Shenzhen EEL Battery Co., LTD

Thermal aerosol fireextinguishing unit

Model number: QRR 0.01 GW / S

specification

1. Product overview

New thermal aerosol fire extinguishing device, is a kind of high fire fighting efficiency and reliability of fire breakthrough products, the product has a small volume, no pressure storage, without laying pipe network and maintenance, fire efficient, rapid, non-toxic, safe and reliable, green environmental protection, especially suitable for communication room, battery compartment, engine compartment, battery box and other relatively closed places.

2. product function

The inhibitory effect of S-type thermal aerosol on fire is mainly reflected in the following aspects:

The fire extinguishing mechanism of general fire extinguishing agents mainly includes isolation method, asphyxiation method, cooling method and chemical inhibition method, and different fire extinguishing agents have different fire extinguishing mechanisms. The fire extinguishing mechanism of thermal aerosol is mainly reflected in two aspects: on the one hand, the cooling effect of heat absorption and decomposition, on the other hand, the chemical inhibition effect of gas phase and solid phase, which cooperate with each other. In addition, the gas phase component in the aerosol fire extinguishing agent product also plays a certain role in paving it.

 $\left(1\right)$ The cooling and fire-extinguishing function of heat absorption and decomposition

The cooling effect of thermal aerosol fire extinguishing agent mainly depends on the endothermal decomposition of tetra-metal oxides and carbonates. Any fire in a relatively short time of heat is limited, if in a relatively short time of the aerosol solid particles can absorb fire heat, the flame temperature will decrease, radiation to the combustion surface and used to have gasification combustible molecular cracking into free radical heat will be reduced, combustion reaction will get a certain degree of inhibition.

(2) Gas-phase chemical inhibition

Under the action of heat, thermal aerosol fire extinguishing and decomposed gasification metal ions such as Sr, K, Mg or cations that lose electrons exist in the form of steam, and have multiple chain reactions with the active groups H, OH and O in combustion. Take Sr as an example below:

 $Sr+2 \bullet OH \rightarrow Sr(OH) Sr+O \bullet \rightarrow SrOSr(OH) 2+2H \rightarrow Sr+2H2O$

Repeated, the active group in the combustion is greatly consumed, the concentration is constantly reduced, and the combustion is suppressed.

(3) Solid-phase chemical inhibition

The solid particles in the thermal aerosol fire extinguishing agent can adsorb the chain reaction intermediates OH, H and O, and catalyze them to form stable molecules, so that the branched chain reflection terminal of the combustion process, with K for example:

 $K20(s)+2H(g) \rightarrow 2KOH(s)$

$$KOH(s) + OH(s) \rightarrow KO(s) + H2O(s)$$

 $K2O(s) + O(g) \rightarrow 2KOKO(s) + H(g) \rightarrow KOH$

In the above fire extinguishing effect, several fire extinguishing mechanisms interact with each other and play together, but the transmission effect of gas and the heat absorption and cooling effect of metal oxide or carbonate only play the supporting effect, while the main fire extinguishing effect still depends on the chemical inhibition effect of gas and solid phase.

3. Scope of the application of the products

3.1. Scope of application

The thermal aerosol system is a fully submerged system, which is suitable for extinguishing class A, B, C and E fires in relatively closed space

- A. Class A fire suppression: such as the initial fire of solid substances such as wood and paper, which is suitable for fire in relatively closed places such as wood products storehouse, archives, museums, library, reference rooms and other places;
- B. Fire class B fire: it is suitable for storing diesel oil (except diesel no. 35), heavy oil, transformer oil, animal oil, vegetable oil and other relatively closed class C combustible liquids;
- C. Class C fire suppression: suitable for the storage of all kinds of gas, such as gas, natural gas, methane, ethane, propane and other relatively closed place fire;

E. Class E fire extinguishing: suitable for transformer (distribution) power room, wind power electrical box, generator room and cable

Fire in interlayer, cable shaft, cable trench, electronic computer room, communication room, battery compartment, engine compartment, power changing cabinet and other relatively closed places.

3.2. Inapplicable scope

Thermal aerosol automatic fire extinguishing device shall not be used to save fires caused by the following substances:

A, chemicals that can still oxidize rapidly without air, such as nitric acid fiber, gunpowder, etc.

B, active metals, such as potassium, sodium, magnesium, titanium, zirconium, uranium, plutonium, etc.

C, compounds that can decompose by themselves, such as some peroxides, hydrazine, etc.

And d, metal hydrides, such as potassium hydrogen, sodium hydrogen, etc.

 ${\ensuremath{\mathsf{E}}},$ spontaneous combustion substances, such as phosphorus.

F., strong oxidants, such as nitrogen oxide, fluoride, etc.

3.3. Not applicable places

A. Dpopulated places such as business, catering services and entertainment;

B. The place for storing inflammable and explosive materials.

4. technical parameter

4.1 XF 499.1 Aerosol Fire Extinguishing System-Part 1: Thermal aerosol Fire extinguishing Device

- 4.2. Term of validity: 10 years
- 4.3. Start-up mode: hot start
- 4.4 Start temperature: 170 \pm 10°C
- 4.5. Ambient temperature: -50° C + 90° C
- 4.6. Protection space is $0.1m^3$
- 4.7. Thermal aerosol occurrence dose: 10g \pm 1g
- 4.8. Spray and release lag time: 1s
- 4.9. Thermal spacing: 0.02m≤400°C;0.05m≤200°C;0.1m 75°C
- 4.10. The device mass is 49g + / -10g
 - 4.11. Feedback signal: passive switch signal (often turned on on standby, often closed after starting (more than 80℃))

5. Structural installation



explain:

- 1. Unit: mm
- 2, all metal shell, strong corrosion resistance, surface black coating;
- 3. The device adopts one end air mode;
- 4. The exposed length of thermal sensitivity line is customized

according to user needs, and electric start can be selected;

- 5. Optional switching quantity signal feedback device;
- 6, both ends are fixed, screw fitting specifications M3.

Vi. Notes for use and operation

6.1. It is strictly prohibited to pile up equipment, sundries and other obstacles within 0.1m in front of the fire extinguishing device nozzle

ire extinguishing effect period of the fire extinguishing device.

6.2 After the device is started, please contact the company in time for replacement.

6.3 The validity period of the initiator is 10 years. After the validity period exceeds, the user shall contact the supplier for replacement.

Seven, safety tips

7.1. Non-professionals do not dismantle it.

7.2 After spraying, never touch the shell before the cooling to prevent scalding.

VIII. After-sales service

Our company will implement three guarantees of service and corresponding technical support in accordance with the relevant national regulations of fire protection products.

Ix. Contact information

9.1. Manufacturing unit: Shenzhen Fuji Technology Co., LTD9.2 Address: 1011, Building 4, Baobao New Science Park, Light Source, Fenghuang Street, Guangming District, Shenzhen City, Guangdong Province

9.3. Hotline: 0755-27162079

X. Relevant technical standards

10.1, XF499.1-2010 Aerosol fire-extinguishing System- -Part 1: Thermal aerosol fire-extinguishing device
10.2. GB 50370-2005 Design Code for Gas Fire Fighting System
10.3. GB 7528-2017 Safe Technical Conditions for Motor Vehicle Operation

10.4. GB 50263-2007 Code for Construction and Acceptance of Gas Fire Fighting System

XI. Appendix

