

# **FM-200** (HFC 227ea)

*Environmentally Friendly...  
... Safe & Effective*



## **FM-200™**

### **Waterless Fire Suppression Systems**

FM-200™ is accepted and respected worldwide, with a history of protecting some of the world's most critical and irreplaceable assets. In fact, FM-200™ is in use in over one hundred thousand applications, in more than 70 nations.

Many fire suppression systems can cause major damage to – and even destroy – the very things they are supposed to protect. You're looking to avoid damage – not cause it. You're looking to reduce downtime – not lengthen it. You want a fire suppression system that deploys quickly and cleanly and won't leave behind oily residue, particulate, or water. FM-200™ fire suppressant stops fires fast. When you consider the potentially devastating environmental effects of an uncontrolled fire, it's easy to see that an FM-200™ system is an important part of an environmentally responsible fire suppression solution.

### **The FM-200™ Difference**

FM-200™ systems reach extinguishing levels in 10 seconds or less, stopping ordinary combustible, electrical, and flammable liquid fires before they cause significant damage. That's the fastest fire protection available. When fire is extinguished this quickly, it means less damage, lower repair costs, and an extra margin of safety for people. It also means less downtime and disruption.

FM-200™ fire suppressant can be safely used where people are present.

In applications where space is at a premium, FM-200™ fire suppression systems are the superior choice. The FM-200™ agent is stored in cylinders as a liquid and pressurized with nitrogen, saving huge amounts of storage space. In fact, for the same amount of protection, FM-200™ systems take up to seven times less storage space than systems based on CO<sub>2</sub> and Inert Gases.

You cannot afford to settle for minimum fire protection when lives and valuable assets are at stake. There's no substitute for genuine FM-200™ waterless fire protection.



#### **Applications :-**

- Data Centres
- Gas Turbines
- Petrol Chemical Facilities
- Telecommunications
- Power Generation
- Shipping
- Museums and Archives
- Chemical Storage Rooms

**FM-200 is Internationally accepted and approved as the fire protection solution of choice for both people and high value assets...**



*Another Quality Product Distributed by,*

**MULTRON®**

## CYLINDER HARDWARE & ACCESSORIES



Those responsible for managing and protecting high-value assets, processes, and facilities demand the quality fire suppression offered by the ANSUL® FM-200™ Clean Agent Fire Suppression System. FM-200 systems are internationally accepted as providing reliable, effective, affordable fire protection solutions for applications found in telecommunication sites, data centers and archives, museums, oil and gas facilities, power plants, and more.

The ANSUL FM-200 Clean Agent Fire Suppression System is approved and listed by Underwriters Laboratories (UL) for Class A, B and C fires. Safe for use in occupied areas at the design concentration, the system helps protect critical infrastructure and delivers effective asset protection.

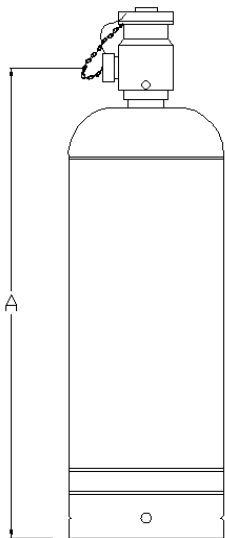
The system uses FM-200 (HFC-227ea) fire extinguishing agent which has zero ozone depletion (ODP). This colorless, odorless agent vaporizes upon discharge and absorbs heat to rapidly suppress fire while leaving no residue to clean up. It is electrically nonconductive, will not short-out electronic equipment or thermally shock delicate circuitry resulting in less damage to critical equipment, facilitating a much shorter recovery time and reducing downtime.

### Benefits :-

- In compliance with ISO 14520
- Meets NFPA 2001 standards
- Discharges within 10 seconds
- Wide range of cylinder sizes
- Choice of various types of activation
- Durability through solid brass valves
- Optional Pressure Monitoring Switches
- Versatile range of Nozzles
- UL Listed

### Environmental :-

Ozone Depletion	0
Global Warming Potential	3220
Atmospheric Lifetime	34.2 years
<b>Toxicology :-</b>	
Cardiac Sensitization No Observe Adverse Effect Level (NOAEL)	9%
Lowest Observed Adverse Effect Level (LOAEL)	10.5%



Pneumatic Actuator



Manual Strike Actuator



Discharge Pressure Switch



Solenoid Actuator c/w Manual Override



Solenoid Actuator



Discharge Nozzles

### FM200 CYLINDER

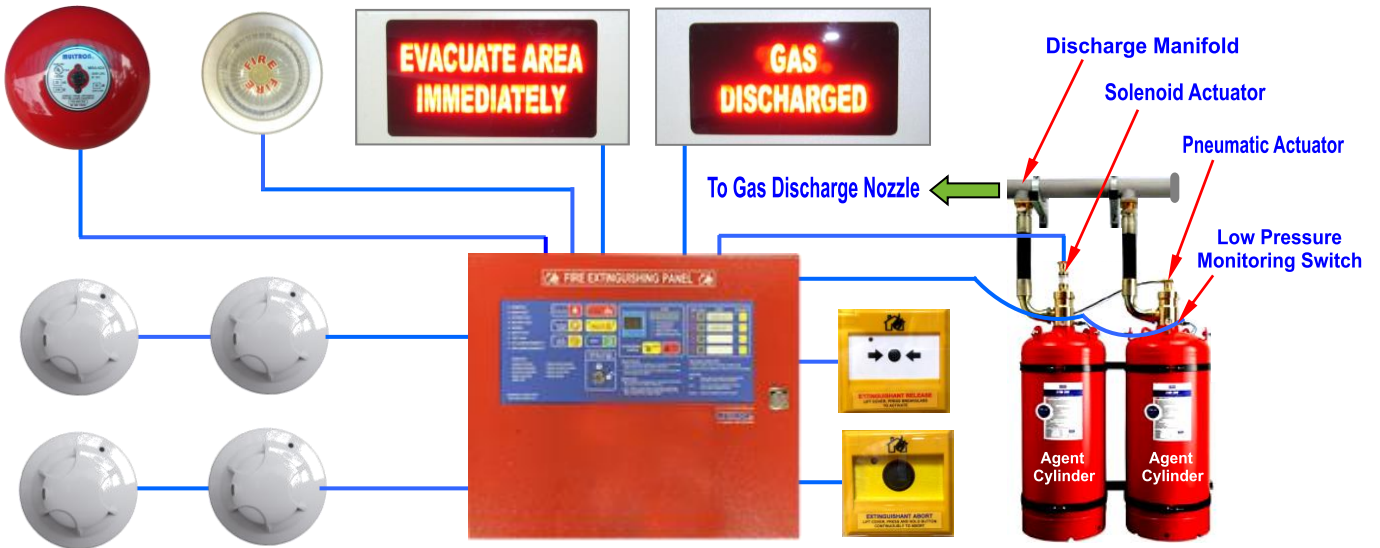
The agent storage vessel consist of a cylinder fitted with a valve and internal siphon tube, factory filled with FM200 and super pressurized with nitrogen to 25 bar. Cylinders are finished in Gloss Enamel Red and are available in various sizes.

Nominal Volume	Fill Weight (kg)	Outlet Size (mm)	Dimension A (mm)	Diameter (mm)
8 Litre	4.0 to 8.0	Ø25	304	Ø254
16 Litre	8.0 to 16.0	Ø25	502	Ø254
32 Litre	16.0 to 32.0	Ø25	833	Ø254
52 Litre	26.0 to 52.0	Ø50	596	Ø406
106 Litre	53.0 to 106.0	Ø50	1021	Ø406
147 Litre	73.5 to 147.0	Ø50	1354	Ø406
180 Litre	90.0 to 180.0	Ø50	1634	Ø406
343 Litre	171.5 to 343.0	Ø80	1466	Ø610



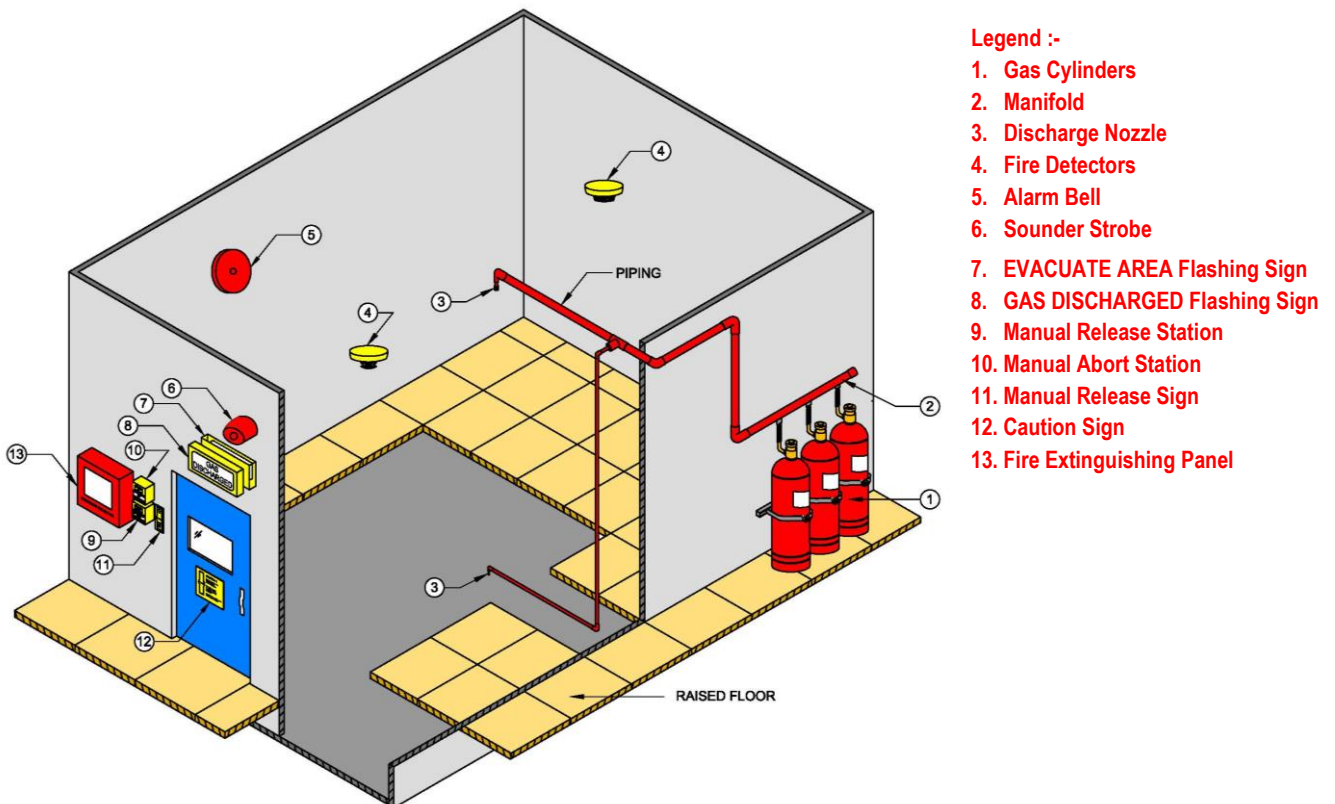


## TYPICAL CLEAN AGENT SYSTEM SCHEMATIC



*The above may vary in accordance to the practices in different countries and requirements of the Authorities having jurisdiction.*

## TYPICAL CLEAN AGENT SYSTEM EQUIPMENT LAYOUT



Legend :-

1. Gas Cylinders
2. Manifold
3. Discharge Nozzle
4. Fire Detectors
5. Alarm Bell
6. Sounder Strobe
7. EVACUATE AREA Flashing Sign
8. GAS DISCHARGED Flashing Sign
9. Manual Release Station
10. Manual Abort Station
11. Manual Release Sign
12. Caution Sign
13. Fire Extinguishing Panel

### TYPICAL OPERATING SEQUENCE

#### 1) Activation Stage 1 (1<sup>st</sup> Alarm)

- 1.1) First detector senses Fire in the protected area and send signal to the Control Panel.
- 1.2) Alarm Bell Sound
- 1.3) 'Evacuate Area' Sign flashing
- 1.4) Strobe Light flashing

#### 2) Activation Stage 2 (2<sup>nd</sup> Alarm)

- 2.1) Adjacent detector senses Fire and send signal to the Control Panel
- 2.2) Sounder Alarm
- 2.3) 'Gas Discharged' Sign flashing
- 2.4) Countdown Timer commence (Normally pre-set to 60s)
- 2.5) Once Countdown reaches zero, signal will be sent to activate the Solenoid Actuator at the Agent Cylinder.

## GENERAL SYSTEM EQUIPMENT & ACCESSORIES

### VARIOUS FIRE EXTINGUISHING PANELS



UL Listed,  
FM Approved

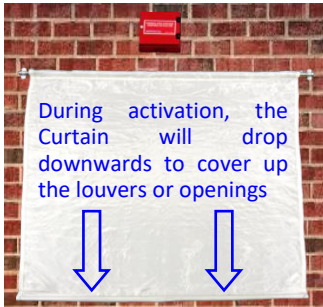
Compliance to  
EN Standards

Compliance to  
Singapore Standards

### EQUIPMENT TO CLOSE UP OPENINGS OR LOUVERS

Fibreglass Curtain

Automatic Damper



### FIRE DETECTION & INITIATING DEVICES



### AUDIO / VISUAL WARNING DEVICES



## IN-HOUSE DESIGN & AGENT FILLING STATION (UL LISTED)



Multron Design Team is able to offer cost effective and suitable solutions to meet various hazards requirements.

Our Computer Hydraulic Calculations will ensure optimum pipes sizing, and agent applications to efficiently protect the hazardous areas.



Our Filling Station is one of the rare few in this region that is approved and UL Listed, ensuring our clients that we are providing quality products (Clean Agent), adhering to proper procedures, and with qualified technicians handling the equipment.



### Multron Systems Pte Ltd

217 Kallang Bahru,  
Multron Building  
Singapore 339 347

+65 6395 6868  
+65 6395 6869  
info@multron.com

[www.multron.com](http://www.multron.com)

Due to constant improvement in our products, we reserved the right to modify or withdraw any product or service without prior notice.

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