CERTIFICATE

C000913

Fire detection system in engine compartments of heavy vehicles

Issued to

Fogmaker International AB

Box 8005, 350 08 Växjö, Sweden

Product and product name

Fire detection system, Fogmaker Hydro-pneumatic Fire Detection System

Type

Linear heat detection, hydro-pneumatic tube

Technical data/Performance/Classification

See appendix to this certificate.

Certificate

The product described above fulfils the requirements in RISE Certification rules regarding Fire detection systems in engine compartments of heavy vehicles, SPCR 197 edition 2017-04-06. The certification is based on the manufacturer's technical file and type tests performed in accordance with standards specified in the appendix to this certificate.

Marking

Marking shall show SPCR 197, RISE logo, manufacturer's logo, the number of this certificate, the name of the product, its serial number, the name of the manufacturer and RISE P-symbol. See appendix for details.

Validity

This certificate is valid until not longer than 5th December 2024.

Miscellaneous

The manufacturer's in-house inspection is under surveillance by RISE in accordance with section 4 and 5 of SPCR 197. Other terms and conditions are set out in section 6 of SPCR 197.

Signed by: Martin Tillander
Reason: I have made this decision
Date & Time: 2019-12-05 21:18:10 +01:00

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2017-08-24

8P00948

Product information

Technical data of the tested detection system

Table 1 shows technical data of the detection system tested for 4 m^3 engine compartment volumes.
The system may be scaled to fit the size of a specific engine compartment according to the scaling rules in SPCR 197.
The detection system contains of manual actuator, electric actuator, detection tube, protection coil, alarm panel, bus alarm kit, p-clamps, pressure gauge and hydro-pneumatical detection cylinder.

Table 1, Technical data of the tested Fogmaker Hydro-pneumatic fire detection system

Manufacturer	**Fogmaker International AB**
Fire detection system name	Fogmaker Hydro-pneumatic fire detection system
Fire detection system type	Linear heat detection, hydro-pneumatic tube
Detector bottle pressure	24 bar (at +20°C)
Detector bottle filling	Nitrogen and detector liquid
Detection tube material	Ethylene tetrafluoroethylene, ETFE
Detection tube dimension	Ø 6 x 1,1
Protection coil for detection tube	6 mm
Detection liquid	Water, frost protection (down to -30°) and <1% salts
Alarm system	Bus alarm 1747-020-40 Alarm panel 1746-050
Operating temperatures of complete system	Min. -30°C and Max. +65°C
Operating temperatures of detection tube	Min. -30°C and Max. +100°C [1)]
Minimum detection tube length	956 cm
Expected activation temperature of the system	172°C
Hot surface resistance rating	Medium resistance

[1)] Ageing test of detection tube in accordance with SP Method 5320 revealed that long exposure of high ambient temperatures will affect sensitivity with increased risk of false alarms.

Performance – Test of fire detection system according to SP Method 5320, issue no.4 dated 2018-06-26

A summary of the results can be found in Table 2. The tests refer to SP Method 5320. More information about the tests is shown in the test report.

Table 2, Results

Test	Results
System coverage	Pass
Slow-growing fire	Pass
Instant large fire	Pass

*The tested system put 24 bar pressure to the cylinder, which was connected to a prefilled detector tube.

Component tests

In addition to fire tests components in the fire detection system need to be verified and tested through international standards as specified below.

Table 3, Results

Property	Standard	Result
Mechanical stress resistance (vibration and shock)	ISO 16750-3:2013 (Test VII and shock test)	Pass
	Additional 5000 shocks with acceleration 10 g and duration 20-25 ms (for off-road vehicles)	Pass
Corrosion resistance	ISO 21207, test method B (3 cycles)	Pass
Resistance to ageing combined with liquid exposure	ISO 16750-5:2010 (liquid exposure) SP Method 5320 (ageing) ISO 6722-1:2011 (verification)	Pass
Electromagnetic compatibility	UNECE Regulation No. 10	Pass
IP-classification (parts in engine compartment)	ISO 20653 (IP6K5/IP6K9K)	N/A for hydro-pneumatic tube

Conditions

A risk assessment in accordance with SPCR 197 section 3.1.2 shall be made prior to equipment being placed into service. The risk assessment shall be made by personnel having documented experience for the task.

It is the responsibility of the fire detection system manufacturer to assure compliance of its detection system components with legal requirements and vehicle manufacturer requirements.

The marking of the product shall be legible and durable and be placed adjacent to the engine compartment and be designed as below. The size of the sign shall be 40 x 60 mm.

Marking plate template: