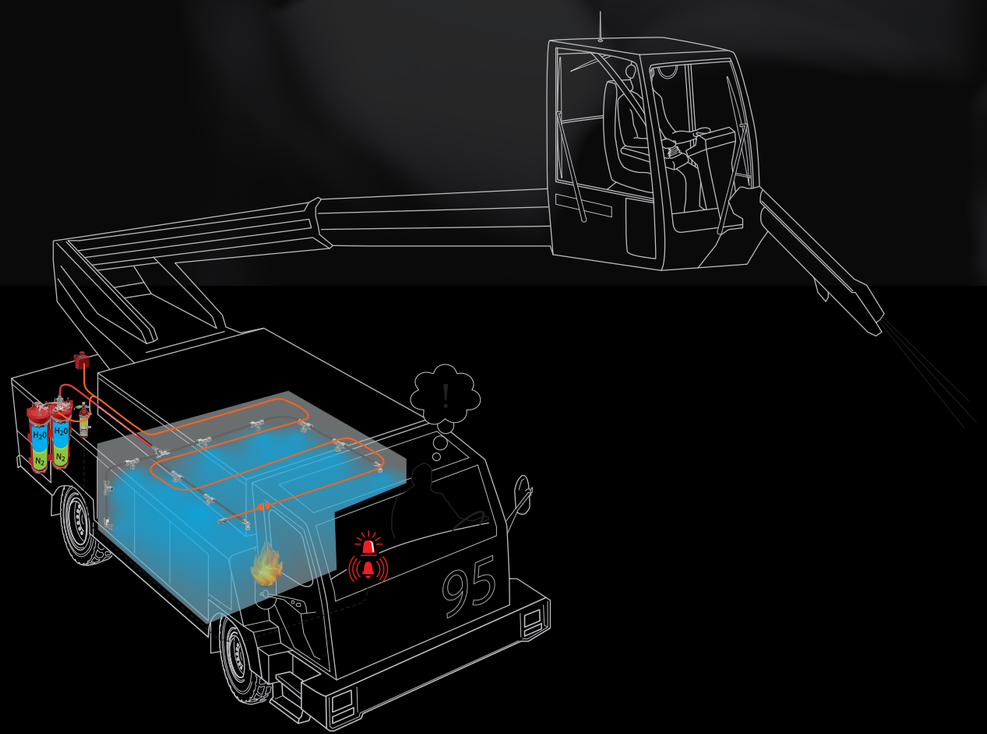
FOGMAKER
INTERNATIONAL AB



For support

For questions please contact your responsible KAM
or visit **fogmaker.com/contact** - we are happy to assist you.
Technical support can also be reached at
techsupport@fogmaker.com

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Fogmaker Partner material

Segment: Airport

Ground Support Equipment



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Introduction to the Airport Segment

Airports are extremely active places with several different types of vehicles that support flight activities. Fogmaker has been working for many years to highlight the risks within the sector. In 2019 we had a breakthrough, starting up businesses with two major manufacturers of tow-trucks. The reason for the sudden interest was several fires that damaged or destroyed the planes and highlighted the great risks of losing both lives and property.

Fogmaker has received interest from OEM-manufacturers, Airlines, Ground Support Operators and the Airports themselves. It is a complex segment due to countries and regions working in different ways, and it is difficult to get clearance to enter the aiports. Thus, the strategy is to get into the OEMs, to retrofit as many machines as possible, and take care of the aftermarket with service and spare parts.

Many of the OEMs are quite small, which makes them suitable for Partners to handle. We also have experience from retrofit installations. The main starting point has been tow trucks, and GPUs are the natural next step. All vehicles attached or docked to planes are of interest, and buses - especially in warm climates where they have double engines to run the AC.

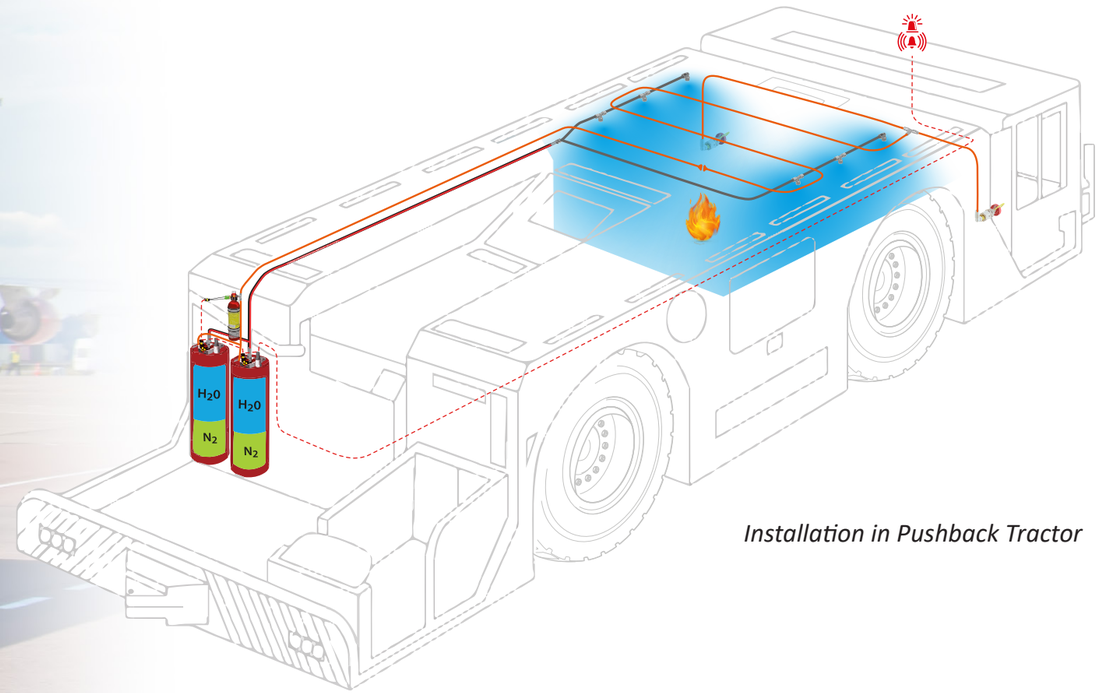
Lars Alrutz,
CEO, Fogmaker International



Good to Know

The risk categories and machines in each have been based on the potential damage to lives and equipment in case of a fire, not on the likelihood of the vehicle catching fire.

That is, a pusback tractor is no more at risk of a fire incident than a luggage tractor, but the consequences of a fire is likely to be more severe.



Installation in Pushback Tractor

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Passenger Bus

Buses used to shuttle passengers between terminals and aircrafts should be installed according to R107.





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Practical Example:

Ground power unit (GPU)

- Connected to the aircraft via cable
- Not under supervision while running
- High voltage

Installation

- 45 seconds discharge time
- 2 punches

Installation Requirements

Documentation on type installation:

Vehicle risk assessment

- Installation risk assessment and system calculations
- Installation report
- Bill of material
- Photos/Drawing on:
  - Full vehicle view
  - Piston/detection bottle position
  - Overview nozzle targets
  - Detection routing
  - Alarm panel
  - Actuators

Documentation on serial production

- Installation report

Routines

Fogmaker will review and approve all type installations.

Installation

According to Fogmaker GSE Installation Standard

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Medium Risk GSE

Examples of Medium Risk Installations

- Operating close to the aircraft
- Downtime cost low
- Additional customer requirements, for instance OEM requirements
- Produced in volume after type installations

This could for instance be de-icing equipment, fuel tanks, vehicles for runway sweeping, air start units, and air strip units.



General Installation Requirements

- Signed agreement with customer prior to installation
- All installations must be documented and saved to Fogmaker's database or partner's database.
- All installations must be signed and approved by customer before the system is activated.
- Review with customer for future service/training setup.
- Assess increased interval of service/control on high-risk installations

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High Risk GSE

Examples of High Risk Installations

Operating close to or attached to the aircraft
- Expensive damage on surrounding properties
- Risk of not being able to disconnect from aircraft
- Expensive downtime
- Additional customer requirements, for instance FM Global

Documentation on each vehicle:

Vehicle risk assessment
- Installation risk assessment and system calculations
- Installation report
- Bill of material
- Photos/Drawing on:
  - Full vehicle view
  - Piston/detection bottle position
  - Overview nozzle targets
  - Detection routing
  - Alarm panel
  - Actuators

Routines

- Fogmaker is responsible for type installation together with partner.
- Fogmaker will review and approve all installations.

System Design

According to Fogmaker GSE Installation Standard

Practical Examples:

Pushback tractor
- Connected to the aircraft
- High-power hydraulics
- May have issues during disconnection

Installation
- 90 seconds discharge time
- 3 punches

Catering/container loader
- Connected to the aircraft
- High pressure hydraulics
- Driven from platform

Installation
- 90 seconds discharge time
- Electric punch at platform



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