



## Declaration P191200497

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Replaces n/a  
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### Micro FEP

STATEMENT BY KIWA

With this declaration, Kiwa declares that tests have performed on the design of the products supplied by

### K&G GROEP

The performed tests comply with Kiwa certification scheme K23003/02 " fixed fire-extinguishing systems based on non-pressurized condensed aerosol generators " of January 17th 2019 for the part on the control unit of the aerosol generators (chapter 5.2 of scheme K23003).

Within the framework of this verification by Kiwa does not impose any inspections with regard to the production.

Ron Scheepers  
Kiwa

*Publication of this complete declaration is allowed.*

# DECLARATION

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## Micro FEP

### Product specification

The products mentioned below belong to this technical approval for fire protection systems based on non-pressurized condensed aerosol according to scheme K23003.

### Application and use

Total flooding fire-extinguishing systems are used primarily for protection against hazards that are in enclosures or equipment that, in itself, includes an enclosure to contain the extinguishant. Condensed aerosol generators can be used as a part of fire protection systems in buildings, plants or other structures. It covers total flooding systems primarily related to buildings, plants and other specific applications, utilizing electrically non-conducting condensed aerosol fire extinguishants.

Where aerosol generators are used in a potentially explosive application, the suitability of the generator to the atmosphere for the determined life shall be assessed.

### Conditions and application

The numbers and types of the extinguishing components have to be determined in conformity with the guidelines and calculation methods of the supplier & manufacturer of the system.

Distribution is to be done by supplier or companies authorized by the supplier & manufacturer of the system.

Before usage an instruction is to be given by a trainer or instructor for this product authorized by the supplier & manufacturer of the system.

The installation and maintenance of the fire extinguishing components have to take place according to the specifications of the supplier & manufacturer, ISO15779, CEN/TR 15276-2 and the certification scheme K23003.

For specific details regarding the owner's manual, see ISO15779 and CEN/TR 15276-1.

### Enclosure conditions

The enclosure conditions for the fire protection system ability to function must be defined by the certified supplier. In this respect at least the following aspects should be taken into account:

Architectural provisions for enclosures in respect of fire resistance, taking into account fires from the inside and from the outside and possible sudden pressure build-up by the system and/or the flammable materials present in the enclosure;

Connection to provisions for fire detection, fire alarm equipment (optical and acoustic signaling devices) and manual alarm devices for blocking, delaying or activating an extinguishing. Before and during the extinguishing a warning should be signaled (acoustic and optical);

Connection to technical installations like ventilation and air treatment systems, smoke control systems, doors, emergency power provisions, etc.;

The use of the enclosure to be protected in regard to the storage configuration in the protected enclosure.

The relation between the flammable materials present and the fire protection system design must be clear. This must be expressed in the risk calculation belonging to the integral safety concept of the enclosure to be protected;

The use of the enclosure to be protected in regard to the presence of people and any risks this involves. This must be expressed in the risk calculation belonging to the integral safety concept of the enclosure to be protected;

The mutual influence of protection of adjacent enclosures and buildings;

Before and during the extinguishing a warning signal shall be activated (acoustic and optical according EN 12094);

The internal organization shall be provided with adequate information regarding the required (enclosure) conditions in relation to the function and activation of the fire-extinguishing system and the associated consequences in case these conditions are not met.

### Fire Detection System

Fire detection systems shall be designed to meet the requirements related to the activation of the aerosol generator(s).

### Control unit of the aerosol generators

K23003	About	Additional information	N/NC
7.5	Central Processor (Control & Indicating Equipment) of the Fire Protection System according to K23003	The $\mu$ -FEP is designed to be a stand-alone fire detection-extinguishant release panel.	Not performed
5.2	Control unit of the aerosol generators	The $\mu$ -FEP is designed to be a stand-alone fire detection-extinguishant release panel used in systems for e.g. electrical cabinets, CNC machines, engine rooms, small area's or other equipment in which the user should be able to extinguish a fire rapidly and effective. This is done by pressing two buttons, external release button or using fire sensor inputs. The $\mu$ -FEP continuously senses its inputs and, in the event of a fire, gives the correct output to enable a product specific fire extinguishing.	Pass
A	The control unit shall be, after the activation signal generated by the second fire alarm, able to: Activate the aerosol generators(s) in the protected area after the determined delay time (EN12094 and CEN/TR 15276-2).	The aerosol generators were activated after the delay time was expired (the delay time can be programmed by dipswitches up to 30 seconds).	Pass
B	The Fire extinguishing panel performance shall be demonstrated to Kiwa by type tests. Voltage loss and power calculations (first and second law of Kirchhoff) and installation drawings in the installation plan shall be bases for this demonstration. . The specific configuration shall be tested on its performance to active all the generators.	See the technical journal for the calculation. See the manual for the installation drawings.	Pass
C	Chapter 5 of EN 54-13 "Fire detection and fire alarm systems - Compatibility assessment of system components" shall be taken into account during this inspection and tests. Fire Alarm Control Panel: Expansion card: Fire Detectors: Send module: Input module: Monitor power supply: Input for blocking activation and delay extinguishing:	$\mu$ -FEP $\mu$ -ETB/DIN's tested with Apollo smoke detectors Not applicable Not applicable $\mu$ -FEP Extinguishing Release and hold button	Pass
D	Cable length (at least 100 m) and cable specification	Minimal 100 meter. Loop cabling maximum of 100 meter; Minimal copper core diameter 0,5mm <sup>2</sup> Maximum copper core diameter 1,5mm <sup>2</sup> Other cabling is set on maximum of 30 meter according manual instructions.	Pass
E	Voltage- and power of supply unit after full use in backup situation	An power supply between 6 and 28 VDC must be connected to the $\mu$ -FEP. An onboard back-up battery (model LIR2477) is used to supply the $\mu$ -FEP for approximately 4 hours in quiescent state.	Pass
F	Type and number of activators (all activators shall have been activated within the test set up)	For the test of the $\mu$ -FEP the next activators have been used: Standard Stat-X activator. Result of the current controlled $\mu$ -FEP and activator(s) is; Activating current is between 1,5 and 1,3 Ampere. The $\mu$ -FEP arranges with 1 till 5 activator(s) = 1,3	Pass

		A / 3,4 watt per activators. Specifications of the Stat-X activator are; Resistance is 2 ohm. Impulse time is 50 ms. All activation current higher than 0,5 A.	
G	Type test set-up: configuration of control unit, cables and components	See image at 7.	Pass
H	Function: short-circuit and wire cut protection and in case these occur, an fault message to the control unit.	Short cut: tested and a fault signal was generated Wire cut: tested and a fault signal was generated.	Pass
I	The output of the type test shall be declared in the attest part of the product certificate of the certified supplier. When the configuration is changed, a new test shall be performed.	Attest part clear.  Design changes shall reported to Kiwa before implementation.	Pass
J	The type test shall be repeated every 5 years for verification.	Laid down in this technical approval.	Pass

Configuration	Specifications
Fire Alarm Control Panel	μ – FEP (Fire Extinguishing Panel).
Fire Detectors	According to scheme K23003 and the manual of μ – FEP with the μ –ETB's.
Output module	μ -ETB (Extinguishers Terminal Boards) intended for limited systems: <ul style="list-style-type: none"> <li>- The μ-ETB/DIN terminal board.</li> <li>- The IP-protected junction box.</li> </ul>
Input module	μ-FEP for detection & sounders & buttons: <ul style="list-style-type: none"> <li>- Conventional Apollo fire detectors.</li> <li>- Linear cable heat detection.</li> <li>- Beacon / sounder.</li> <li>- External hold-off button.</li> <li>- External release button.</li> </ul>
Cable (for loop)	Loop cabling maximum of 100 meter; Minimal copper core diameter 0,5mm <sup>2</sup> . Maximum copper core diameter 1,5mm <sup>2</sup> .
Cable (extinguishing lines and other)	Loop cabling maximum of 100 meter. All others are set on 30 meter. Minimal copper core diameter 0,5mm <sup>2</sup> . Maximum copper core diameter 1,5mm <sup>2</sup> .
Auxiliary power supply	For EN54-4 conformity shall an auxiliary power supply be needed certified according EN54-4.
Activator of the generator Stat-X	See F.
Manual	Version 1.3; 25 February 2020. Technical journal μ-ETB blusaerosol 1 April 2020
Hardware version	E
Software release version	0.5

## **Marking**

No marking is allowed because chapter 7.5 of scheme K23003 has not been verified.

## **RECOMMENDATIONS FOR CUSTOMERS**

Check at the time of delivery whether:

- the supplier has delivered in accordance with the agreement;
- the products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:

- K&G Groep.

Consult the supplier's processing guidelines for the proper storage, transport and processing methods.