

FIRE SECURITY ΤΕΧΝΙΚΗ ΜΟΝ. Ι.Κ.Ε.

ΕΤΑΙΡΕΙΑ ΠΥΡΑΣΦΑΛΕΙΑΣ - ΠΥΡΟΠΡΟΣΤΑΣΙΑΣ

Υδρας 10, Αθήνα & Θωμά Παλαιολόγου 87, Αχαρναί

Τηλ. : 210 2401083 – 210 2441413 www.firesecurity.gr – info@firesecurity.gr

ΔΟΥ: Δ' ΑΘΗΝΩΝ – Α.Φ.Μ. : 800594893

ΕΘΝΙΚΗ ΤΡΑΠΕΖΑ IBAN: GR 96 0110 1080 0000 1080 0119 322

Eurobank IBAN: GR 1102 6027 3000 0910 2015 040 52

TECHNICAL DESCRIPTION

DSPA FIXED EXTINGUISHING SYSTEM

Extinguishing mechanism

The aerosol DSPA, is being a suspension of fine solid particles with a typically diameter less than 5 microns, in a gaseous medium, generally a combination of nitrogen, carbon dioxide and a minor amount of water vapor. The agent utilized is generally a combination of potassium salts.

Aerosol agents suppresses the fire (primarily) by chemical interference with the "fire propagation" free radicals within the fire zone, thus interrupting the on-going fire reaction. Aerosol DSPA extinguishes the fire without depleting the oxygen.

Fire Class

Condensed aerosols are recognized by International Standards (See Table 1) as suitable for extinguishing of surface Class A, Class B, and Class C. Europe use the International Standard "Classification of fires" according EN 2 (Table 1), while the United States uses the NFPA system (Table 2) The hazards against which these systems offer protection and any limitations on their use, are described in this Manual.

Fire Class according to EN 2	Description
Class A	All solid materials, usually organic origin nature (contains compounds of carbon) and generally produce glowing embers – i.e. wood, textiles, curtains furniture and plastics
Class B	All flammable liquids and solids
Class C	Natural mains gas, liquid petroleum gases (e.g. LPG – Butane & propane etc) and medical or industrial gases.

Table 1 Classification for fires according to International Standard EN 2.

Fires Class according to Standard NFPA 2010	Description
Class A	Ordinary combustible materials, such as wood, cloth, paper, rubber and many plastics
Class B	Flammable liquids, combustible liquids, petroleum, tars, oils, oil-based paints, solvents, lacquers, alcohol and flammable gasses
Class C	Energized electrical equipment

Table 2 Classification for fires according to Standard NFPA 2010

Tests & Certifications

The condensed DSPA aerosol generators are complied and certified by KIWA, according to the requirements and test methods to the following Standards:

- BRL –K23001/04:2010 Evaluation Guideline for aerosol fire extinguishing for the product certificate for fixed dry aerosol fire extinguishing components
- CEN/TR 15276-1:2009 Fixed firefighting systems - Condensed aerosol extinguishing systems – Part 1: Requirements and test methods for components

- NEN-ISO 15779:2011 Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements
- UL subject 2775: 2008 – Outline of investigation for fixed condensed aerosol extinguishing system units.

All condensed DSPA aerosol generators conform with the EMC Directive 2004/108/EC according to below harmonized standards:

- EN 55011 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
- EN 61000-4-3 Electromagnetic compatibility (EMC) - Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test

The conformity of the mentioned products according above Directives is affixed by the CE-Mark and the information can be requested by relevant Authorities.

The manufacturer of the condensed aerosol generators is certified according to ISO 9001.

DSPA aerosol generators are listed under the United States Environmental Agency (EPA) Significant New Alternatives Program (SNAP) for unoccupied and normally unoccupied spaces.

Thermo chemical operation

In case of fire detection system's fault, the DSPA aerosol generators can also be activated automatically, by thermo chemical reaction of the aerosol solid forming compound at 270 °C.

Serviceable Life Time - Warranties

The DSPA Generators are to be replaced 15 years from the installed date of the logbook. There is a grace period of one year as the generators are certified for a period longer than 15 years to ensure a full 15 years in actual service.

The following procedures shall be performed for replacing or removing a system from service:

1. The DSPA Generators 11-1, 11-2, 11-3, 11-4 and 11-7 series must to be replaced after an installed service life of 15 years.
2. The DSPA Generators 11-5, 11-6 and 8-1 must to be replaced after an installed service life of 15 years
3. The "screw-in" activator of DSPA Generators 11-5, 11-6 and 8-1 must be replaced after an installed service life of 5 years

Installation

The DSPA aerosol generators should be installed by authorised and trained personnel.

Commissioning and acceptance tests

The completed DSPA system shall be commissioned in accordance with the commissioning Checklist. On completion and acceptance of the commissioning the installation contractor shall issue a commissioning report.

Maintenance Procedure

A regular program of systematic maintenance must be established to ensure continuous, proper operation of any fire suppression aerosol DSPA system.

A periodic maintenance schedule must be followed and an inspection log maintained for ready reference. At a minimum, the log must record: (1) inspection interval, (2) inspection procedure performed, (3) maintenance performed, if any, as a result of inspection, and (4) the name of the responsible person performing the operation.

Post Fire Operation

After discharge of a DSPA aerosol generator, qualified fire suppression system maintenance personnel must perform post fire maintenance and system installation procedures according to the DSPA's technical Manual.

Fire Extinguishing Control Panel

The Fire Extinguishing Control Panel, for the monitoring and control of aerosol extinguishing systems should be according to EN 15276-2. The control panel fulfills all mandatory functions and the most important options of EN 12094-1. It is tested, according to the Construction Products Directive CPD, for compliance with the European Standards EN 54-2, EN 54-4 and EN 12094-1. The control panel is integrated in a wall-mount cabinet. The cabinet consists of a powder coated steel sheet base and a removable plastic cabinet cover. In the basic version, the control panel contains 3 conventional detector zones for the connection of fire detectors and 1 extinguishing output. Furthermore, the wall-mount cabinet can accommodate stand-by batteries 2 × 12V/max. 7Ah. Enclosed with the control panel is a documentation in English language.

The integrated extinguishing module provides inputs and outputs for monitoring and controlling the components of the aerosol extinguishing system:

- Extinguishing output for the line-monitored connection of the activation device for the extinguishing agent
- Inputs for activation devices (for manual activation of the extinguishing system), for emergency hold devices (for delaying the flooding process) or for emergency abort devices (for aborting the flooding process)
- Input for fault detectors (e.g., monitoring the pressure of the extinguishing agent)
- Inputs for a disable device (for displaying the mechanical blocking of the extinguishing agent's pipe network), for a flooding switch (for displaying the flow of the extinguishing agent) and for switching into the manual only mode
- Outputs for signaling devices (e.g., sirens, warning signs) to display the activated condition and the released condition

The system-specific parameterization of the control panel can be directly accomplished via the keypad of the integrated display and operating field without the requirement of any additional support. During commissioning of the extinguishing control, the functions of the extinguishing system, the combinations of the detector zone(s) for activation of the extinguishing output and the delay times for the sequence of the flooding process are parameterized according to the country-specific regulations. The practical factory settings allow easy and time-saving commissioning of the fire/extinguishing control panel.