



# 君目消防 junmo™

JUNMO FIRE PROTECTION (JIANGSU) CO., LTD.

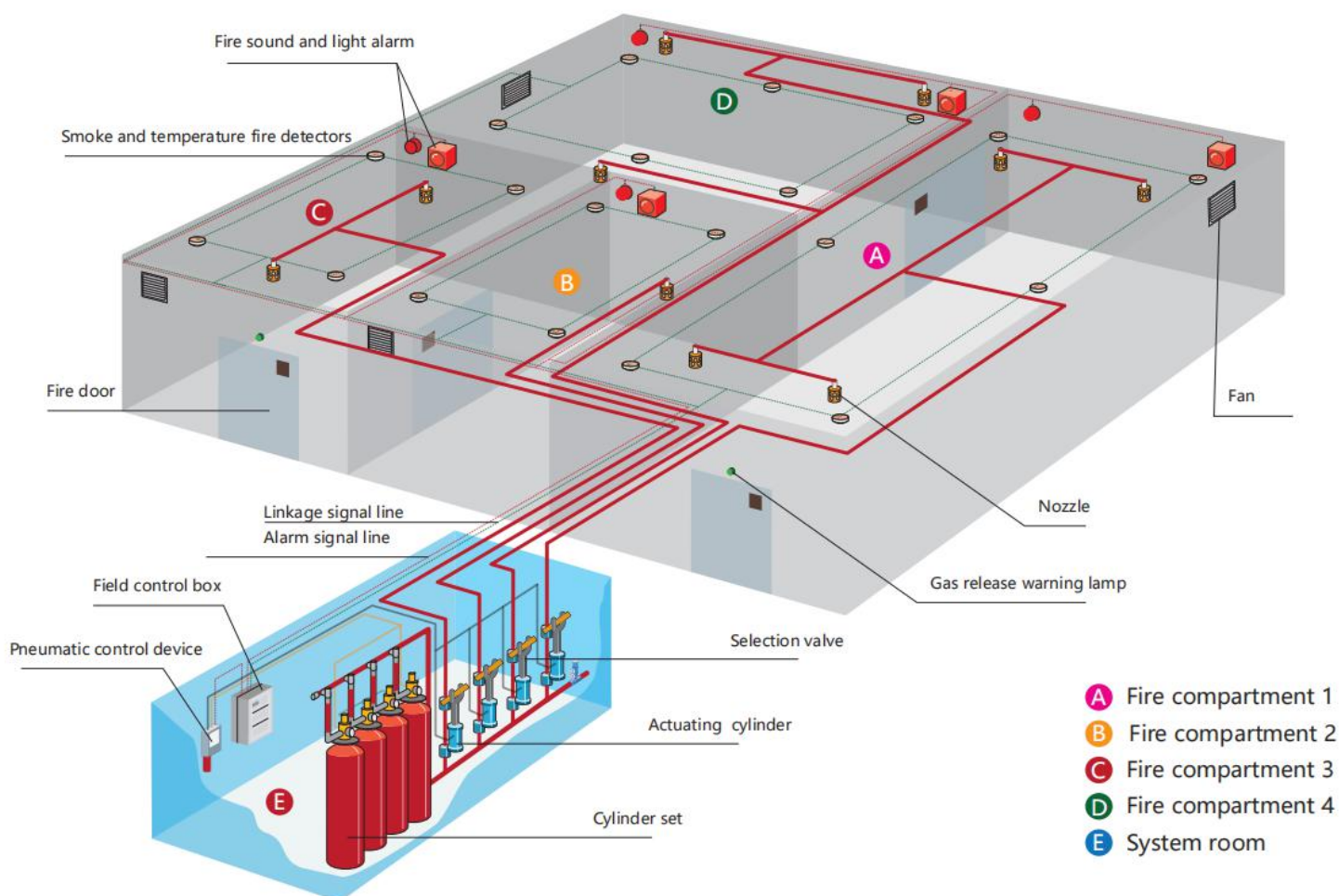
INDUSTRIAL CONCENTRATION ZONE, SANDUO TOWN, GAOYOU CITY, JIANGSU PROVINCE, CHINA.

## SYSTEM LAYOUT

In most buildings and ordinary places, water fire-fighting systems are generally used to extinguish fires, but in some special places such as data processing room, mobile communication base station, power distribution room, engine room, library and archives, precious cultural relics, exhibition hall warehouse Other places need to use gas fire extinguishing systems to extinguish fires to minimize fire losses and protect related equipment.

Gas fire extinguishing system refers to a fire extinguishing system in which the fire extinguishing agent is stored in a pressure vessel in the state of liquid, liquefied gas or gas, and is sprayed as a fire extinguishing medium in the state of gas (including steam and aerosol) during fire extinguishing. Gas fire extinguishing system is generally divided into heptafluoropropane gas fire extinguishing system, IG541 mixed gas fire extinguishing system, high pressure carbon dioxide fire extinguishing system and water mist fire extinguishing system according to the fire extinguishing agent used, system structure characteristics and application methods. Each has certain advantages and characteristics. The place of application is also different.

Gas fire extinguishing system is mainly composed of fire extinguishing agent storage cylinders and cylinder head valves, starting cylinders and cylinder head valves, area selection valves (for pipe network combined distribution systems), pressure switches, nozzles and gas fire extinguishing controllers, smoke detectors, and sensors. Temperature fire detector, manual fire alarm button, fire sound and light alarm indicating fire, gas release lamp with sound alarm indicating fire extinguishing agent discharge, manual control device (emergency start-stop button), manual and automatic control conversion device, Mechanical emergency operation device, etc. Generally, the above-mentioned equipment of the gas fire extinguishing system is a self-contained system, and the gas fire extinguishing controller uses the protocol bus to network with the automatic fire alarm system, and feeds back the action signal to the fire control room.



GENERAL LAYOUT DIAGRAM OF GAS FIRE EXTINGUISHING SYSTEM





### SAFETY WARNING

HFC-227ea shall not be used on fire involving the following materials unless they have been tested and recognized:

- ◆ Certain chemicals or mixtures of chemicals, such as cellulose nitrate and gunpowder, that are capable of rapid oxidation in the absence of air.
- ◆ Reactive metals such as lithium, sodium, potassium, magnesium, titanium, zirconium, uranium and plutonium.
- ◆ Metal hydrides.
- ◆ Chemicals capable of undergoing auto-thermal decomposition, such as certain organic peroxidase and hydrazine.

**STORAGE CYLINDERS:** The storage cylinders must be kept in an upright position and securely fixed during transportation. The storage cylinders is not allowed to roll or drag on the spot. Use trolleys, forklifts and other similar safe handling tools.

**WARNING:** The improper operation of the pressure storage cylinder is very dangerous and can cause violent discharge, personal injury and property loss. Before operating the product, the operator must undergo professional training

**WARNING:** If the outlet cap is lost, a new outlet cap must be found and installed on the outlet of the cylinder valve before removing the cylinder set.

**WARNING:** If these requirements are not followed, improper operation may cause serious personal injury, death and property damage.

**WARNING:** The fire extinguishing agent filled in this system will decompose to produce a certain amount of hydrogen fluoride gas when extinguishing the fire. The high concentration of hydrogen fluoride gas can cause injury to personnel. Before the fire extinguishing device releases the extinguishing agent, all personnel must evacuate the scene within the delay period. After the fire is extinguished, the exhaust gas must be discharged before the staff can enter the scene.



### CAUTION

HFC-227ea is not effective on the following items:

- Class A deep seated fires.
- Class D combustible metals
- Chemicals capable of auto-thermal decomposition
- Chemical capable of rapid oxidation.
- Enclosures with hot surfaces  $>400^{\circ}\text{C}$ .

## ENGINEERED SYSTEM OVERVIEW

HFC-227ea fire extinguishing agent is colorless, odorless, non-conductive, and has zero depletion potential (ODP) on the ozone layer, which meets environmental protection requirements. HFC-227ea fire extinguishing agent has the advantages of high fire extinguishing efficiency, no pollution to equipment, good electrical insulation, and rapid fire extinguishing. It is an ideal substitute for halogenated alkane fire extinguishing agents.

HFC-227ea automatic fire extinguishing system has three control modes: automatic, electrical manual and mechanical emergency manual. The system is mainly composed of: automatic alarm and fire extinguishing control system, fire extinguishing agent cylinder kit, actuating cylinder kit, release device, selection valve, check valve, nozzle, piping system and other main components. According to the requirements of use, it can be composed of unit independent systems, combined distribution systems and other forms to implement single-zone and multi-zone fire protection.

It is mainly applicable to the fire protection of key units such as electronic computer rooms, telecommunications centers, underground projects, offshore oil production platforms, libraries, archives, treasure stores, power distribution rooms, etc.



### ENGINEERED SYSTEM DATA

Model	QM4.2/90N-JM	QM4.2/120N-JM	QM4.2/150N-JM
Cylinder Capacity (L)	90	120	150
Max. Working Pressure (MPa)	5.3		
Storage Pressure (MPa)	4.2		
Working Temperature Range	0~50° C (System room); -10° C (Min Temp. in protection area)		
Charging Rate (Kg/m³)	≤950		
Air actuating Pressure (MPa)	6.0		
Operating Voltage (V)	AC220		
Back-Up Power (V)	DC24		
Discharging Time (S)	≤10		
System Startup Method	Automatic / manual / emergency operation		
Approval & Standard	ISO9001-2015		

## APPLICATIONS

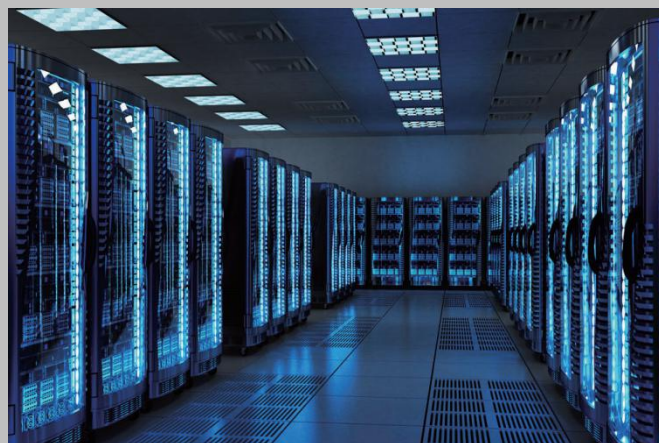
The gas (HFC-227ea) filled in the pipe network type heptafluoropropane fire extinguishing device has good clean performance, network has low working pressure, small storage space, does not destroy the ozone layer, meets environmental protection requirements, and has characteristics of colorless, odorless, non-conductive, no secondary pollution, and fast and efficient fire extinguishing. It is an ideal substitute for halon fire extinguishing agent at this stage. It is used to extinguish all types of fires A, B, and C.

Especially for some electrical and electronic equipment, communication facilities, flammable liquids and gases, and for other fire protection of high-value property, the device has no residue after spraying, has low toxicity of the agent, and can be used safely in places with people. The advantages are more prominent for places where people often work.

- ◆ Bank Vaults
- ◆ Libraries
- ◆ Rare Book Stores
- ◆ Electronic Data Processing
- ◆ Telephone Exchange Studios
- ◆ Communication Centre
- ◆ Transformer and Switch Rooms
- ◆ Control Rooms
- ◆ Test Laboratories
- ◆ Flammable Liquid Stores

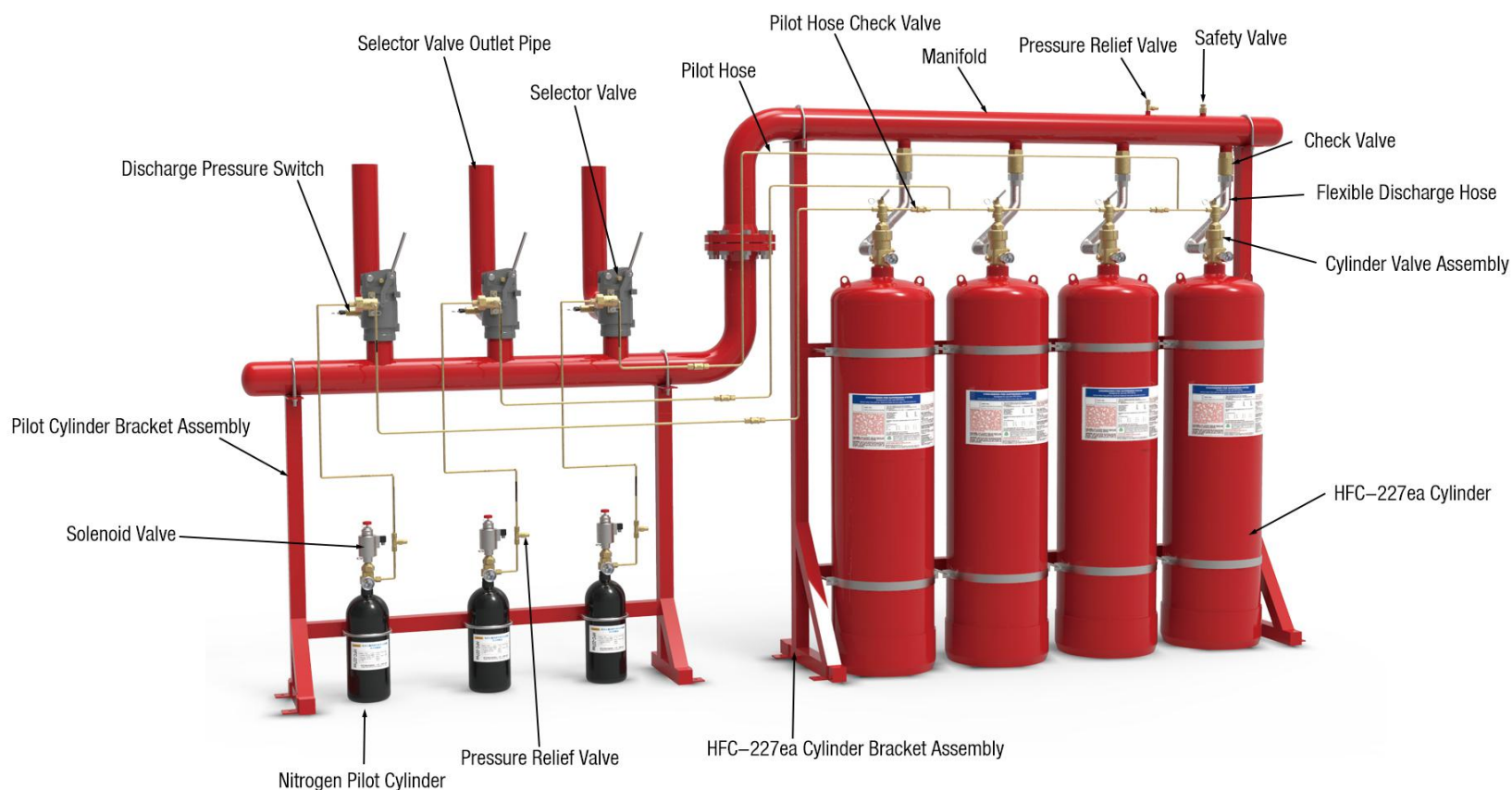
## FEATURES

- ❖ Low concentration of HFC-227ea required means less visual obscurity and minimal risk to personnel.
- ❖ Small quantity of agent discharged minimises over pressurisation of the protection area.
- ❖ Max Safety for personnel due to low toxicity.
- ❖ High effective with 10 second discharge time when used with automatic detection.
- ❖ Prevent re-ignition as long as concentration levels are maintained.





## MAIN SYSTEM COMPONENTS

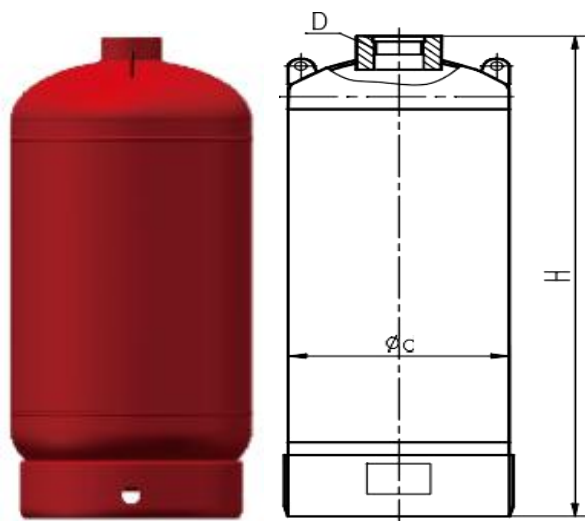


## HFC-227ea ENGINEERED FIRE EXTINGUISHER SYSTEM

### HFC-227ea Storage Cylinder

The HFC-227ea storage cylinder filled by JUNMO with HFC-227ea, and super-pressurised with dry nitrogen to 25 bar @ 21°C (360 psi @ 70° F) and 42 bar @ 21°C (600 psi @ 70° F).

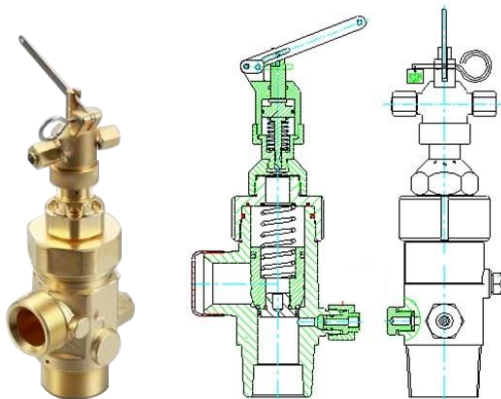
JUNMO Agent Cylinders sharing the same manifold shall be equal in size and fill density. Cylinders are finished in red and are available in various sizes.



Volume	Fill Capacity (kg)		Nominal Working Pressure (MPa)	Height	Diameter	Connection Thread
	Minimum	Maximum				
90L	43.2	100.8	5.3	1095	350	PZ56
120L	57.6	134.4	5.3	1450	350	R2
150L	72.0	168.0	5.3	1390	400	R2

### Cylinder Valve Assembly

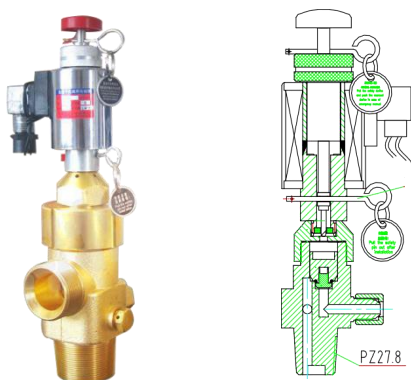
The cylinder valve is installed on the fire extinguishing agent cylinder kit to seal the fire extinguishing agent and actuating gas in the storage cylinder. In the event of a fire, the valve is usually opened by the actuating gas or electromagnetic device, and the actuating gas in the cylinder pushes the fire extinguishing agent. It is transported to the place where a fire occurs to extinguish the fire.



Model	QRF32/5.3-JM	QRF40/5.3-JM
Diameter	32mm	40mm
Working Pressure	5.3 MPa	5.3 MPa
Cylinder Connection	1.25"	2"
Actuator Connection	M48X2	M60X2
Material	Brass	Brass

### Solenoid Valve (Actuating Cylinder Kit)

The solenoid valve is installed on the actuating cylinder kit to seal the actuating gas. In the event of a fire, the controller sends out a fire extinguishing command to activate the electromagnetic device to open the valve to release the actuating gas to open the corresponding selector valve and cylinder valve through the actuating pipeline to release the extinguishing agent and extinguishing fire.

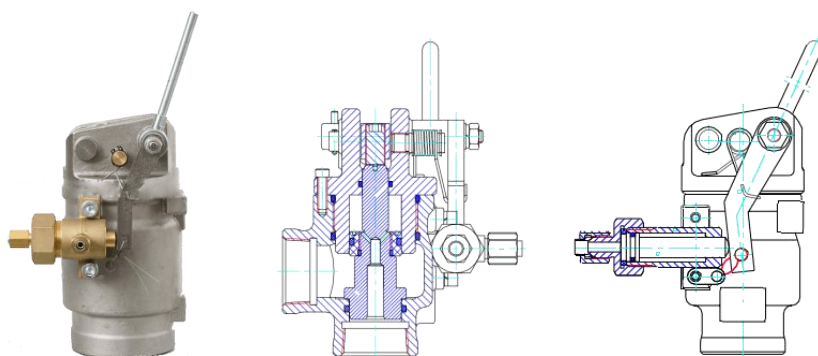


Model	RF5/6.6-JM
Diameter	6mm
Working Pressure	6.6 MPa
Connection Thread	PZ27.8
Rated Voltage	DC24V
Rated Current	1.6A
Rated Suction Force	≥80 N
Material	Brass

### Selector Valve

The selector valve is installed on the manifold pipe, the inlet is connected with the manifold pipe, and the outlet is connected with the fire extinguishing agent delivery pipeline. The selector valve is mainly used to control the flow direction of the fire extinguishing agent in the combined distribution system to ensure that the fire extinguishing agent enters the protection zone where the fire occurs.

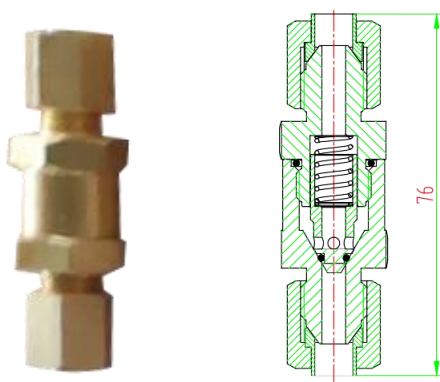
The selector valve is usually closed. When a fire occurs, the actuating gas enters the selector valve actuating cylinder, pushes the piston in the cylinder, and opens the selector valve pressure arm through the action of the connecting rod mechanism. At this time, the selector valve is already in the open state. Then start the gas and open the cylinder valve, release the fire extinguishing agent, and send it into the protection area through the selector valve to implement fire extinguishing.



Model	W.P.	Diameter	Remark
XZ32/17.2-JM	17.2MPa	32mm	100-150mm would be Flange connection
XZ40/17.2-JM		40mm	
XZ50/17.2-JM		50mm	
XZ65/17.2-JM		65mm	
XZ80/17.2-JM		80mm	
XZ100/17.2-JM		100mm	
XZ125/17.2-JM		125mm	
XZ150/17.2-JM		150mm	

### Pilot Hose Check Valve

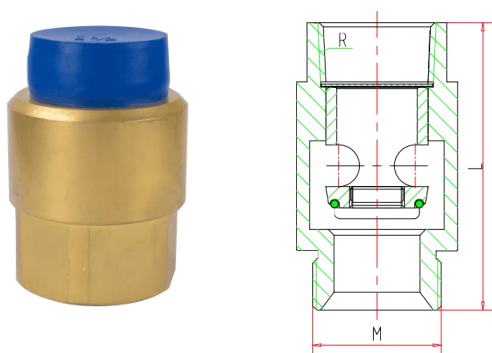
The pilot hose check valve is installed in the actuating pipeline to control the flow direction of actuating gas. It is mostly used in combined distribution systems to realize the activation of corresponding devices in different protection zones.



Model	QD5/6.6-JM
Diameter	5mm
Working Pressure	6.6 MPa
Opening Pressure	≤0.2 MPa
Connection	M14X1.5
Material	Brass

### Check Valve

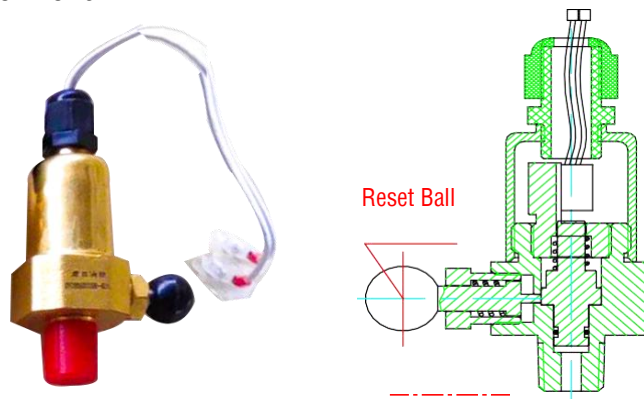
The check valve is installed between the manifold pipe and the flexible hose to control fire extinguishing agent from the flexible hose into the manifold pipe.



Model	QYD32/8-JM	QYD40/8-JM
Diameter	32mm	40mm
Working Pressure	8.0 MPa	8.0 MPa
Opening Pressure	≤0.2 MPa	≤0.2 MPa
Connection (M)	M48X2	M60X2
Length (L)	107	120
Thread (R)	1 1/4	1 1/2
Material	Brass	Brass

### Discharge Pressure Switch

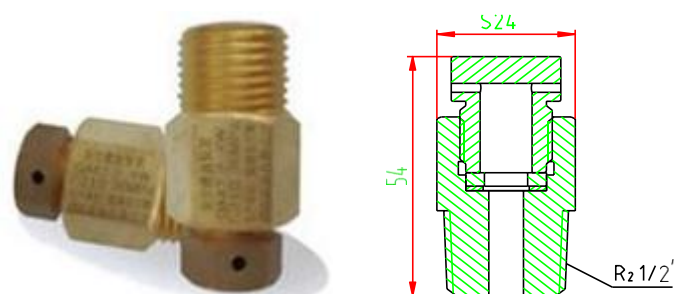
The discharge pressure switch is installed on the outlet pipe assembly downstream of selector valve in the combined distribution system, and on the header in the unit independent system. Release the extinguishing agent to make it act, and send a feedback signal to the fire extinguishing alarm controller to notify that the cylinder valve has been opened and that the extinguishing agent has been released to the corresponding protection zone.



Model	XF0.6/17.2-JM
Working Pressure	17.2 MPa
Opening Pressure	0.6±0.06 MPa
Rated Voltage	DC24V
Contact Rating	0.5A 250VAC
Connection	R1/4 male
Material	Brass

### Safety Valve

The safety valve is installed on the manifold pipe. When the pressure in the pipeline is greater than the allowable value, the safety diaphragm bursts to protect the system.



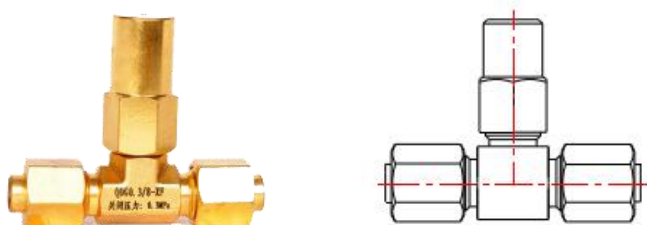
Model	QAX7.2-JM
Release Pressure	7.2±0.36 MPa
Material	Brass



## Pressure Relief Valve

DG0.3/17.2-JM pressure relief valve is installed in the actuating pipeline of each zone of the gas system. When there is a small amount of leakage in the actuating device (pressure in the pipeline  $\leq 0.1$  MPa), the leaked gas is discharged from the outlet port to avoid gas accumulation of boost pressure in the pipeline causes the system to malfunction.

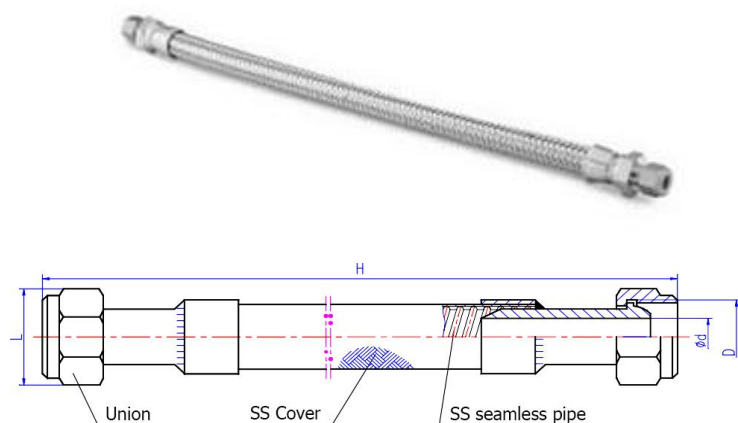
When the system is working, due to the rapid increase of pressure in the actuating pipeline ( $\geq 0.5$  MPa), the constant discharge pressure regulator will automatically shut down to ensure that the system starts normally.



Model	DG0.3/17.2-JM
Working Pressure	17.2 MPa
Closed Pressure	0.3 MPa
Connection	M14X1.5 female

## Flexible Discharge Hose

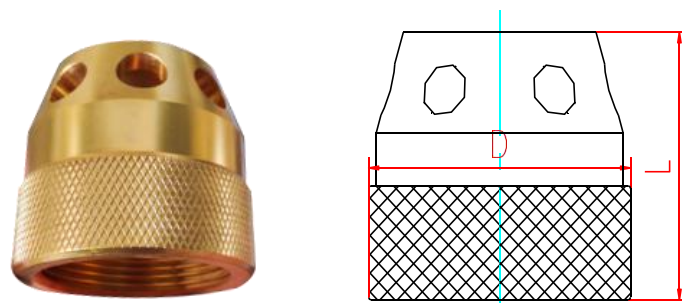
The flexible discharge hose is installed between the cylinder valve and the check valve, so that the fire extinguishing agent can flow smoothly from the cylinder valve to the check valve.



Model	Dia.	W.P.	L	H	D
QRG32/5.3	32mm	5.3MPa	55mm	450mm	M48X2 female
QRG40/5.3	40mm	5.3MPa	60mm	550mm	M60X2 female

## Nozzle

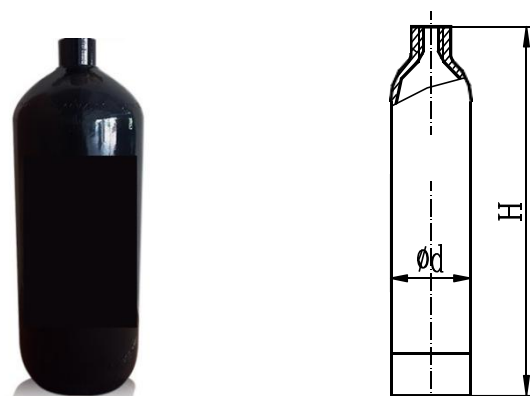
Nozzles are installed in the protection area to evenly spray and atomize the fire extinguishing agent to the protection area for fire extinguishing.



Model	D	L	Connection
QPT24/20-JM	38mm	42mm	3/4" female
QPT25/25-JM	44mm	47mm	1" female
QPT37/32-JM	53mm	50.5mm	1 1/4" female
QPT43/40-JM	59mm	55mm	1 1/2" female
QPT48/50-JM	69mm	60mm	2" female

## Nitrogen Pilot Cylinder

The Nitrogen pilot cylinder is used to store the actuating gas. The actuating gas is nitrogen, and the filling pressure is 6.0MPa (20°C). When a fire occurs, the solenoid actuating cylinder valve opens, and the actuating gas passes through the actuating pipeline to open the corresponding selector valve and agent cylinder valve to release the extinguishing agent and implement the fire extinguishing.



W.P.	Capacity	Connection	H	d
15 MPa	4.0 L	PZ27.8	420mm	140mm

### CABINET SYSTEM LAYOUT

The JUNMO Cabinet Type Fire Extinguishing System is a engineered fire extinguishing system,it is also as known as a pipeless fire extinguishing system.

A complete Cabinet Type Fire Extinguishing System is composed of Cabinet,HFC-227ea storage cylinder,Cylinder Valve, Manual/Solenoid Actuator,Manual/Pneumatic Cylinder Valve,Flexible Discharge Hose,Discharge Pressure Switch,Nozzles,etc.

The special design of the Cabinet Type Fire Extinguishing System doesn't require pipes installation and cylinders storage room.

The system can be locate in the protected area directly,when the fire happen, the HFC-227ea agent will be spray out directly to the protected area through the discharge nozzle,with very low pressure loss.

Compare to the Piping extinguishing system,the Cabinet Type Fire Extinguishing system has following advantages:

- More efficient
- More economic
- Easier Installation
- Smaller locating space



## SINGLE-CYLINDER CABINET DATA

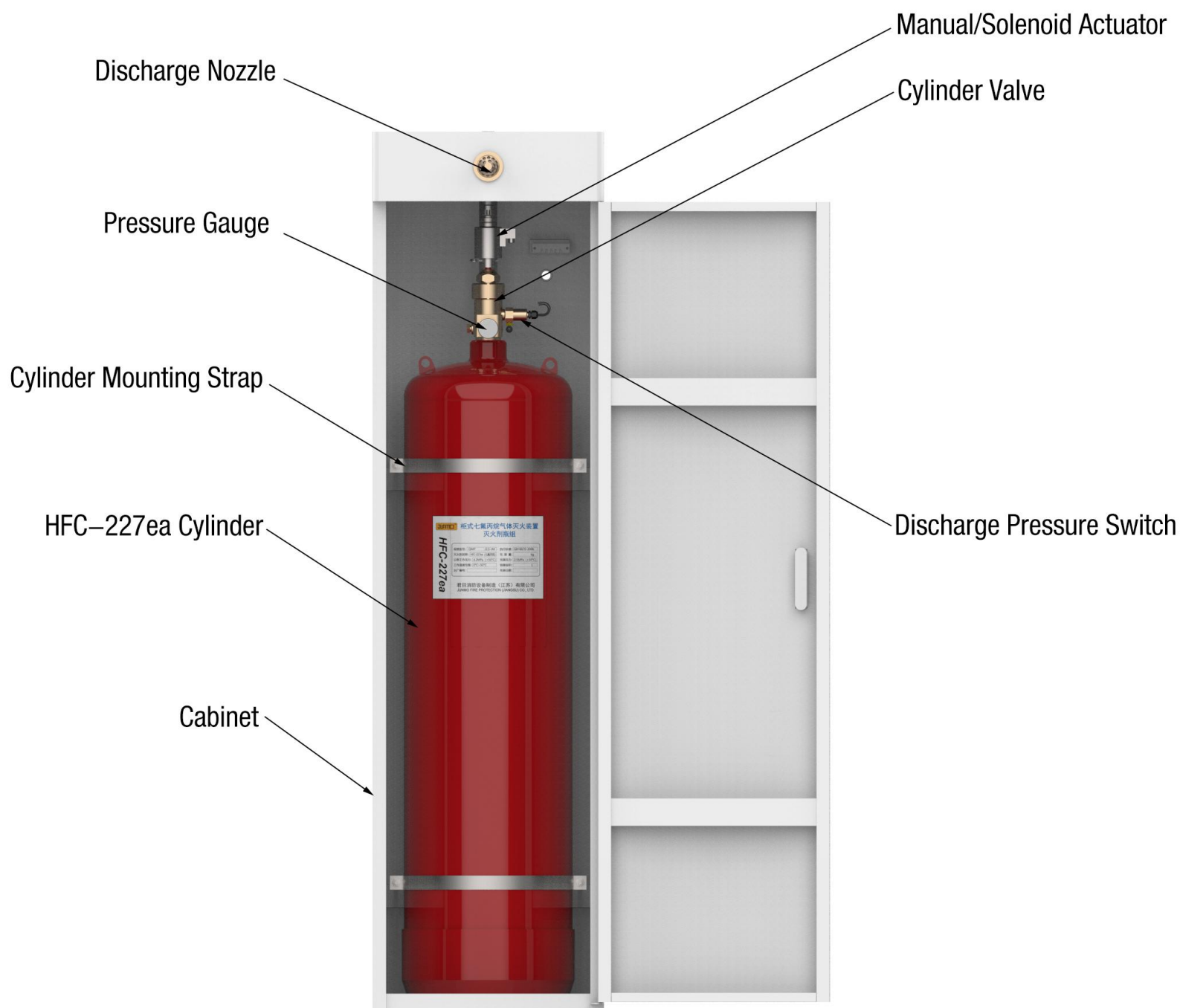
Model	GQQ40/2.5-JM	GQQ70/2.5-JM	GQQ90/2.5-JM	GQQ120/2.5-JM	GQQ150/2.5-JM
Cylinder Capacity	40L	70L	90L	120L	150L
Max. Protection Volume	63 m³	127 m³	163 m³	217 m³	272 m³
Outline Dimension	500x481x1450	500x481x1450	500x481x1600	500x481x1900	500x531x1900
Max. Working Pressure	42 bar				
Storage Pressure	25 bar				
Working Temperature Range	0~50° C (System room); -10° C (Min Temp. in protection area)				
Filling Ratio	≤1.15 kg/L				
Operating Voltage	AC 220V				
Back-Up Power	DC 24V				
Discharging Time	≤10 sec				
System Startup Method	Automatic / manual / emergency operation				

## DOUBLE-CYLINDER CABINET DATA

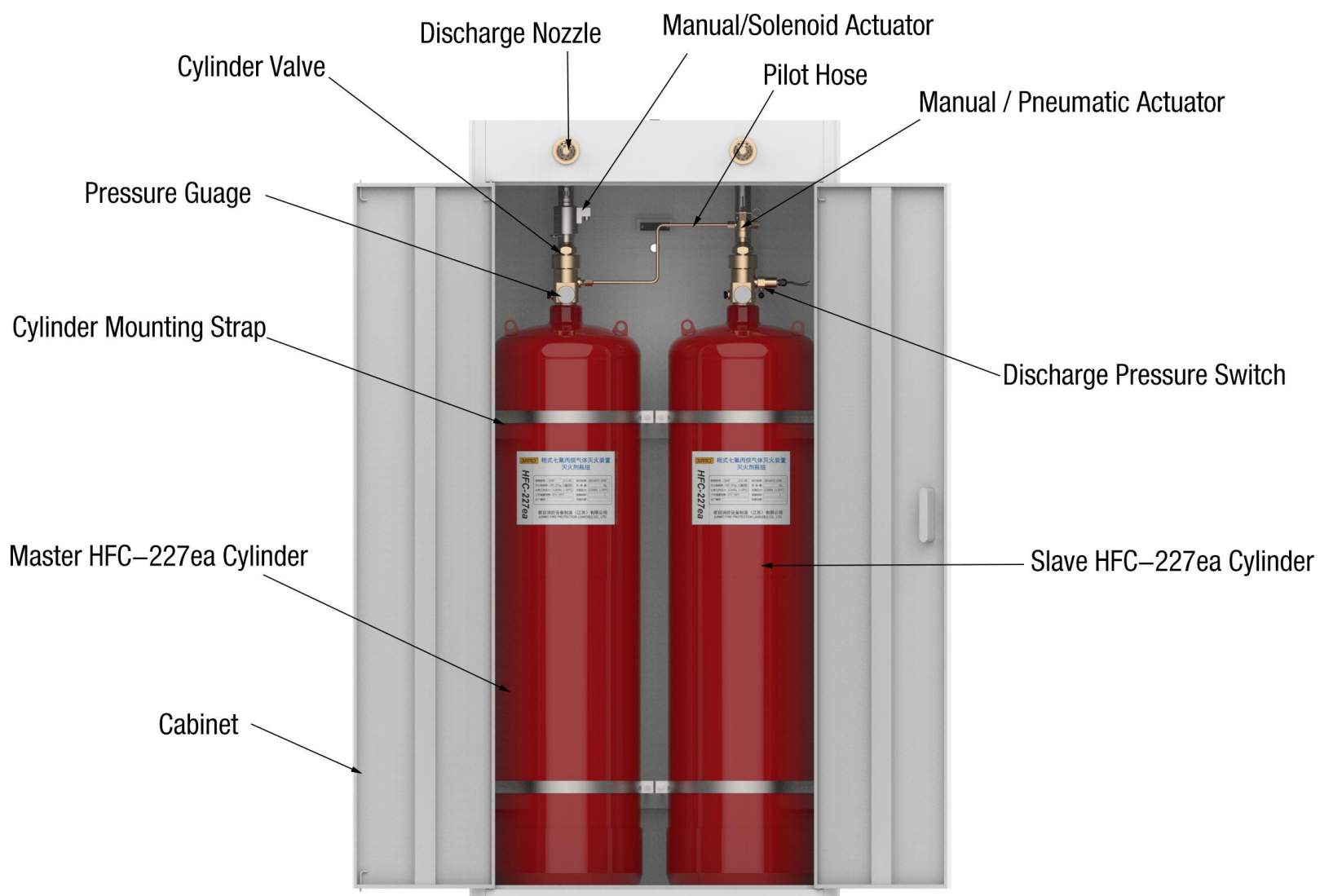
Model	GQQ70*2/2.5-JM	GQQ90*2/2.5-JM	GQQ120*2/2.5-JM	GQQ150*2/2.5-JM
Cylinder Capacity	70L x 2	90L x 2	120L x 2	150L x 2
Max. Protection Volume	326 m³	254 m³	326 m³	343 m³
Outline Dimension	900x500x1450	900x500x1600	900x500x1900	1000x550x1600
Max. Working Pressure	42 bar			
Storage Pressure	25 bar			
Working Temperature Range	0~50° C (System room); -10° C (Min Temp. in protection area)			
Filling Ratio	≤1.15 kg/L			
Operating Voltage	AC 220V			
Back-Up Power	DC 24V			
Discharging Time	≤10 sec			
System Startup Method	Automatic / manual / emergency operation			



**MAIN SYSTEM COMPONENTS**



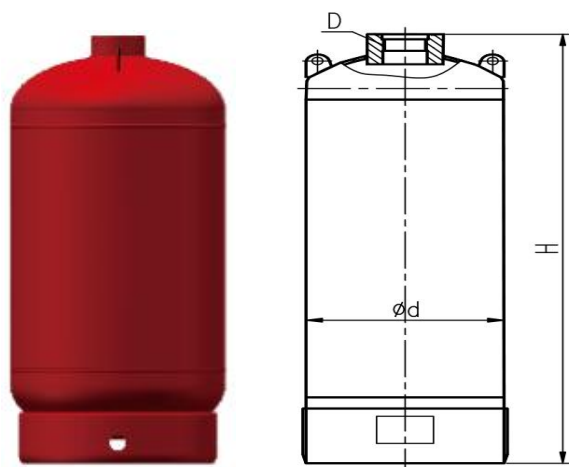
**HFC-227ea SINGLE-CYLINDER FIRE EXTINGUISHER SYSTEM**



HFC-227ea DOUBLE-CYLINDER FIRE EXTINGUISHER SYSTEM

### HFC-227ea Storage Cylinder

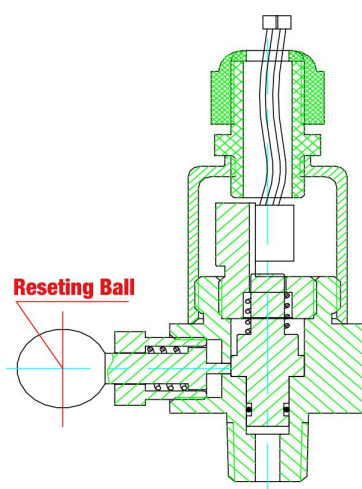
The welded HFC227ea Storage Cylinders are used to storage the HFC-227ea agent and driven Nitrogen in the cabinet type extinguishing system,the filling pressure of the cylinder is 25 bar @ 20°C,when the fire happen, the Cylinder valve is opened,the HFC-227ea agent will be push out by the driven Nitrogen and spray to the fire.



Volume	Nominal Working Pressure (bar)	Height	Diameter	Connecting Thread
40L	42	774	300	PZ56
70L	42	940	350	PZ56
90L	42	1140	350	PZ56
120L	42	1440	350	R2
150L	42	1405	400	R2

### Discharge Pressure Switch

The Discharge Pressure Switch is installed on the Cylinder Valve,it is used to feedback information generated by the agent release pressure to tell the extinguishing control panel that system is opened, to indicate extinguishing agent released.The Discharge Pressure Switch can be resetting by pull out the Resetting Ball when the Cabinet type HFC-227ea extinguishing system is refilled after actuating.

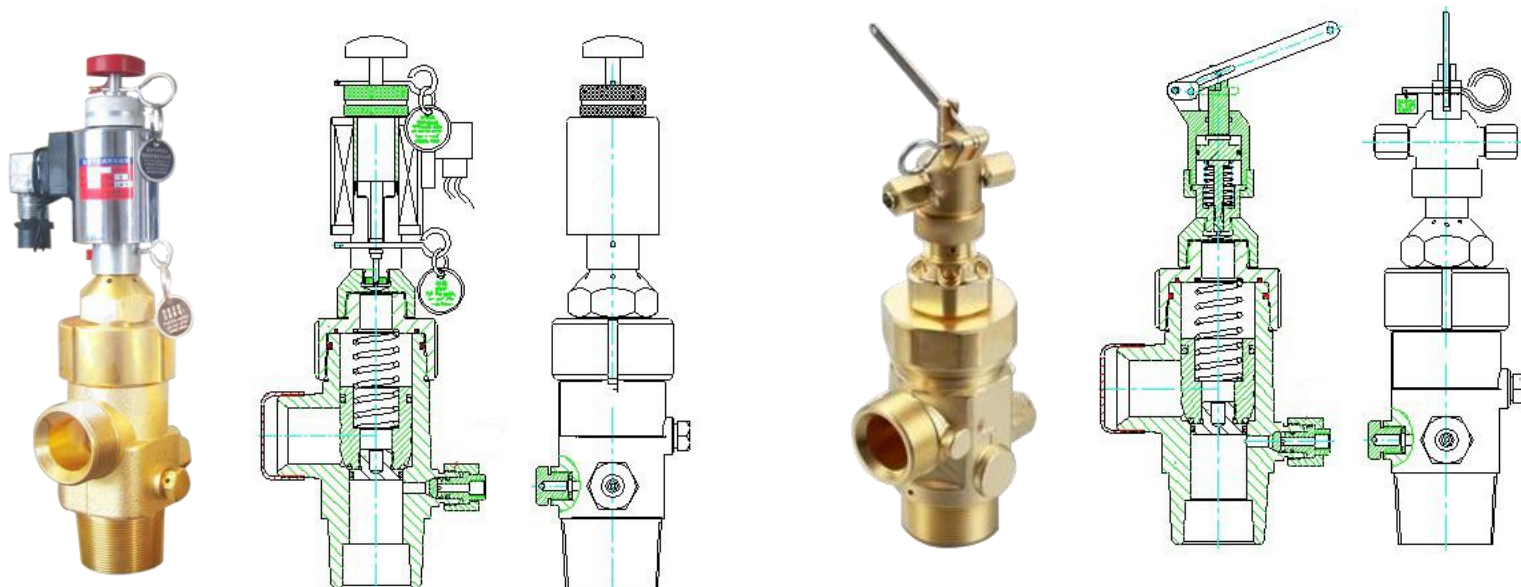


Model	XF0.6/17.2-JM
Working Pressure	172 bar
Opening Pressure	6±0.6 MPa
Rated Voltage	DC24V
Contact Rating	0.5A 250VAC
Connection	R1/4 male
Material	Brass



## Cylinder Valve Assembly

The Cylinder Valve Assembly is installed on the top of the HFC-227ea storage cylinder or Nitrogen Pilot cylinder for sealing. It is capable to be assemble with Manual/Solenoid Actuator or Manual/Pneumatic Actuator according to different appreciations.



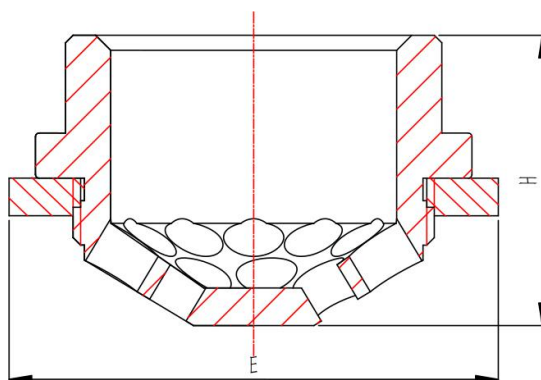
Data of Cylinder Valve

Model	QRF32/5.3-JM	QRF40/5.3-JM
Nominal Diameter	32mm	40mm
Working Pressure	42 bar	42 bar
Cylinder Connection	PZ56	R22
Actuator Connection	M48X2	M60X2
Operation	Manual or Automatic	

Data of Manual/Solenoid Actuator

Model	DQ85N-JM
Power Supply	DC 24V ±3
Rated Current	1.6 A
Current Duration	100%

## Discharge Nozzle



Model	Nominal Diameter	Connection Thread	E	H	Remark
QPT37/32-JM	DN32	Rc1 1/4"	Φ 65	38 mm	For 40L, 70L, 90L Cylinder
QPT43/40-JM	DN40	Rc1 1/2"	Φ 74	45 mm	For 120L, 150L Cylinder

### Precautions for installation and operation

1.1. The installation site of this system should meet the following requirements:

- ✧ The ambient temperature between the storage cylinders is  $0^{\circ}\text{C} \sim +50^{\circ}\text{C}$ ; it should be kept dry and well ventilated;
- ✧ The air should not contain explosive, conductive dust and corrosive harmful substances, otherwise the device should be protected;
- ✧ A room that is easy for operators to approach, easy to enter and exit, and not easy to cause a fire. The door of the room should open outwards.

1.2. Personnel who install, debug and use this device should be familiar with the basic structure, working principle, performance and action process of this device, as well as the structure and working state of each valve.

1.3. In the process of transportation and installation, the cylinder group should avoid getting close to the heat source, and should be lightly loaded and unloaded to prevent collision, lying down, and upside down.

1.4. The frame of the fire extinguishing agent cylinder kit and the frame of the actuating gas cylinder kit shall be fastened by anchor bolts.

1.5. The solenoid actuating cylinder valve is equipped with a safety pin to prevent leakage or malfunction of the solenoid actuating cylinder valve due to collisions and vibrations during transportation, installation and debugging. After the installation is completed on site, the safety pin must be removed before putting it into use, otherwise the valve will not start and the system will fail.

1.6. After the cylinder kit is firmly installed on the fixed bracket, the outlet blocking cover can be removed. Before removing the cylinder kit from the piping during maintenance, install the outlet plugging cap on the movable cylinder kit above the outlet of the cylinder valve.

1.7. Non-professional trained personnel are not allowed to install and operate in order to avoid accidents.

1.8. Before the fire extinguishing device releases the fire extinguishing agent, all workers must evacuate the scene within the delay period. The extinguishing agent filled in this system will produce a certain amount of hydrogen fluoride gas when extinguishing the fire. High-concentration hydrogen fluoride gas can cause harm to personnel. After the fire is extinguished, the exhaust gas must be discharged before the staff can enter the scene.

### System Operating Procedures

2.1 The operator should carefully read the instruction manual of this product and be familiar with related products.

2.2 This system equipment, together with the automatic alarm and fire extinguishing control system, forms a complete fire alarm and fire extinguishing system, which has three control modes: automatic, electrical manual, and mechanical emergency manual. It is recommended to use automatic control in unmanned protection areas and manual control in manned protection areas.

2.3 Before the fire extinguishing device releases the fire extinguishing agent, all personnel must be evacuated from the scene within the delay period. After the fire is extinguished, the exhaust gas must be discharged before the staff can enter the scene.

2.4 When mechanical emergency operation is required, the specific operation is as follows:

- ✧ Unplug the solenoid-actuating cylinder valve in the desired fire-extinguishing area, and press the button down.
- ✧ If the nitrogen in the actuating gas cylinder kit is not enough to open the cylinder valve on the cylinder kit, first press down the selector valve handle in the fire area, open the pressure arm, and then turn the handle on the cylinder valve to open the valve.

2.5 After the system implements fire extinguishing, the selector valve, pressure switch, check valve, cylinder valve, etc. should be reset in time, and relevant parts should be replaced.

2.6 Refill the fire extinguishing agent and nitrogen according to the requirements of the system engineering design.

2.7 After the inspection is ready, make the device in a normal working state.

2.8 Non-related personnel should be prevented from operating this system device to prevent accidents.

**Use and maintenance instructions****Cylinder Valve Assembly (Agent Cylinder Kit)**

3.1 When the valve needs to be opened manually, the valve can be opened only by turning the handle.

3.2 Installation of pressure gauge: The threaded interface at the end of the compression nut shown in the figure is the installation part of the pressure gauge. Put a nylon gasket on the surface of the thread root and tighten the pressure gauge with a wrench.

3.3 Pressure detection, pressure gauges are installed on the front of the cylinder valve, which can display the pressure in the storage cylinder. When the pressure indicated value is lower than the green zone, it should be refilled.

3.4 When filling the fire extinguishing agent and driving gas, remove the pressure gauge, connect the end to the fire extinguishing agent hose, and loosen the compression nut to fill.

3.5 The cylinder valve is equipped with a safety diaphragm to prevent the pressure in the fire extinguishing agent cylinder group from being too high, and to release the pressure to protect the safety of the storage cylinder. Under normal circumstances, the safety diaphragm will not move. Only under abnormal conditions (such as high filling pressure and high ambient temperature), it may burst. After the safety diaphragm is activated and the pressure of the storage cylinder is released, the safety diaphragm should be replaced immediately, a tightness test should be carried out, and the fire extinguishing agent should be refilled.

**Solenoid Valve (Actuating Cylinder Kit)**

4.1 The cylinder valve is equipped with a safety pin (as shown in the figure above) to prevent the valve from malfunctioning due to collisions and vibrations during transportation, installation and commissioning, which may cause leakage or malfunction of the cylinder valve. After the installation is completed on site, the safety pin must be withdrawn before being put into use, otherwise the valve will not start and the system will fail.

4.2 A safety diaphragm (diaphragm burst pressure 9MPa) is installed on the cylinder valve to prevent excessive internal pressure from releasing pressure to protect the safety of the storage cylinder. The diaphragm should be replaced after the diaphragm moves and the pressure of the storage cylinder is released.

4.3 The cylinder valve has two opening modes: electric start and mechanical manual. For electric start, the controller sends out the valve opening command to make the electromagnetic actuating device act and open the cylinder valve; the mechanical manual is to manually remove the plug and press the button down to open the cylinder valve.

4.4 The cylinder valve is equipped with a pressure gauge to display the starting gas pressure in the cylinder. When the pressure indicated value is lower than the green zone, the starting gas should be refilled.

**Selector Valve**

5.1 When it is necessary to open the valve manually, press down the handle and open the pressing arm to open the selector valve.

5.2 After the selector valve is actuated, it should be manually reset and checked for abnormal conditions before it can continue to be used.

**Pilot Hose Check Valve**

When installing, pay attention to the start gas flow direction indicated by the arrow.

**Check Valve**

When installing, pay attention to the flow direction indicated by the arrow.



### **Discharge Pressure Switch**

When the signal feedback device is activated, the reset ball head is pulled out. After resetting, you can continue to use it.

### **Safety Valve**

After use, the safety diaphragm should be replaced. The replaced safety diaphragm should be the same as the original material model, shape, size, and thickness, and be a qualified product.