sales and technical department got to work planning the different aspects of the project: broadcast media, format, length of the session, etc. – not forgetting the **topics to be spotlighted.** 'To choose the topics, we conducted a survey with our customers, proposing several subjects – and to our great surprise, they were interested in all of them!' explains Estelle Seibert. 'In the end, **instead of one webinar, we created four!**' Depending on the topic, members of the departments concerned were brought in to share their skills: sales team, CTS, R&D, production, logistics, marketing, and so on. The aim was clear: **'To share our expertise, as objectively as possible, and to generate constructive exchanges to move the abrasives world forward.'**

Sessions adapted to each company

Estelle emphasises the **personalised nature** of these webinars, which provide a comfortable setting 'where confidentiality is respected and which are conducive to interactivity.' **Each 45 minute-long webinar is offered live over four days and is available on replay after that.** Any company that is interested just has to book a time slot that suits them. They can involve as many employees as they want. 'The success of the Coffee Break Sessions has been a real source of satisfaction. After taking part in the first webinar, companies quickly signed up to the next one. And about twenty of them signed up, within hours of the e-mail going out, for the latest webinar

about paper and humidity! This is a tool that has the advantage of strengthening our relations with our customers by encouraging **numerous exchanges, before the session, but also afterwards,** to clarify certain particular points. Internally, the work we have done on formalising our experience and knowledge has been a genuine learning experience and has also consolidated the ties between the different teams.' To provide a wider reaching response to demand, the Coffee Break Sessions are now **available on replay** in a specially adapted version.

A second series of webinars is also in preparation for 2021. Every Ahlstrom-Munksjö customer will be able to take part and is invited as of now to put forward any topics they would like to see discussed – so get your thinking caps on! (see next page)

THE COFFEE

BREAK SESSION IN FIGURES



- » Webinar A: 8 sessions, **80 participants** on 15 sites
- » Webinar B: 15 sessions, **105 participants** on 26 sites
- » Webinar C: 20 sessions, **130 participants** on 32 sites

COFFEE BREAK SESSIONS

THE 4 SEASON 1 THEMES

JUNE 2020 / JANUARY 2021

WEBINAR A



Advice on handling and treating reels for abrasive paper

- › Which machines are the best for not damaging the rolls?
- › How to change from the vertical to the horizontal position?
- › What basic rules need to be followed to store the paper properly?
- › How to protect the roll once the wrapping has been opened?
- › What are the optimum storage conditions?
- › How to install the rolls on the maker?

WEBINAR B



Antistatic treatments for abrasive backing papers: why and how? Measurement best practices

- › Where does static electricity come from?
- › What happens when you are sanding with a conventional abrasive belt?
- › What happens when you are sanding with an antistatic abrasive belt?
- › What antistatic treatments to use and what performances do they offer?
- › How to measure resistivity?

WEBINAR C



Why is the abrasive paper base sensitive to heat and humidity?

- › How does cellulose react to water and heat?
- › What is its impact on the properties of the abrasive paper backing?
- › What are the critical points in the process and how can they be controlled?



WEBINAR D



Curling and cupping: how to differentiate between them—and how to control them?

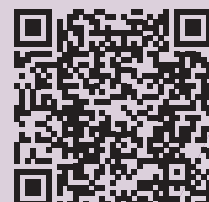
- › What is the difference between these two phenomena and when do they occur?
- › What are the different types of curling that occur during the process or during end use?
- › How to improve dimensional stability and limit curling or cupping?
- › Tools, methods and hints for measuring the stability performance of a paper or coated abrasive

HELP TO PLAN THE PROGRAMME FOR SEASON 2!

What other topics do you think it is essential for the Coffee Break Sessions to cover? On what issues would you like to benefit from Ahlstrom-Munksjö's expertise? Let us know your ideas and suggestions and we'll take account of them when we are planning the themes for our next webinars. We look forward to seeing you again next year when the new series goes out live (and on replay)!

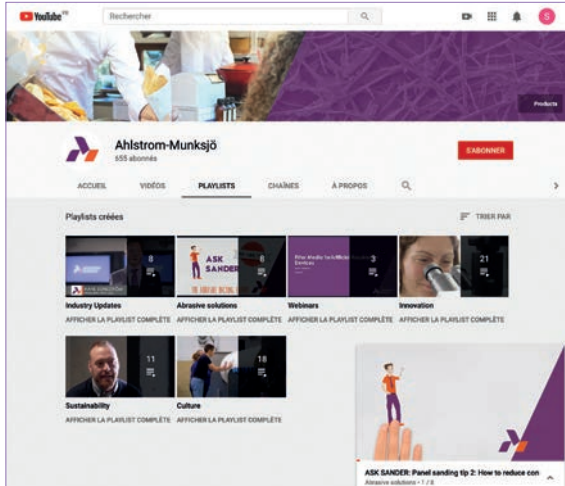
To take part, 2 possibilities, scan this QR Code or :

<https://www.ahlstrom-munksjo.com/campaigns/experts-coffee-break-session/>



NEWS

Follow Sander's hints and tips on video!



Maybe you already know Sander for having seen him in the technical supplement to The A Vision or on the Ahlstrom-Munksjö LinkedIn page... Well, now you can also find our abrasives expert on YouTube! His mission is to pass on his **hints and tips** to help you improve your productivity and that of your customers, for example, when sanding wood panels thanks to products like TEX-STYLE™. **To view his videos and be sure not to miss any of the episodes, you can subscribe to our YouTube channel.**

Cologne, is cancelled !

Let's create our 2.0 event !!

The International Hardware Fair that was rescheduled 21 to 24 February has been cancelled for the second time.



Never mind. We will be close to you and kick-off our own new virtual show dedicated to sharp ABRASIVE EVENTS. More to come soon.

GET READY FOR APPOINTMENTS AND SOME HIGH-CALIBRE SURPRISES

More service than ever!



Ahlstrom-Munksjö's Abrasives division welcomes new members.

- **Camille Barbier** - Technical Customer Service
- **Sabrina Johnston & Nell Stark** - Customer Service US
- **Jean-Baptiste Picot** - R&D Engineer

See the AGVs in action

Are you familiar with AGVs (Automated Guided Vehicles)? The Arches factory has equipped its handling department with **automated guided vehicles**. As we've seen in the special feature in this newsletter, robotisation aims to relieve operators of certain arduous tasks. In line with its commitment to continually **improve its employees' working conditions** Ahlstrom-Munksjö's Arches site has taken the plunge and transferred part of goods moving operations traditionally carried out by forklifts drivers to autonomous robots. **Ultra-safe** thanks to their peripheral sensors, the robots **eliminate the risks and constraints linked to driving forklift trucks** (manoeuvring, vibration, noise, cohabitation with pedestrians, etc.) as well as protecting the reels. **To see the impressive spectacle of the AGVs at work, watch this video!**



THE VISION

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