

March 2023

Fogmaker News

Technical and market related information for our partners

Eco 1, The Future of Fire Suppression

Page 6

Introducing Fogmaker's New Owner

Page 4

FOGMAKER
INTERNATIONAL AB

Contents

Editorial page - Lars Alrutz	3
Introducing Fogmaker’s New Owner.....	4
The Future of Fire Suppression: Eco 1	6
Sustainability at Fogmaker	7
2023 Trade Shows.....	8
Coming Soon: New European ADR Rules	9
Visiting India	10
A Global Presence	11
Key Account Managers, Sales, Market Support	12
Visiting the Land of the Rising Sun	14
Warranty and Service	16
Technical Notes	17
Benefits of Fogmaker’s Detector Tube.....	18
New electrical actuators	19
Check Your Listing.....	20
Marketing Updates.....	22



Lars Alrutz, CEO
Fogmaker International AB.

A Promising New Year

The start of 2023 looks promising, but there are some uncertainties as always. One is the development in Ukraine and of course also the terrible disaster in Turkiye and Syria. We send our condolences to our Partners and Customers in Turkiye. As Fogmaker also has employees with Turkish and Syrian origin we have faced the catastrophe in close range.

It takes time to get into the new routines with a new ownership structure and for myself to manage the new role, but in many aspects it is business as usual. A lot of the planned changes would have occurred anyway as a natural process when we grow, and it feels really good to have the support and structure of Dacke.

In the beginning of the year we have made many small breakthroughs in Mining and Material Handling. We have RFQ:s for Airports and we are starting up new markets. We also see that several existing Partners are employing to support the Fogmaker business.

We are planning to participate in several trade shows this year, starting off with UITP in Barcelona (Bus), followed by TOC in Rotterdam (MH) before summer. In the autumn it starts with Busworld in Brussels,

Stuva in Munich (Tunneling), and ends with Agritechnica in Hannover (Agriculture). We hope to see a lot of new possibilities on these events and it will give business opportunities for the Partner network.

For the product, you will see a new fluorine free agent during the year. We are planning to make tests for R107 in the summer and we have already passed the P-mark SPCR 183 and the SBF-127. It is different and there will be some changes to the systems, but our ultimate goal is to use the same amount of agent as we do today. So far it looks promising.

We will reduce the production capacity in the summer for weeks 29, 30 and 31 but still have possibilities of deliveries and handling orders as well as technical support as usual.

Best regards
Lars Alrutz



Fogmaker's previous owner Andreas Svensson with Lars Fredin, Group CEO of Dacke Industri

Introducing Fogmaker's New Owner: Dacke Industri

December 1, 2022, was a milestone for Fogmaker International: after 22 years with the same owner, Dacke Industri acquired 70% of the shares. Through the purchase, Fogmaker joins a group of 19 subsidiaries with close to 1900 employees worldwide.

Dacke Industri is a long-term owner that invests in innovative technology companies with potential for development. They do not invest just to resell. For Fogmaker, this means an opportunity to access new expertise and strategic guidance while retaining a high degree of autonomy.

Fogmaker's previous owner, Andreas Svensson, remains as the second largest shareholder and will still be a part of the company through the Board of Directors.

New CEO

Andreas stepping down as both owner and CEO left an empty chair that was filled by previous Sales and Marketing Manager, Lars Alrutz, on January 1, 2023.

"We sincerely thank Andreas for his

contribution and welcome Lars to his new position. Lars is bringing valuable insights and experience to the company. We look forward to the journey ahead with Lars as CEO and new markets to explore going forward" says Lars Fredin, Group CEO at Dacke Industri and Chairman of Fogmaker International AB.

Lars has been a part of Fogmaker since 2019 and has a long history of sales in the international arena. Prior to Fogmaker, he worked as site manager for ProfilGruppen post-processing companies and CEO at Växjöfabriken in Växjö.

For the time being, Lars also remains in the position of Sales and Marketing Manager, keeping close contact with the organization and partners.

He says, "It will be fantastic possibility to see how far we can develop the business for Fogmaker in the selected segments on a global market."

Andreas Svensson fills in, "I'm happy to see Lars as my successor and wish him the best of luck in the continued development as a leader of a great team at Fogmaker."

About Dacke Industri

Dacke Industri invests long-term with a goal of building sustainable companies over time. They follow a decentralized model where each company is run independently. Dacke Industri is owned by Nordstjernan since January 2016.

Each company in the group has its own products or systems with a strong technical focus, and development and design expertise. Fogmaker fits right in!

Watch out for scams!

Fogmaker and Lars Alrutz being featured in the media has inspired scammers to intensify their attempts.

Multiple messages have been sent to partners, impersonating Fogmaker International and even Lars, attempting to gain access to financial information and funds. They have also contacted Fogmaker employees, saying Lars gave his permission to ask about salaries and other personal information.

The messages are usually fairly easy to spot - poorly spelled or from unusual mail addresses.

Fogmaker will never change account numbers or other payment information without informing through a personal contact.

If we were to change our account numbers, someone you know at Fogmaker will get in touch with you in-person or over the phone.



Lars Fredin, Group CEO of Dacke Industri, and Lars Alrutz

The Future of Fire Suppression: Eco 1

On February 7, 2023, ECHA - the European Chemicals Agency - published a proposal on a ban of PFAS chemicals made by authorities in Denmark, Germany, the Netherlands, Norway, and Sweden. The goal is to lower PFAS levels in the environment with 95%.

The PFAS family of chemicals has been popular since the 1950s, and is used in everything from non-stick coating to cleaning products.

There are over 10,000 compounds defined as PFAS, and all compounds included in the suggestion have a very high persistence in the environment. The ban is likely to take effect in 2025, with a total ban for production and use in products 2026-2027. PFAS chemicals also have properties that make them useful for fire suppression, and Fogmaker's original fluid contains small amounts.

Eco 1

We have worked long and hard to solve this puzzle and find an environmentally friendly and approved fluid that can replace the original. The new fluid is called Eco 1.

Eco 1 is 100% free of PFAS and is undergoing certification according to GreenScreen; a third party that is going through and approving every individual

chemical in Eco 1. The new fluid has similar cooling and re-ignition properties as the old one.

Fogmaker's goal is to have Eco 1 approved for all the certifications we have today, and we hope to achieve this with the same volume as today's system. We're introducing a new nozzle that will help us accomplish this.

The Future

Fogmaker and Eco 1 are SBF 127 certified and can offer a 100% PFAS-free production.

We strive for being R107 certified with the Eco 1 liquid in June 2023. When that is achieved, the majority of our production will be dedicated to PFAS-free.

We will continue to monitor and investigate how we can handle the transition from the original fluid to Eco 1 during service and when refilling systems. We also want to be able to clean and reuse old cylinders and are running tests to see how to remove all PFAS traces.

Sustainability at Fogmaker

Sustainability is more than just a buzzword or a new fluid; it means looking at the complete picture and meeting the needs of the present without compromising the ability of the future.

At Fogmaker International AB, we began a product lifecycle analysis in 2022 and took help from an organization called Measure & Change with calculations according to Green House Gas Protocol. Overall, our production is clean and doesn't require a lot of energy, but there is always room for improvement.

Long-distance transports are for instance an area where we can help lower the impact through planning, and choosing modes

of transport that may be slower, but also both more cost efficient and kinder to the environment.

Actions to further lower our environmental impact include:

- Analyzing our environmental impact in every step of the process, and finding areas for improvement.
- Working with improved material efficiency through reuse and recycling.
- Using 100% renewable energy.
- Lowering our energy consumption as much as possible.

We plan to post regular updates about our sustainability work on the website.



2023 Trade Shows

Trade shows are an important place for marketing Fogmaker and making new contacts. We encourage our partners to participate, and can offer financial and promotional support at certain shows.

Please plan ahead if you need trade show support. We need time on our end, and our participation must be agreed upon with your Key Account Manager or Fogmaker's Marketing and Sales Manager.

When a Fogmaker Certified Partner participates in a show and gives at least 50% of the surface to promote Fogmaker, we can contribute half of the exhibition cost (up to \$2,000.) In return, you need to contribute when Fogmaker International participates in trade shows in your home market. At those events, we cover your hotel costs if you work in the booth.

There are photos and other materials useful when creating booths on the marketing portal.

In 2023, we are scheduled to exhibit at:

- UITP Barcelona, June 4-7
- TOC Europe, Rotterdam, June 13-15
- Busworld Brussels, October 7-12
- Stuva, Stuttgart, November 8-10
- Agritechnica, Hannover, November 12-18

We have started planning for 2024 as well. Thus far, we're booked at Minexpo in Las Vegas and are considering several others.



Left to right: Mario Flores, Maria Stillman, Carl Zandler

Coming Soon: New European Rules for Trucks

The Fogmaker system has been installed in more than 3,500 trucks worldwide. The biggest success thus far has been in Europe, but many systems have also been installed in South Africa. A new set of rules on the horizon are putting a new focus on the Truck segment.

A new European legislation that requires ADR trucks (trucks transporting hazardous goods) to have fire protection is about to take effect. Fire protection is voluntary from January 1, 2023, but will be mandatory in 2027. That may sound like a distant future, but end users are already requesting systems.

For now this only affects Europe, but other markets are likely to follow. A fire in a vehicle moving flammable or even explosive goods can have devastating consequences and must be avoided.

You will hear more about the upcoming ADR regulations from us during the year, and there will be an ADR partner brochure as well as a customer brochure and sales presentations. This material is currently under development.

If you're not already working with trucks, or thinking about getting into this segment, now might be a good time. Don't hesitate to reach out to us, we'd love to hear your ideas.



Visiting India

Fogmaker International's Fredrik Rönqvist and Mario Flores recently traveled to India to meet our partners and make new connections at the BAUMA trade show in Delhi.

India has the seventh largest area in the world, and the second largest population after China. It is a fascinating contrast to Sweden, and a huge market. According to Hindustan Times, India is committed to spending over \$1.4 trillion by 2025 to revamp its infrastructure.

This means that India will see a construction boom, and by the end of 2023, the country is expected to become the world's third largest construction market. By 2030, more than 40% of the population is expected to live in the cities, creating a demand for 25 million homes.

Buying what others are buying

Our local partners, Instinctual and BM ECO, emphasized that in India, marketing is done by getting references. "People are buying

what others are buying." In this market, one should always ask the customer if we can use them as a reference.

Discussions also included establishing Fogmaker in the Indian mining and bus segments. In addition, there may be business opportunities for port, agriculture, and gensets.

BAUMA

The team also visited BAUMA in Delhi. We did not have a booth, but Fredrik, Mario, and our partners spent several days getting to know people. It's easy to associate trade shows with exhibits, but mingling can be just as rewarding. Website traffic from India to fogmaker.com increased with almost 35% during the visit.



Left to right: Marilingappa H V (BM ECO), Nilesch Deshmane (Instinctual), Fredrik Rönqvist (Fogmaker International), Ravi Kiran (Instinctual), Mario Flores (Fogmaker International)

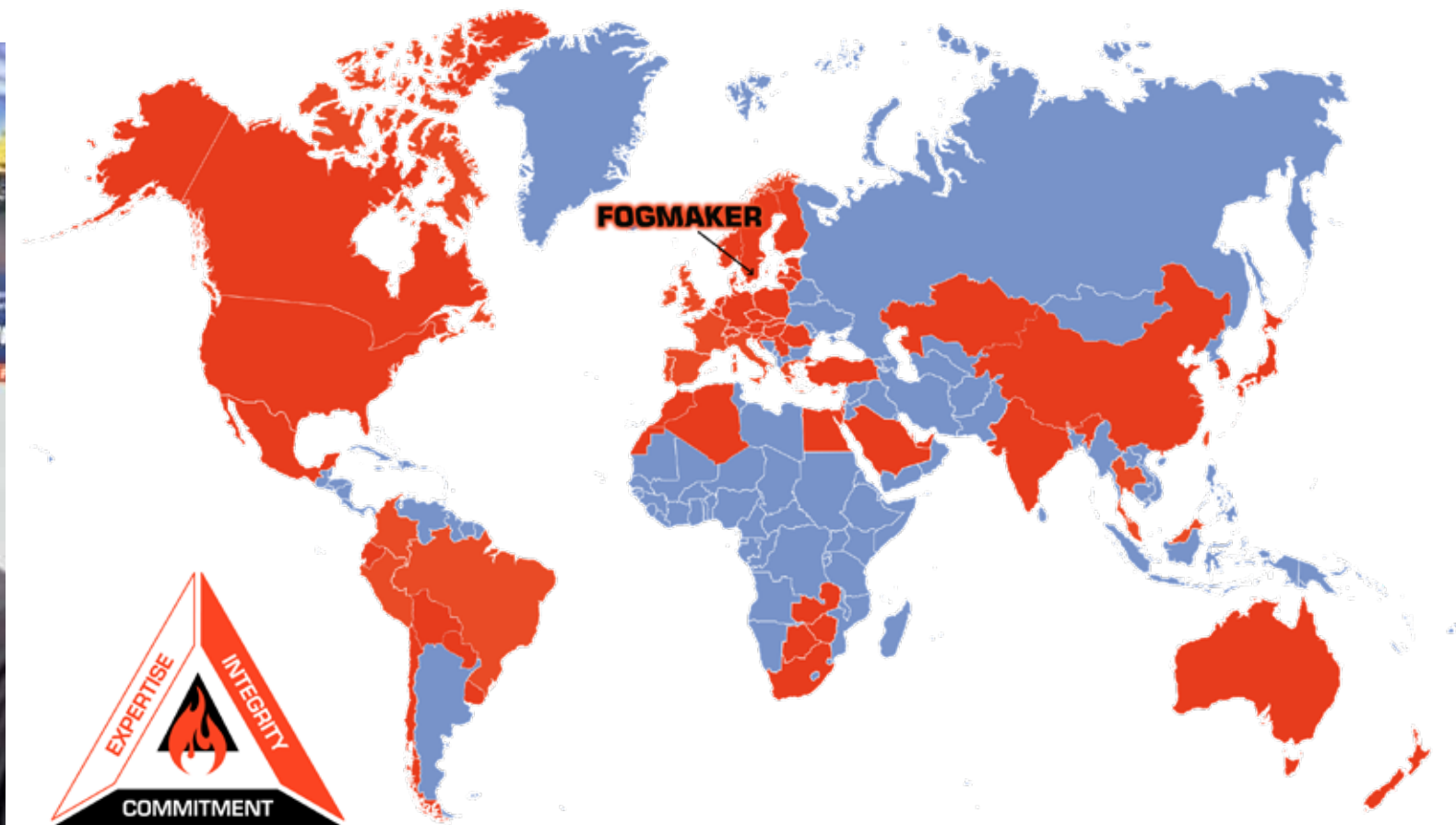
A Global Presence

Our international presence is growing, and thanks to all our wonderful partners, Fogmaker International now has customers and can offer service in more than 60 countries!

When asking people about something typically Swedish, many answer ABBA. Others think of IKEA or Volvo, or maybe H&M. As a country, Sweden has done well with exporting everything from steel to matches and we at Fogmaker are proud to be a part of this legacy.

Swedish consumers expect high-quality products with efficient after-sales service and customer support, sustainability, a long service life, and reliability. We hold these ideals high too, and remaining true to these values have helped Swedish companies build international success.

Fogmaker International is a value-driven organization, and we've defined our core values together: Expertise, Integrity, and Commitment. We're proud of Swedish quality and our Swedish invention: Fogmaker. We hope you are proud of it too. Don't hesitate to mention that it is a Swedish system - we think cooperating with you in your part of the world is the best thing ever, and we hope that's mutual.



Key Account Managers, Sales, and Market Support

Fogmaker has devoted significant resources to sales and market development. We are here for you! Find the Key Account Manager or Segment Manager for your area to the left, and other Sales and Market Support on the right.



Erik Blomgren
Key Account Manager

Geographic Area: Nordic
Segment: Forestry



Mario Flores
Key Account Manager

Geographic Area: South America, Spain, and Portugal

Segment: Mining and Tunneling



Caisa Dahlström

International Market Support and Orders



Niklas Loven

Business Development Manager for Partners in Northern Europe



Erik Rydström
Key Account Manager

Geographic Area: Nordic

Segments: Construction Equipment and Airport



Fredrik Rönqvist
Key Account Manager

Geographic Area: Middle East, India, and Thailand

Segments: Material Handling and Airport



Fredrik Sjöo

Market support and orders for Sweden and the Nordic countries.



Maria Stillman

International Market Support and Orders



Johan Stark
Key Account Manager

Geographic Area: Africa

Segments: Bus and Agriculture



Carl Zandler
Key Account Manager

Geographic Area: Germany, UK, Italy, Australia, and Southeast Asia

Segment: Trucks



Dilek Tanyildiz

Partner Quality Manager Worldwide



Erik Åman

Account Manager Fogmaker Nordic



Dilek Tanyildiz, Gustav Stigsohn, Carl Zandler, and Martin Lindblom visiting Nippon Sharyo together with Nichibou Co. Ltd.

The trip gave wonderful results. Nichibou sees the potential of Fogmaker and have intensified their efforts to market the system. They have also booked a booth at a trade show with an environmental take on construction and infrastructure.

Together, we visited current and potential new OEM and OEM distributor customers, such as NipponCat, Mitsubishi Fuso Bus, and Nippon Sharyo; a domestic manufacturer of locomotives.

Japan really is a land of opportunity for Fogmaker, and in cooperation with the skilled and professional staff of Nichibou, anything is possible.

We greatly enjoyed getting to know Nichibou better, and we hope to accomplish a lot together in 2023 and going forward. The genuine politeness and warmth shown during our stay in Japan is highly encouraging, and we can't wait to return the favor.

Domo arigato! We look forward to meeting you again!

Visiting the Land of the Rising Sun

In December, a team from Fogmaker International traveled to Japan to meet Nichibou Co., Ltd. Our cultures have some things in common, but also many differences.

One habit common to both Japan and Sweden is taking one's shoes off before entering a home. Both societies are built on high work-ethics, and both peoples tend to obey authorities and keep in line. But, there are huge contrasts too. Sweden for instance has roughly 10 million inhabitants on an area of 447,000 km². Japan has 125 million inhabitants on 378,000 km². To us in Sweden, that is incredibly crowded - especially considering that over 70% of Japan's surface is mountains.



Visiting Nichibou's head office

Warranty and Service

The Fogmaker Fire Suppression System is designed to save lives and assets in case of a fire. The system is sturdy and reliable, and we give a two-year warranty from the production date of the products.

To not void the warranty, it is important to make sure that:

- The system is installed according to our specifications (manual 8010-002)
- The system is controlled yearly and the five and ten-year maintenances are done
- Controls and Maintenance are performed by authorized personnel
- The system isn't damaged, or altered with non-Fogmaker parts

In these cases, we cannot guarantee the functionality of the system.

Insurance Requirements

Many insurance companies require that the manufacturer's service schedule is adhered to. That means that if a system isn't serviced by a certified technician, according to Fogmaker recommendations, the insurance company may not pay out compensation if there is a fire.

Training is Mandatory

Everyone who performs service and system installations must have undergone formal training. There are four levels:

Step 1, Annual Control

The trainings are currently in-person, but online training opportunities are planned for 2023. This step gives certification to perform annual controls.

Step 2, Complete Service

After completing this course, you are authorized to empty and fill the detector

bottle and piston accumulator. This means you can perform a 5-year service - includes replacing the Fogmaker liquid - and resetting an activated system.

Step 3, Installation

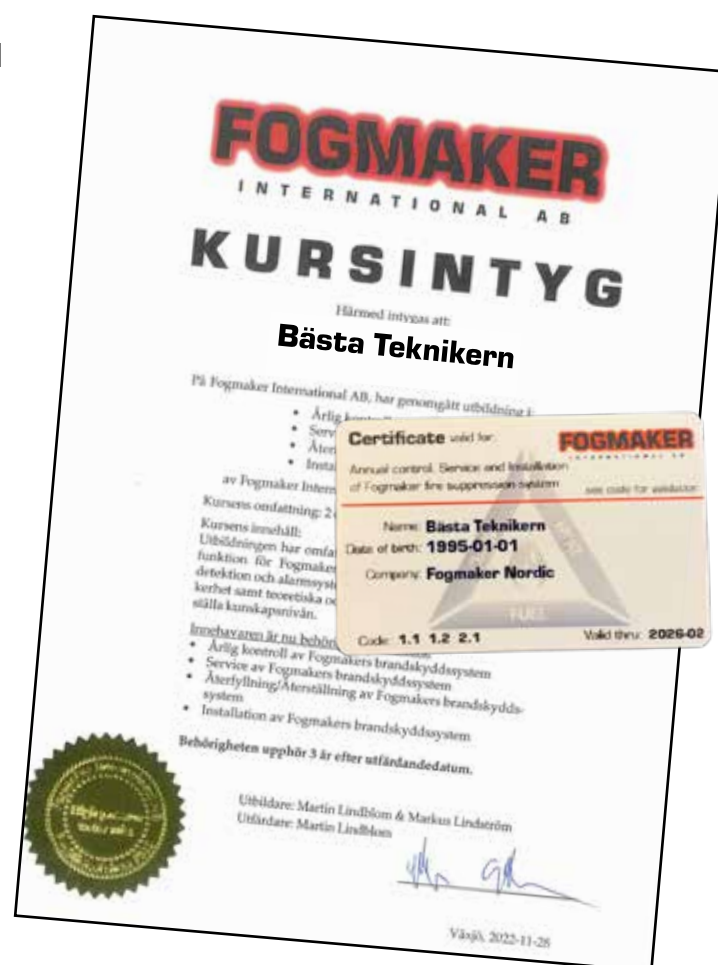
With this certificate, you are authorized to install complete systems.

Step 4, Trainer

This is the level for becoming a trainer for service, or for both service and installation.

All technicians certified by Fogmaker have a certificate and/or an identity card that includes a "valid through" date. If you're not sure if your training is still current, refer to your card/certificate or contact us.

To learn more and find a training opportunity, contact us at order@fogmaker.com.



Technical Notes

Care for the Stainless Steel Connections

When using stainless steel, for instance a stainless steel nozzle, it is important to lubricate the nozzle flange and nut thread with Molycote P40 or equivalent.

Standard nozzles should be tightened to 20 ± 1 Nm. Stainless steel nozzles should be tightened to 30 ± 2 Nm.

Torque Tip

When working on the piston accumulators, it is very important to use the correct torque. If it's too low, the pressure gauge may break loose. If it's too high, the pressure gauge may break, or the thread can be damaged, so the gauge comes loose.

The correct torque is 10 ± 1 Nm. Remember to use a new steel-rubber washer and thread sealant, Loctite 5400.

If you're replacing a pressure gauge with conical thread, inspect the threads in the cylinder cover prior to installing the new one.

You can read more about this in the service manual, page 42.



Did You Know: Benefits of Fogmaker's Detector Tube

Loss-of-Pressure detection systems are common in our business and among our competitors. Many of our competitors, perhaps all, that use a loss-of-pressure system use a tube made of polyamide. This is a crystalline plastic and bends and scratches will make it weaker (a tell-tale of a crystalline plastic is usually that it leaves a white mark if you bend it).

Heat and vibration can cause micro-cracks which lead to leakage. The crystalline plastic is also affected by humidity; high humidity will make it softer and low humidity will make it harder since polyamide absorbs water. Manufacturers that use polyamide tubes in engine compartments usually recommend it to be replaced within 4-5 years. Max ambient temperature is usually 80°C and burst temp 120°C. The upside with this tube is that is gas tight and cheap to manufacture.

Fogmaker however, uses an amorphous fluoro-plastic. The upside is that it is very durable. It is not affected by chemicals like degreaser, petrol, motor oil etc. It is not as sensitive for bends (but we still advise to handle it carefully when installing). It is not affected by humidity, and will not get micro-cracks from heat and vibration. The downside is that it is not gas tight, therefore Fogmaker uses detector liquid in the tube. The liquid makes the system much more reliable and leakage-proof than one with gas, since it is easier to contain a liquid. In the end you get a more durable system compared to the gas filled polyamide tube.

Fogmaker has been using the tube since 2008, and we have no plans to set a time limit on the life of the tube. From what we have seen from the field and third-party testing, it keeps its characteristics over time. We have done >260 000 systems since 2009, using this tube.

It should be pointed out that a constant long-term ambient temperature above 110°C could cause the system to activate. Short periods (15 minutes) of temperatures up to 135°C is OK. 170°C is the detection temperature, but that doesn't mean it will handle 169°C without bursting. 170°C is a typical mean temperature you get from a fire starts until the tube bursts.

A telltale if the installed detector tube is too hot is that the diameter is above 7 mm. Normally the tube swells to 6.5 mm after pressurization and a few engine start-ups, and this is normal. If it is above 7 mm, it is recommended to change it and re-route, or use heat-protection conduit. If it is installed where the temperature is below 110°C long-term, no change is needed for the lifetime of the vehicle.

There are many misconceptions about how hot an engine compartment is. Most compartments stay around the thermostat temperature (~90°C) with a few hotspots from turbo, exhaust manifold, and DPF. If there are concerns that 110°C is too low, it is recommended to do a temperature measuring of the vehicle with temp-stickers or a temp-logger.

/Gustav Stigsohn

Coming Soon

During spring, the electrical actuators 1318-05-M and 1318-06-M will be replaced. The new actuator - 1318-06-C has a new and more efficient design, lower weight, lower price, and is easier to install. It will be available from April 23.

The old actuator weighs 130 grams and the new one 40 grams - it is three times lighter. Installation is now performed through pulling the detector tube through the actuator, a much easier process than the old one that required tools and had to be taken apart.

1318-06-C is tailored for the R107 standard and has a 10 cm cable, but there will be cable extensions available.

The new actuator is also considerably better priced than the old one. This is a result of our current work to improve cost efficiency.



Fogmaker Distribution System

We can offer complete sets of cut-to-length pipes with the right bends and marked for easy assembly at great prices, assuming there are more than 20 of the specific kit ordered per year.

Using Fogmaker original pipes ensures the highest quality, and the best performance if something happens and the system activates.

Contact us for more information!



Check your listing!

All Fogmaker partners are listed on the website, on www.fogmaker.com/distributor - please check that your company is in the list and up-to-date.

If something is amiss with your listing, contact us at info@fogmaker.com and we will update it. Keeping these listings correct helps customers in your area find you!

We also want to remind all our partners to link back to fogmaker.com - high quality backlinks are valuable when search engines such as Google rank websites. Fogmaker International links to all our partners who have provided website information, and being as visible as possible online benefits everyone.

Don't hesitate to reach out if you need help promoting Fogmaker on your website. There are many product photos, videos, and brochures available on the marketing portal, and if you need something else we might already have it, or be able to get it for you.

The marketing portal has the current customer brochures translated to several languages. If you need another language, get in touch. We're here to help and happy to assist with files for web or print.

Important

- Your website *must* mention that Fogmaker is a Swedish system.
- Link back to fogmaker.com
- You cannot pretend that your company invented the product or that your company is the manufacturer.
- **Partners are not allowed to modify the Fogmaker logo.** You should use your logo together with the Fogmaker Certified Partner logo.

CERTIFIED PARTNER BY
FOGMAKER

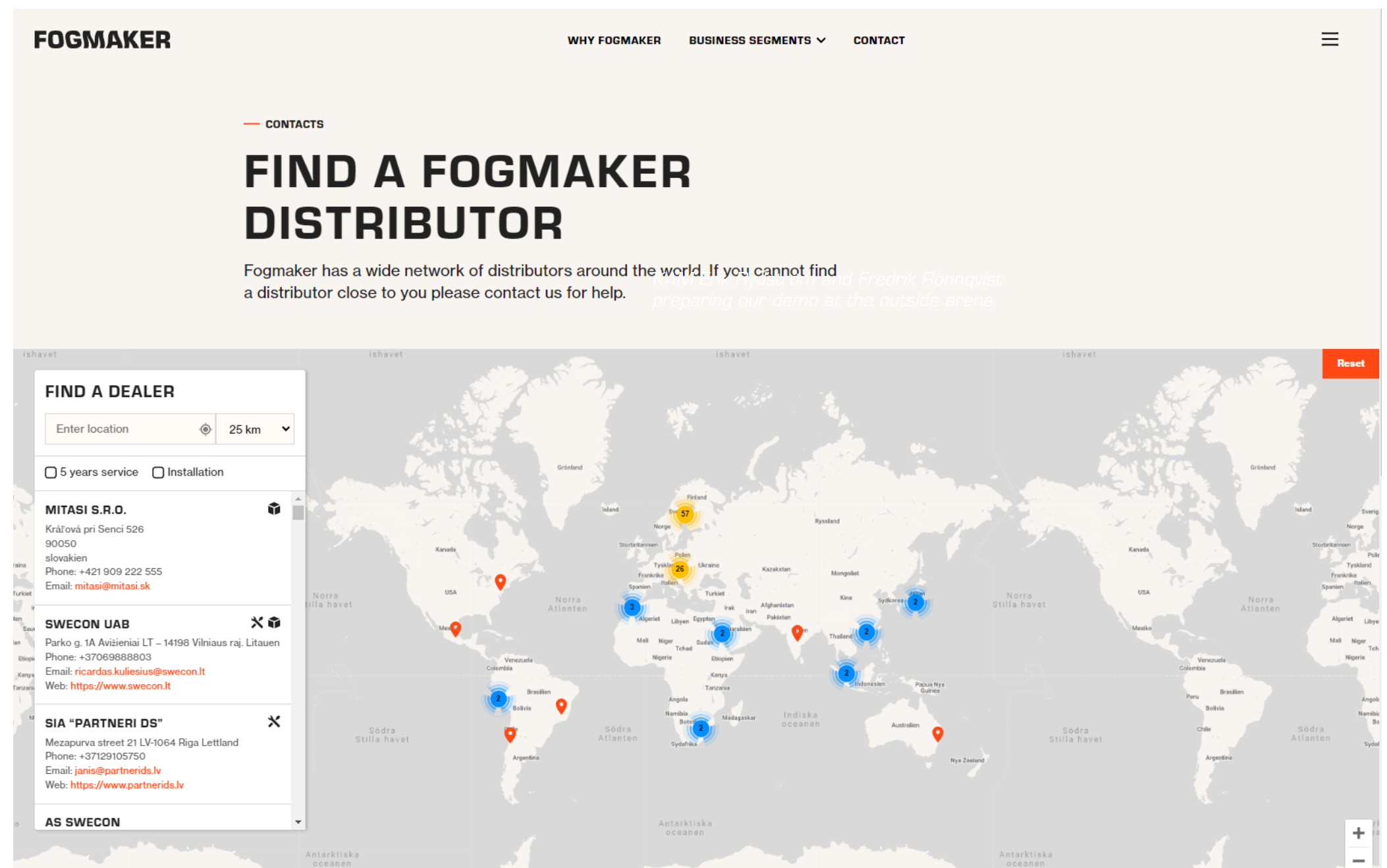
- Registering local fogmaker.* domains can only be done in cooperation with Marketing or Lars Alrutz.
- If you're in doubt of what you can or can't do marketing-wise, refer to the Marketing Portal, Partner Agreement, or contact us.

Swedish Version of the Website

Fogmaker International's new website was launched in December last year and has been translated to Swedish.

The new site can be seen at www.fogmaker.se and is intended to support Fogmaker Nordic with tending to the Swedish market.

The intention is that websites connected to fogmaker domains look similar - consistency helps build the brand - or point to Fogmaker International's site.



Marketing Updates

New Contact for Marketing

Anja Schauerte, previous contact for marketing and communications, left Fogmaker late December 2022, and has been replaced by Maria Sadowski.

Before joining Fogmaker, Maria served as Marketing Manager at SPCA Florida in Lakeland, Florida, remotely from Sweden. She says, "I lived in the US for many years and I've been in the American pet industry for well over a decade. The switch to a Swedish company is long overdue and I'm excited to work at Fogmaker."



Maria Sadowski
New Marketing Contact

When asked what she looks forward to the most, she says, "Getting to know all our partners around the world. I love working internationally, and technology has made it so much easier to cooperate from different sides of the globe."

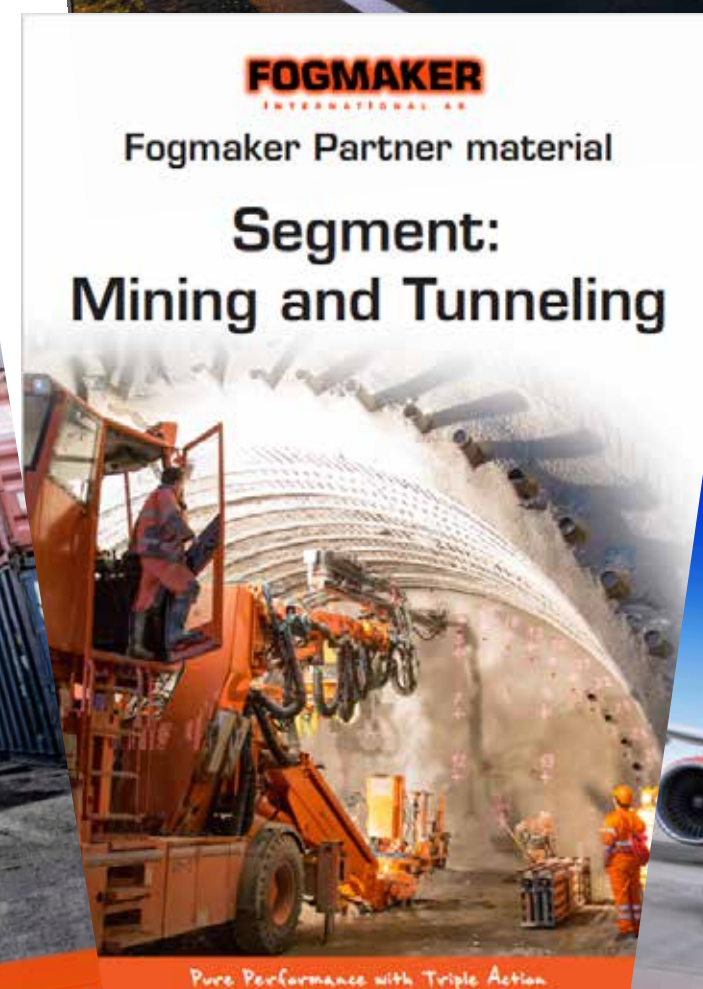
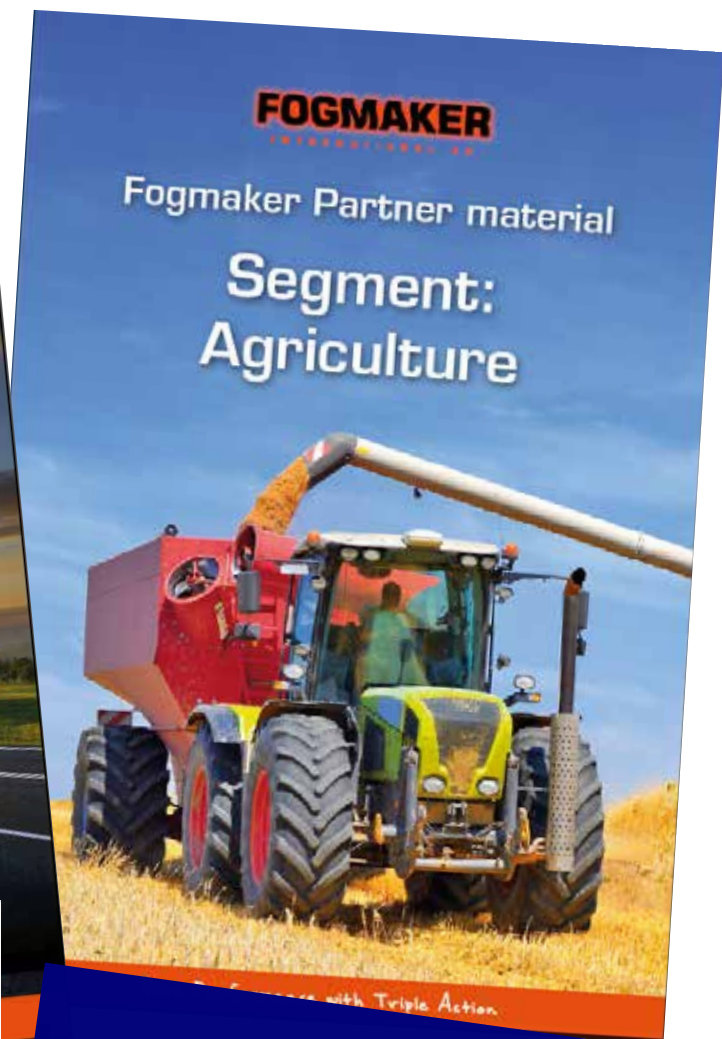
Maria can be reached on e-mail maria.sadowski@fogmaker.com or phone +46 70 222 31 40.

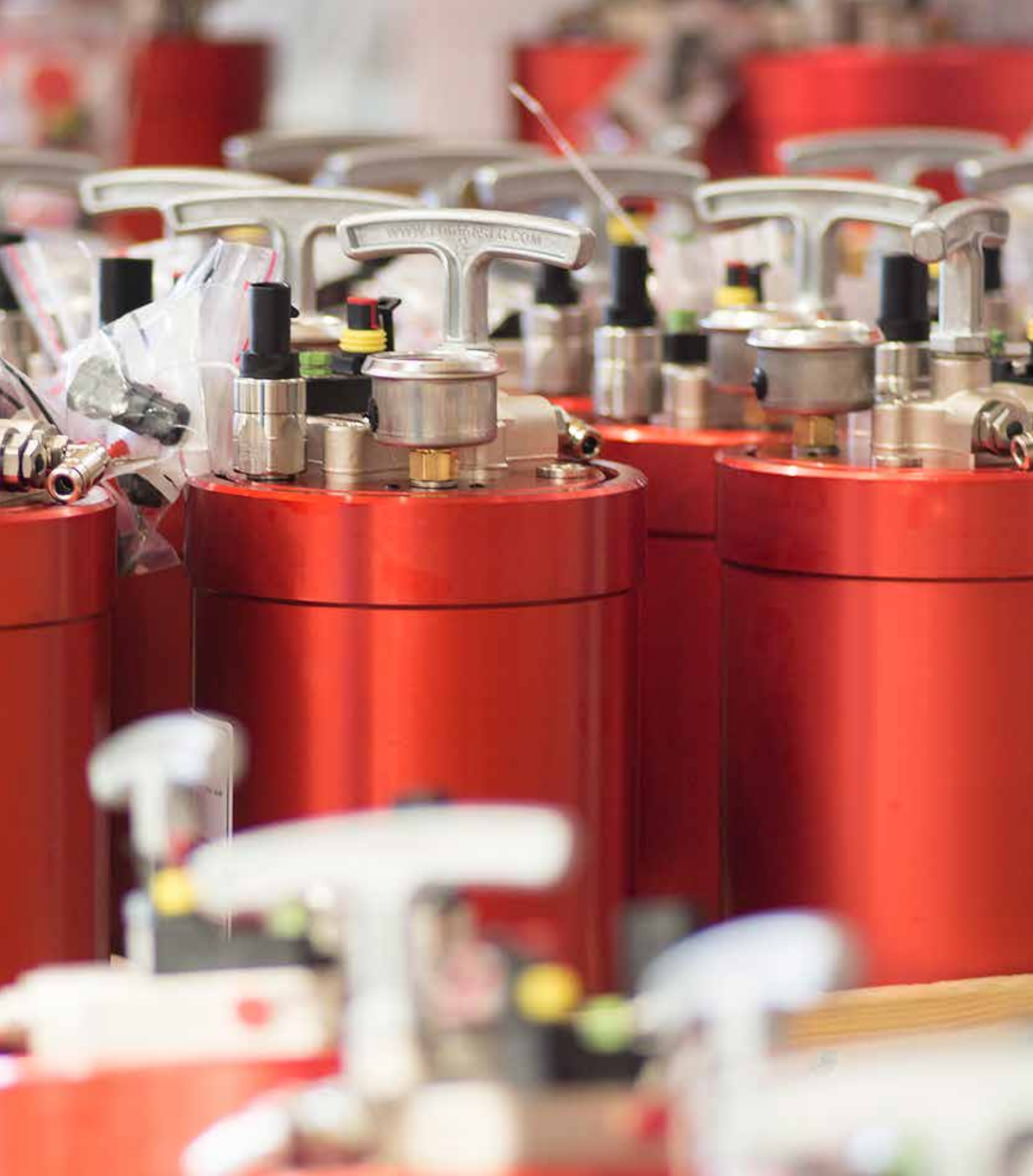
Segment Materials

We are in the process of updating/developing new partner materials for the business segments. These are uploaded to the Marketing Portal as they're completed.

First out are Fogmaker International's focus segments for 2023: Material Handling, Airport, and Mining and Tunneling. Remaining segments will be added through 2023 and early 2024.

Work is also in progress on new downloadable customer brochures for each segment. These will be created through the year and made available on the marketing portal and fogmaker.com.





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I N T E R N A T I O N A L A B