

October, 2020.

Fogmaker news

Technical and market related information for our partners.

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by learning from
thermal incidents
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Lars Alrutz, Market and Sales Manager,
Fogmaker International AB.

Managing in the new normal

In the last Fogmaker News I explained that we had a hard time making an outlook for the future. The fog has now cleared a bit and we have had three months of increased sales.

Improving figures
We have beaten last year's figures in both July and September. The bus market will be tough as I mentioned in the last newsletter. The same goes for Airport but in all the other segments it is more up to us and how much market shares we can take.

The Swedish market has a good development with 10 % increase. So far this year and it shows that it is not impossible to gain ground even in these tough times. Other bright spots on the market are Italy, South Africa, Finland, Netherlands, Poland, and Hungary which all tend to grow this year. We understand it is not easy and the conditions are very different depending on the market but it is great to see that some of you can expand in this situation. Thanks for all efforts you do and keep up the good work!

New markets
We have also started to work with three new markets; South Korea, Taiwan and Russia. This will of course mean that we will welcome new partners as well.

Segment councils
Due to the furlough, which is now on a smaller basis, we have had some trouble keeping up with the improvements. The installation database is a bit later than expected and we are

trying to catch up in October-November. Also, the Segment councils and folders for the segments are a bit late but we hope to launch more before the year-shift.

Re-organization within Fogmaker
We have made a re-organization within Fogmaker International and the most important difference for you is that Gustav Stighson now works solely as Product Manager. Maria Glosax is now managing the development team which is strengthened with two engineers and a project manager. It is very important for us to get out of the crisis leaning forward and to gain a faster product development for the future. We foresee this change to be very positive for You as a Partner as Gustav will have more time to have strategic Partner communication in product related matters.

Fogmaker partner contact
I hope you feel a stronger presence from us towards You as a Partner from the Sales and Marketing team. Our introduction of Key Account Management is going forward and we hope to close the project at the beginning of next year and we will follow it up regularly. Always feel free to contact me if You need more assistance from us.

Stay safe and well.

Lars Alrutz

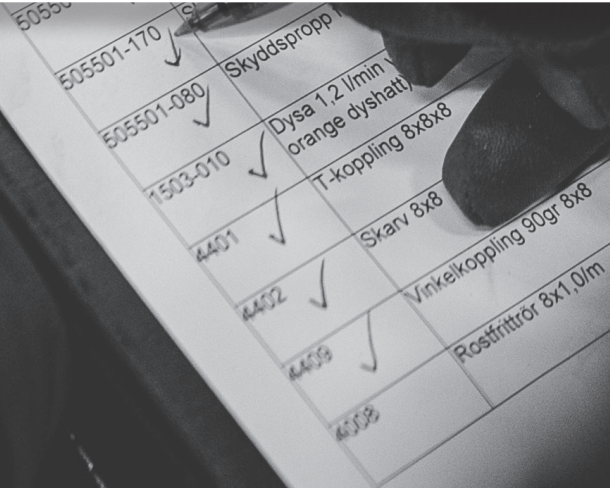


Phase 2: Implementing a new strategy for partner development

- Decision: implementing a new strategy for partner development ✓
- Strengthening the organization. ✓
- Introduction letter ✓
- Partner questionnaire ✓
- Continuous updates via Newsletters etc. ✓
- Presentation of Fogmaker Communication platform and related partner guidelines ✓
- New instructions and routines for being a Fogmaker Partner ✓
- New tool for installation documentation **ongoing** released in the summer -20
- Creating a Partner Key Account Management (KAM) team **ongoing** more information in the next newsletter
- Release of "best practice" installation database **ongoing** Will be released 2021
- Focus group: Development of Partner Portal **project start in spring -21**

Warehouse clearance

Part number	Description
69568	-Junction box black 180x130x77 IP65/67 complete
4715	Protection conduit Fogmaker 10/13.4mm orange /m
47131	Protection conduit Fogmaker 8.4/11.7mm black /m
4713	Protection conduit Fogmaker 8.4/11.7mm orange /m
1364	Protection box 7.5 l Stainless steel



If any of the products are of interest to purchase please contact our Order department for more information. Order before 31st of October.



order@fogmaker.com or +46 470 77 22 00 (select 1)

New!

The Fogmaker Mini Fire Suppression System (MFSS)

Fogmaker launch a new product – the Fogmaker mini fire suppression system with an excellent suppressing effect in small, enclosed areas. During the past year, the product has been tested on the market and is now ready to be released for a large audience.

This product fills the need when it comes to protecting smaller enclosed areas placed with a distance from the engine area. Note that the mini fire suppression system needs to be certified for each application. This normally is an uncomplicated process and Fogmaker can help and guide you through this.

Main purpose

The system can be installed in smaller compartments up to a volume of maximum 0.8 cubic meter.

Functionality

- The mini fire suppression system is largely position-independent (above 5° from the horizontal line) which makes this product versatile.
- Emptying time is approximately 50 seconds
- The recommended length for the pipe system is 0-4 meters and the detector tube length must be from 1-8 meters.
- One 1.2lit/min nozzle is installed on the distribution system.

Detection

The detection system has a pressure of 24 bars. The detection tube must be at least one meter long. In rare situations it can be longer yet, then it needs to be prefilled. At a lower pressure than 24 bars, the detector tube will burst later. Yet, the performance will be marginally affected.

Areas of usage

- Auxiliary heaters
- Bus compartments or other small areas intrains, trucks, etc.
- Coffee machines for example on trains
- Vending machines

Important notes

In the enclosed area, where the system will be installed, there cannot be any airflows in close connection to the system due to deteriorating suppression performance. The area must also be reachable for the installation and service.

Temperature

The mini suppression cylinder can be installed in warm spaces either inside or outside of the protected area. Valid temperature range for the installation of the mini suppression system is from -30 °C up to +90 °C.

We recommend using temperature indicators for control if you are uncertain.



Maintenance

It is generally the same procedure as for our large systems. All maintenance of the MFSS system is described in the Service manual. However, the 5-year service of the MFSS system means that the cylinder head needs to be completely removed to be able to refill it. Therefore we recommend the customer to buy a new/refurbished bottle. The argument is that it will be more cost-efficient for both the customer and you as a partner. Consequently, we propose that you offer a refurbished bottle, serviced and ready to use on site.

The ten-year service will not be performed since then the system has completed its lifetime.

Lifetime

The expected lifetime is 10 years. The MFSS has the same cost per cubic meter as for the large fire suppression system

Fire alarm

The product may be installed with a separate fire alarm and can also be sequence connected to our large fire suppression system.

Installation

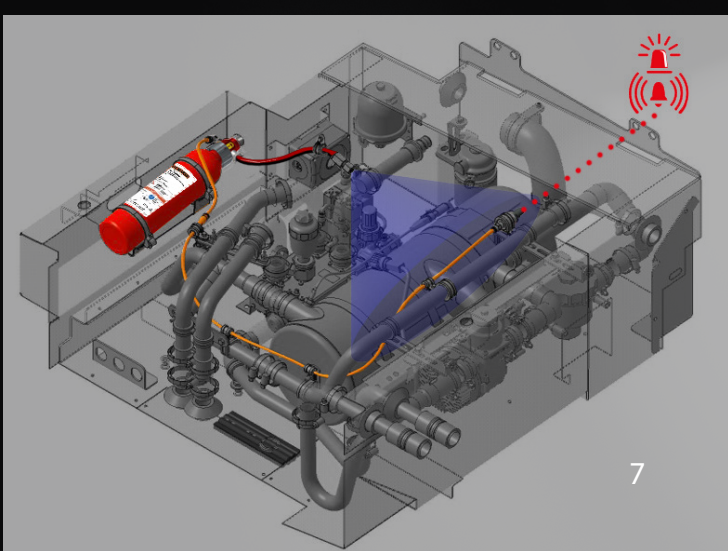
Regarding installation instructions, we underline the importance of doing the installation in the right order. This is a lesson learned during the time the mini fire suppression system has been tested on the market. If not done in the correct order this will result in unintended deployment of the system. The correct order is the same as for large systems – pressure-setting of the detector system before dismantling the safety screw/piston stop.

See Installation manual for further instructions.

Note!
Currently, this product is not available for the US market due to no DOT approval. Yet, we are looking into the possibility.

For more information

Contact our Order department for support or your KAM contact. **Order@fogmaker.com** or visit: **fogmaker.com/contacts**



NEW!

FOGMAKER
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A new Fogmaker folder

In the Partner Portal, a brand new folder is now available for you as a Fogmaker Partner.

This folder gives the reader a comprehensive overview of Fogmaker and the product. We hope you will find it useful.

Life-saving protection for vehicles and enclosed spaces

Fire suppression systems with high-pressure water mist.



BUSINESS SEGMENTS

Fogmaker high-pressure water mist is very efficient for suppressing fires in multiple areas. This makes our product interesting for a wide customer base.

The water mist gives an immediate cooling and smothering effect. It fills the entire space and the fire is extinguished. The water mist is also very effective in enclosed spaces. The water mist is also very effective in enclosed spaces. The water mist is also very effective in enclosed spaces.

Today our main business segments are:

- Bus and coaches
- Mining and tunneling
- Municipal Handling
- Airport Ground Support Equipment
- Forestry
- Construction
- Trucks
- Agriculture
- Motor racing

OUR HISTORY IN SHORT

1992 Fogmaker International AB was founded. Offering an extinguisher system to the mining sector.

2001 Fogmaker entered the bus segment and has been the global benchmark.

2002 Fogmaker entered the forestry segment.

2004 Fogmaker entered the construction segment.

2005 Fogmaker entered the airport ground support equipment segment.

2007 Fogmaker entered the mining and tunneling segment.

2010 Fogmaker entered the forestry segment.

2012 Fogmaker entered the construction segment.

2013 Fogmaker entered the airport ground support equipment segment.

2014 Fogmaker entered the mining and tunneling segment.

2015 Fogmaker entered the forestry segment.

2016 Fogmaker entered the construction segment.

2017 Fogmaker entered the airport ground support equipment segment.

2018 Fogmaker entered the mining and tunneling segment.

2019 Fogmaker entered the forestry segment.

2020 Fogmaker entered the construction segment.

2021 Fogmaker entered the airport ground support equipment segment.

2022 Fogmaker entered the mining and tunneling segment.

2023 Fogmaker entered the forestry segment.

2024 Fogmaker entered the construction segment.

2025 Fogmaker entered the airport ground support equipment segment.

OUR SYSTEM

Fogmaker fire suppression with high-pressure water mist for engine compartments or other enclosed areas is a professional and reliable system. High-pressure water mist has excellent cooling performance and provides oxygen replacement.

All three components of the fire triangle are attacked using Fogmaker's fire suppression system.

10 YEARS LIFE CYCLE COST *

This example is calculated for a bus according to a R107 standard and with a 6.5 liter fire suppression system.

Purchase cost	Annual service x 8	Five year service	Ten year service	(Reset of the system)
Contracted price	1150 €	350 €	390 €	880 €
Total cost: 1880 €				

The Fogmaker Fire Suppression System is an inexpensive life insurance. Yet, the system must be maintained to guarantee its function.

* Prices based on estimated annual costs and a Western European price level. Excluding spare parts, travel and accommodation costs.

RISK ASSESSMENT

Fire suppression systems are a life-saving device and must always operate. As a buyer you should always consider the following:

- Assess your risks
- Consider your site operators including passengers and sufficient time for evacuation
- Select the right product for the risk
- Train your operators on the system and safe evacuation of passengers
- And do the risk assessment below together with Fogmaker

Risk assessment

The risk assessment is completed by one of our Technical Support Managers. The risk assessment is completed by one of our Technical Support Managers. The risk assessment is completed by one of our Technical Support Managers.

All these questions to provide the hot spots in an engine compartment, thus giving us an understanding of where to place the nozzles to achieve an effective suppression time. This is vital to slow down the emergence of fire. All the nozzles in the engine compartment are placed in a way to ensure the body of the engine is covered. This is to ensure the body of the engine is covered. This is to ensure the body of the engine is covered.

Improved functions by learning from thermal incidents

Can problems be a good thing? Yes, they can. Of course we want to avoid them, yet thermal event will happen and we have to learn from these situations to improve our product or installations.

Fogmaker FSS systems are installed all over the world with great success and satisfied customers in many different segments. Our product quality is overall good with few problems compared to the installed base. Occasionally we do have vehicles where fires occur and where our system did not work as expected. We have during the years learned a lot by analyzing these thermal incidents and creating formal incident reports for better customer understanding.

Fogmaker wants to improve our FSS system function even more and also understand what kind of design risks our system shall protect. We need therefore your help with more incoming data on incidents/fires.

All incoming incidents will be analyzed and together with you as a partner create an incident report to present to the customer on possible root causes and improvements on the installations. We can then create something that is negative for the customer to a possible improvement for the customer.

What we need from you is:

1. log in to Fogmaker Partner portal
2. click on thermal incidents
3. register your case. Fogmaker will then contact you for further information and we will together analyze the installation for possible improvements.

“ Fire incidents should always be reported via the Partner portal.

In the Partner portal you go to Thermal incidents and fill out the easy-to-follow document.

The screenshot shows a web form titled 'Thermal incidents' within the Fogmaker Partner portal. The form is divided into several sections: 'Incident information' with fields for 'Date for incident', 'Place for incident', 'Reason behind deployment', 'Other reasons behind deployment', 'Did the Fogmaker system function as expected?', and 'Comments about the incident'. Below these are sections for 'Attached files' and 'Attached pictures', each containing a 'Load file' button. A green 'Save' button is located at the bottom right of the form.

Guidance for you as a **Fogmaker Partner**

We say welcome to all new Fogmaker Partners who take part of our newsletter for the first time. Each newsletter will contain some useful guidance for you. When you start up your first evaluation year you will naturally receive guidance and all support needed. Here we will present in short what it means to be a Certified Partner by Fogmaker.

As a Certified by Fogmaker Partner you...

- ... are Fogmaker
- ... represent Fogmaker
- ... act as Fogmaker in your territory

With your certification comes a should, which is mandatory:

- Comply with the core values of Fogmaker
- Use Fogmaker partner logo
- Know your territory's laws and regulations
- Know your own market
- Have the ability to perform service

You may/can

- Translate market tools of Fogmaker and naturally, use your own company brand in combination with Fogmaker
- Find new use/markets for Fogmaker products
- Use fasteners of your choice without approval, to install Fogmaker products. Naturally, it is your full responsibility to use just as a good and functional substitute.
- Always ask for help from Fogmaker
- Ask for information about products

If you missed our Partner development webinar copy the link here: https://youtu.be/-Z_-rTrI-cO



Project

Electrical vehicles

For a long time we have discussed electrical vehicles, both with you as Partner and with customers, regarding our system for these kind of vehicles. What has been problematic for the whole market is the intent of protecting the batteries. We all know that protecting electrical batteries is difficult.

In September we had a workshop, with an expert on battery fires and electric vehicles. This to enlighten the issue and discuss in which way the Fogmaker network will proceed. Several points were noted down as statements and as tasks to perform this autumn.

Below you can read more on how we want to proceed and points noted.

1. Increase the know-how on how different Electrical Vehicles are designed.

2. Focus more on the components around the battery than the actual battery.

- a.** Taking out a battery fire needs cooling for a very long time. Moreover, you need to get inside the battery packs for the right effect. Not even the bus-manufacturers have access inside the battery packs, therefore we need to go through the battery-manufacturers.
- b.** A battery fire is severe and the intention must be to prevent the battery from catching fire through external sources.
- c.** Our system is good to gain time, in order to evacuate people, as it can fight down the open flames from the battery for a long period of time.
- d.** The water-mist can also have a binding effect on the HF-gases which comes from burning electrolyte.
- e.** There are numerous components such as the heater, air-compressor, hydraulics, electrical devices etc. which could start the fire. Especially 12 or 24 V systems which all have direct current and grounding in the chassi are well known to create short-circuits and melted cables.
- f.** The likeliness for water-mist to damage components is a risk since the agent contains salt. Yet, it depends



on what IP-class that is used on the vehicle. We will work on finding better solutions/different agents in this project.

g. The risk that water-mist will act as an electrical conductor is small as the high voltage system for the drive line is not grounded in the chassi. There are normally several earth fault circuit breakers installed on the vehicle.

- 3. We should develop faster detection to detect smouldering fires.
- 4. The need for long systems as the components are spread out over the vehicle. This issue we need to investigate and handle. We might also need a valve-function in order to not attack spots which are not on fire.
- 5. We will make a new risk-assesment template for EV.