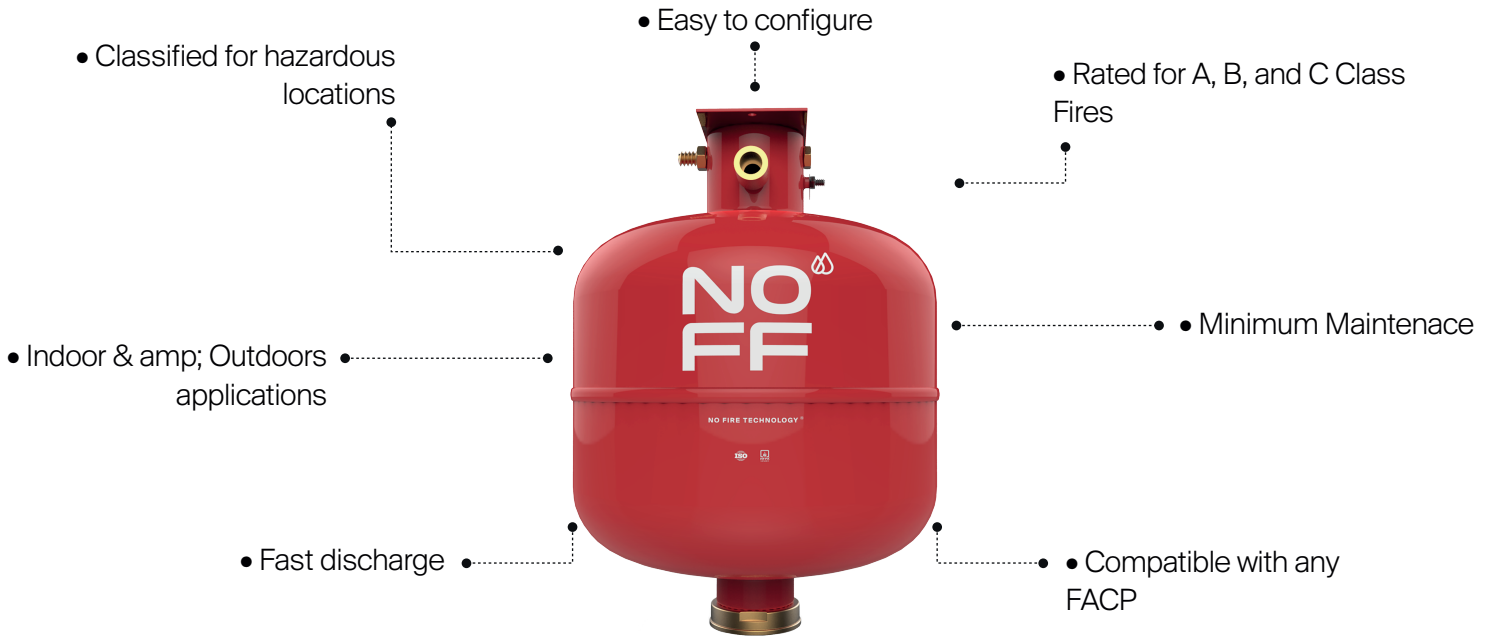




# Explosion-Proof Fixed Dry Chemical Powder Fast Response Fire Suppression Unit

## TECHNICAL DATASHEET



## We protect what matters the most

### OVERVIEW

Explosion-Proof Fixed Dry Chemical Powder Fast Response Fire Suppression Unit is an innovative fire extinguishing device designed to protect specific machinery, indoor and outdoor areas, or entire enclosed spaces, which brings low-cost installations in the field because its versatility and adaptability capabilities as can be installed faster in comparison with traditional water-based fire protection systems. The explosion-proof unit detects and extinguishes fires in indoors, outdoors, or enclosed spaces, preventing the spread of fire.

This unit is an analog fire suppression device capable of connecting to any conventional fire alarm and detection system. This suppression unit is not self-activating thus it must be linked to a fire detection system or a very early smoke detection system. In addition, this unit can be activated manually by any person using manual pull stations connected to a power supply. As reference, each unit needs an electrical current to be activated, it means that booster power supplies are necessary in the system.

This unit is called Fast Response because it got activated quickly in the presence of smoke as it works together with a fire detection system providing an easy, simple, and fast mean of fire protection of any indoor & outdoor area or enclosed space. Activation can be configured using the fire alarm control panel (in example, a cross activation using two smoke detectors), therefore full or partial discharges of the system can be performed. Horns, alarms, strobes, as well as to turn off air conditioning systems can be enabled at the same time with the support of the fire alarm control panel.

This fast response Unit makes it possible to fire-protect a full range of hazardous locations with an investment of less than 30% up to 40% in comparison with old-style water-based fire protection systems. The explosion-proof unit extinguishes ABC-type fires easily utilizing a special superfine dry chemical powder formulated by NOFF that is 10 times more effective than conventional dry chemical powder utilized in traditional portable fire extinguishers.

This NOFF fire suppression unit uses a multipurpose superfine dry chemical powder as extinguishing agent that is effective on fires involving ordinary combustible (such as wood or paper, and fires involving flammable liquids), which is intended for the use in enclosed spaces or local applications in hazardous locations. It is a highly efficient extinguishing agent that is electrically non-conductive and non-corrosive if prompt clean-up is conducted as soon as possible. The NOFF fast response unit uses a device very similar to an airbag (which are used widely in the automotive industry) as mean of activation, this technology has been in the market for about 50 years, and it is so reliable and safe that it is still being used.

#### STANDARD FEATURES

- Adequate for fire and explosion hazards
- Intrinsic safety unit
- Capable of integrating with any Fire Alarm Control Panel (FACP)
- Rapid extinguishing
- Indoors application
- Easy Installation
- Stand-alone activation
- Multipurpose superfine dry chemical powder as extinguishing agent.
- Variety of models available.
- Reliable integrated heat sensitive glass bulb.
- Minimum Maintenance.
- Self-activating.
- No hazard to human health
- Electrically non-conductive
- No damage to equipment and materials.
- High-safety for people.
- 10 years Lifetime.
- Fast release of dry chemical powder in seconds

#### APPLICATIONS

Fire suppression today is an important part of a growing number of life safety installations and a mean not only to protect investments, high-tech machinery, and important equipment but also minimize business interruption saving millions of dollars in down-time and loss of production. Nowadays, building owners are looking to fire suppression as a means of protecting their property and assets. Below, you will find a list of application examples for the Explosion-proof Fixed Dry Chemical Fast Response Fire Suppression Unit product line:

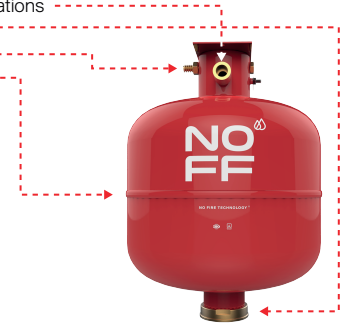
- Petroleum Refineries.
- Utility LP gas plants.
- Spray Paint Booths.
- Flammable and combustible liquids storage areas.
- Distilleries.
- Flammable liquids warehouses.
- Laboratories.
- Aircraft hangers.
- Coal mines.
- Wood working facilities.
- Grain milling processes.
- Fuel stations (storage and dispensing areas).
- LPG or natural gas stations (storage and dispensing areas).
- Textile dyeing and printing plants.
- Hazardous waste room.
- Chemical plants.
- Detergent manufacturing plants..
- Alcohol production facilities.
- Paint shops.
- Dangerous waste storage areas.

## TECHNICAL DATASHEET

### AMFE™

#### PARTS OF THE EXPLOSION-PROOF FIXED DRY CHEMICAL FAST RESPONSE FIRE SUPPRESSION UNIT

- Couple rated for hazardous locations
- Aluminum Seal.
- Wires.
- Cylinder (carbon steel).
- Superfine dry chemical powder (Extinguishing agent).



#### OPERATION

The Explosion-proof Fixed Dry Chemical Fast Response Fire Suppression Unit is not a self-activating device and must be linked to a fire detection system. Each unit has an internal built-in device very similar to an airbag, this component needs an electrical current to generate a chemical reaction, that eventually increase the internal pressure within the cylinder releasing in milliseconds the extinguishing agent from the unit. The unit dispenses the entire multipurpose superfine dry chemical powder in less than 10 seconds onto the fire and throughout the hazard area or enclosure being protected.

When discharged, the superfine dry chemical acts as a layer between the oxygen and the fuel, thus suppressing the fire. It also poses no hazard to the human health.

Each fire suppression unit needs a mean of activation, in example: smoke detectors, photo beam, heat detectors, infrared sensors, air sampling smoke detectors, etc. When a detector identifies smoke, heat, or flames, it sends a current signal in response. Once the panel detects this current, it enables a relay module that allows the direct flow of an electrical current to the fire suppression unit. At the same time, the fire alarm control panel could also sound an alarm, horns or strobes.

The means of activation could be automatic or manual (i.e.: manual pull station connected to a booster power supply) and must provide an electrical current of 0.5 Amperes.

Each Fire Suppression unit is intended for use in indoors: enclosed (total flooding applications) or outdoors (Local applications: spot protection).



#### A) LOCAL APPLICATION SYSTEMS.

This type of design applies to discharge dry chemical powder directly onto the hazard (fire), indoors or outdoors. When multiple Fire Suppression units are protecting the same area, the area shall be divided into sections so that each section contains a unit that does not exceed the area limitations for the unit.

#### B) TOTAL FLOODING SYSTEMS.

This type of design applies to discharge dry chemical powder into an enclosure surrounding the hazard. When multiple Fire Suppression units are protecting the same enclosure, the enclosure shall be divided into sections or modules so that each section contains a unit that does not exceed the volume limitations for the unit.

#### • DESIGN

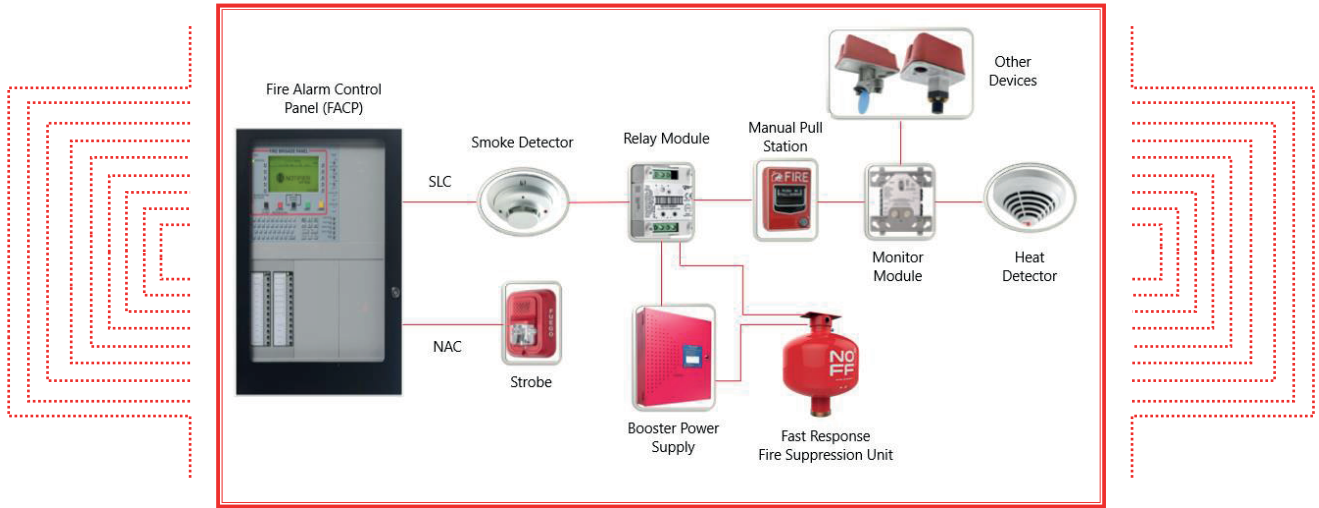
For design purposes, we recommend you contact the NOFF technical staff so that they can assist you in the best way. NOFF technical staff will provide you with the necessary official training seminars and tools so that you can propose solutions using The Fixed Dry Chemical Stand-Alone Fire Suppression Unit in accordance with world-wide recognized fire protection standards such as **NFPA 17, Standard for Dry Chemical Extinguishing Systems.**



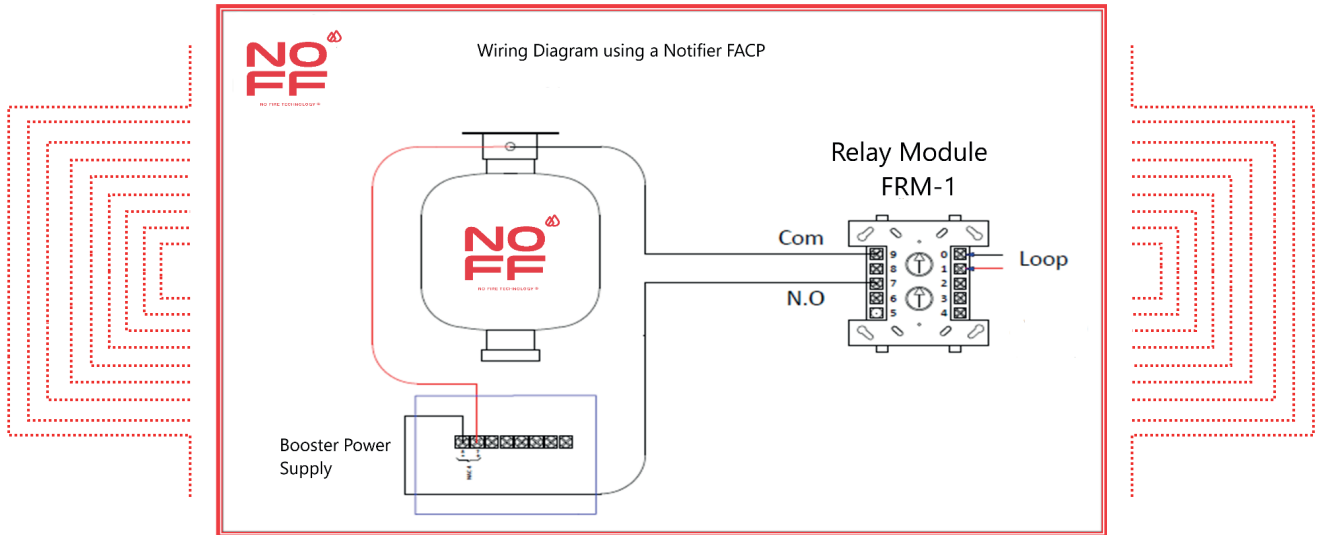
**• WIRING**

This Explosion-Proof Unit needs to be fed by a power supply; therefore, an electrical current of 0.5 Amperes is need it to activate each unit. All wiring should run through metal conduit piping suitable for hazardous locations based on NEC requirements.

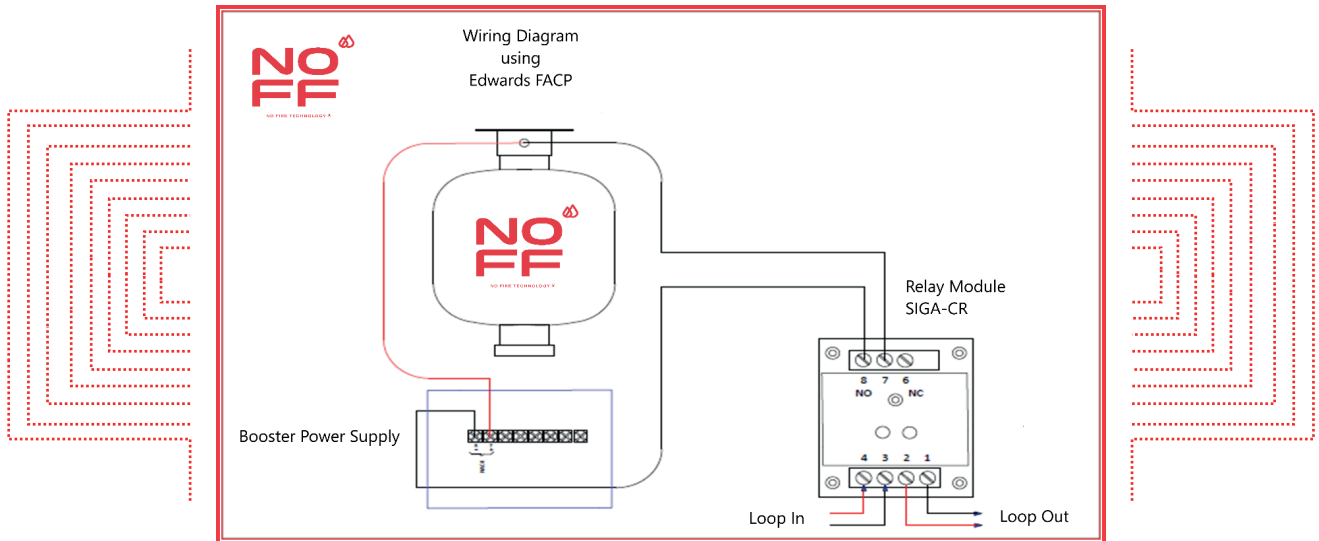
a) Example of a common connection:



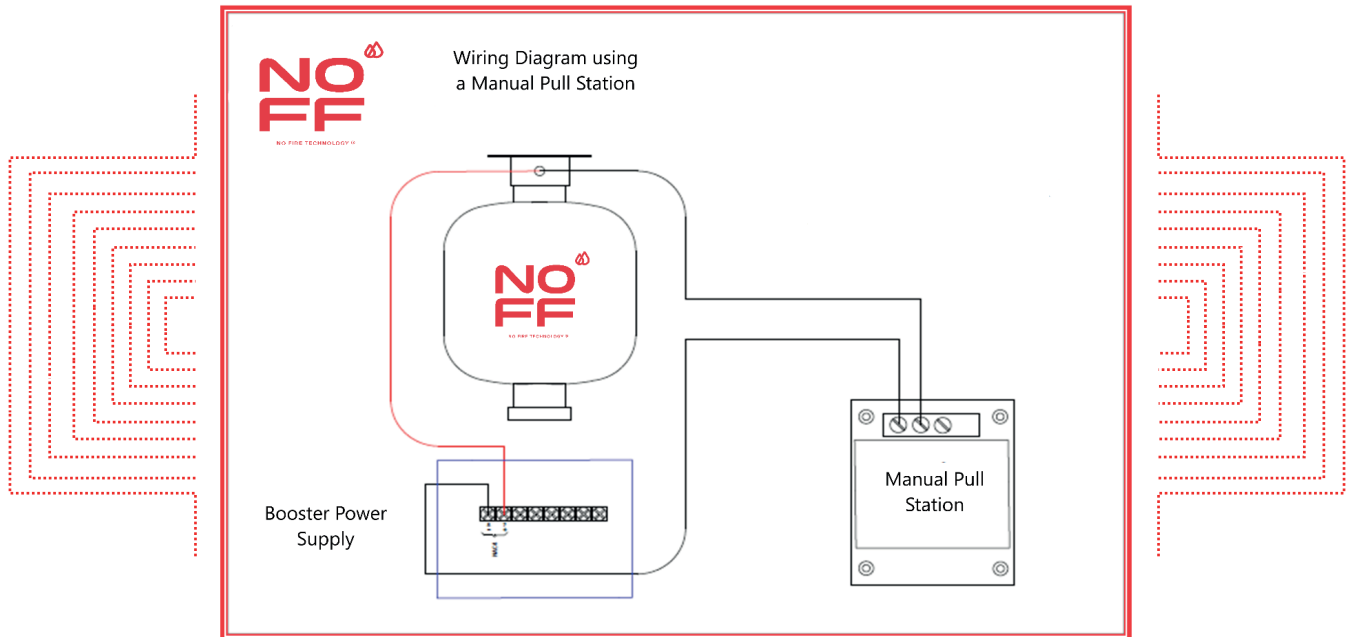
b) Example connection with a Notifier fire alarm and detection system (Automatic means):



c) Example connection with an Edwards fire alarm and detection system (Automatic means):



d) Example connection with a manual pull station and a booster power supply (manual means):



## • INSTALLATION

This Explosion-proof Unit should be installed only by trained personnel which have been accredited the official NOFF training seminars and courses.

Before proceeding with the installation of this Fixed Fire Suppression Unit make sure the installers are using adequate personal protective equipment (PPE) and follow the safety procedures and/or guidelines published in the facility.

NOFF recommends the installers to follow the next steps:

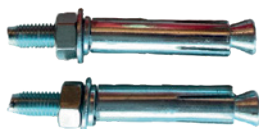
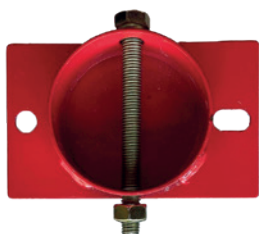
1. The Unit must be installed at roof level, in the highest possible location.
2. The Unit must be hung vertically with the discharge nozzle pointed downward.
3. The unit is to be used in areas where the temperature falls between -40° and 122° Fahrenheit (-40° to 50° Celsius).
4. The unit is to be mounted or attached to a secure ceiling, for example, wood, metal, or concrete. Insure there are no obstructions to the free flow operations of the discharge nozzle and disbursement of the extinguishment within the enclosure.
5. Do not mount the unit on suspended ceiling or loose tiles.
6. The unit must be installed in a vertical position, at an angle of 90°.
7. The unit must be centered within the enclosure/hazard area which it protects.
8. The tools required to install the unit are drill (rated for hazardous locations), open-jaw wrench of 5/8" (17mm) or an adjustable wrench, and a 9/16" x 4" drill bit (adequate for the ceiling type: wood, concrete, metal).
9. The cylinder should be assembly with the fixed plate by using a pin. An open-jaw wrench of 9/16" (16mm) and a cap screw should be used to assembly the cylinder with the fixed plate.
10. The unit must be wired to the fire detection system (an electrical current of 0,5 Amperes will be needed to activate it).
11. All wiring and connections should occur inside a bolted, metallic enclosure piping rated for hazardous locations according to the NEC.

For more information regarding assembly and installation, we strongly recommend you request the Explosion-proof Fixed Dry Chemical Fast Response Fire Suppression Unit's owner's manual to the NOFF technical staff.

## ACCESSORIES

### Fixed Plate

The Unit comes with a 5"x 3" square shape metal plate to provide a robust and secure installation. Plate includes 2 pin holes to put two 1/2"- 2-3/4" expansion bolts (M12x70mm) for concrete; nuts, and washers are also included. A cap screw is also provided to assembly the cylinder with the plate.



**COVERAGE AREA:**

a) **Local Applications (spot protection):** Each unit shall be installed at ceiling level and centered above the hazard which it protects (Indoor applications only).

Model	Max. Area / sq.ft. (m2)	Max. Height / ft. (m)
FFX-ACT4-GT03	86.11 (8)	16.4 (5)
FFX-ACT6-GT03	161.45 (15)	19.68 (6)
FFX-ACT8-GT03	182.98 (17)	22.96 (7)

b) **Total Flooding Applications:** Each unit shall be installed at ceiling level and centered within the enclosure which it protects.

Model	Max. Area / sq.ft. (m2)	Max. Height / ft. (m)
FFX-ACT4-GT03	1130 (32)	16.4 (5)
FFX-ACT6-GT03	1553.84 (44)	19.68 (6)
FFX-ACT8-GT03	2048.25 (58)	22.96 (7)

**ELECTRICAL:**

CONTACT TYPE	CLOSED CIRCUIT
ACTIVATION CURRENT	0.5 AMPER
MAXIMUM CURRENT	1 AMPER
OPERATING VOLTAGE DC	9 - 24 VOLTS

**AREA CLASSIFICATION OF LOCATIONS CONTAINING FLAMMABLE GAS OR VAPOR ATMOSPHERES (CLASS I):**

Standards Organizations		Flammable Material Present Continuously	Flammable Material Present Intermittently	Flammable Material Present Abnormally
IEC / CENELEC		Zone 0	Zone 1	Zone 2
NFPA	NEC Article 505	Zone 0	Zone 1	Zone 2
	NEC Article 500	Division 1		Division 2

The method of protection of this explosion-proof unit is intrinsic safety with code **Ex ib** permitted to use in the following locations according to the Standard IEC 79-11 & NEC Article 505 by limit the energy of sparks and surface temperature:

**Class I, Zone 1:** In which ignitable concentrations of flammable gases or vapors are likely to exist under normal operation conditions; or In which ignitable concentrations of flammable gases or vapors may exist frequently because of repair or maintenance operations or because of leakage; or in which equipment is operated or processes are carried on, of such a nature that equipment breakdown or faulty operations could result in the release of ignitable concentrations of flammable gases or vapors and also cause simultaneous failure of electrical equipment in a mode to cause the electrical equipment to become a source of ignition; or that is adjacent to a Class I, Zone 0 location from which ignitable concentrations of vapors could be communicated, unless communication is prevented by adequate positive pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided.

**Class I, Zone 2:** In which ignitable concentrations of flammable gases or vapors are not likely to occur in normal operation and, if they do occur, will exist only for a short period; or in which volatile flammable liquids, flammable gases, or flammable vapors are handled, processed, or used but in which the liquids, gases, or vapors normally are confined within closed containers or closed systems from which they can escape, only as a result of accidental rupture or breakdown of the containers or system, or as a result of the abnormal operation of the equipment with which the liquids or gases are handled, processed, or used; or in which ignitable concentrations of flammable gases or vapors normally are prevented by positive mechanical ventilation but which may become hazardous as a result of failure or abnormal operation of the ventilation equipment or that is adjacent to a Class I, Zone 1 location, from which ignitable concentrations of flammable gases or vapors could be communicated, unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided.



**PRESSURE:**

<b>PROPELLANT</b>	<b>Insert gas produced by chemical reaction</b>
Pressure Generated at activation (21°)	174 psi / 12 bar / 1.2 MPa

**TEMPERATURE:**

Working Temperature Range:	
-40°F	122°F
-40°C	50°C

**EXTINGUISHING AGENT QUANTITY:**

Model	Quantity / lb (kg)
FFX-ACT4-GT03	8.8 (4)
FFX-ACT6-GT03	13.2 (6)
FFX-ACT8-GT03	17.6 (8)

**PHYSICAL DIMENSIONS CYLINDER:**

Model	Diameter / in (cm)	Height with Plate / in (cm)
FFX-ACT4-GT03	9.84 (25)	12.59 (32)
FFX-ACT6-GT03	9.84 (25)	15.94 (40.5)
FFX-ACT8-GT03	11.02 (28)	14.96 (38)

**CERTIFICATIONS:****A) PRODUCT CERTIFICATIONS:**

	Organization	China Certification Center for Fire Products (CCCF)
	Organization Type	Certification Organization
	Country	CHINA
	Reference	GA 602-2013 Dry Powder Fire Extinguishing Equipment

**B) ORDERING INFORMATION:**

Model	Description	Ship Weight lb (kg)
110016	Fixed Dry Chemical Fast Response Fire Suppression Unit 4kg – Explosion-Proof	24.25 (11)
110017	Fixed Dry Chemical Fast Response Fire Suppression Unit 6kg – Explosion-Proof	30.86 (11)
110018	Fixed Dry Chemical Fast Response Fire Suppression Unit 8kg – Explosion-Proof	37.47 (17)

The unit is not pressurized with nitrogen N2 or any other non-toxic inner expellant gas, therefore this product is not classified as a “dangerous good” according to United Nations Regulations (UN) on the transport of dangerous goods.

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