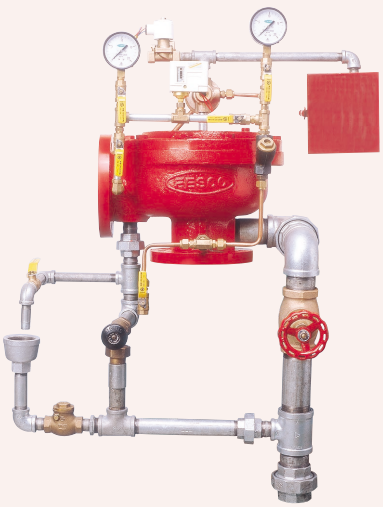
Preaction & Deluge Valve

Paradise preaction and deluge valves are designed to minimize the friction loss inside and inner parts such as clapper are made of cast bronze to offer excellent corrosion and pressure resistance.



FPV100(150)

Specification

Max. Pressure	14kgf/㎠
Min. Pressure	1.5kgf/㎠
Test Pressure	20kgf/㎠
Flange Size	KSB 1513/10K
Color	Red

Advantages of FPV Type Valve

- High-quality diaphram offers high reliability even for prolonged usage.
- Operation test device at the valve outlet allows simple test on operation without opening the sprinkler.
- Resetting is made simple after operation without disassembling the valve or piping.
- Low maintenance cost and effort.
- Part movement is concentrated to a single point, minimizing the chance of failure. It can be readjusted simply by adding pressure to the clapper for resetting, it is highly economical to use.

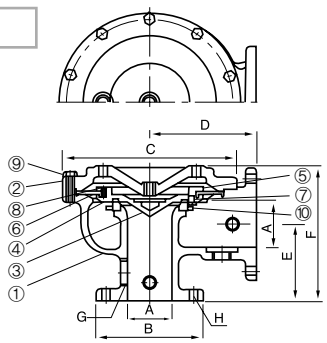
Specification

Model No.	FPV50	FPV80	FPV100	FPV150
Size	50A	80A	100A	150A
Max. Flow (4.5m/sec)	530 ℓ /min	1,350 ℓ /min	2,100 ℓ /min	4,800 ℓ /min
Weight	30kg	48kg	69kg	133kg
Pressure Loss	Within 0.3kgf/㎠			
Direction	Vertical			
Packaging	1Ea			

Dimension

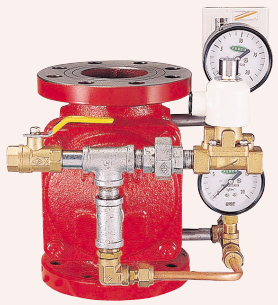
Model No. \ Size	A	B	C	D	E	F	G	H
FPV 50	50	-	206	140	102	197	PT $\frac{3}{4}$″	4-Ø19
FPV 80	80	150	274	178	127	235	PT1 $\frac{1}{4}$″	8-Ø19
FPV 100	100	230	358	219	165	283.5	PT2″	8-Ø19
FPV 150	150	280	465	305.5	205	354	PT2″	8-Ø23

Assembly Diagram

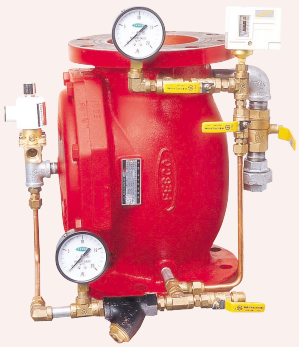


Material

No.	Part	Material	No.	Part	Material
1	Body	Cast Iron(GC200)	6	Clapper Rubber	EPDM
2	Cover	Cast Iron(GC200)	7	Screw	Brass
3	Clapper	Bronze(BC6)	8	Screw	Brass
4	Seat Rubber	EPDM	9	Bolt	SS41
5	Clamp Ring	Bronze(BC6)	10	Seat Ring	Bronze(BC6)



FPB 80



FPB 100(125,150)

Advantages of FPB Type Valve

FPB type valve offers the following advantages in addition to those of FPV type valve

- Horizontal or vertical installation.
- P.O.R.V function is built-in within solenoid valve, making outer piping simple and convenient.
- Simple surrounding piping requires relatively small installation space.
- Convenient packing.
- Since pipes are delivered as attached to the body, there is no need for additional piping installation and worry for pipe loss.

Specification

Model No.	FPB100		FPB125	FPB150	
	10kgf/㎠	22kgf/㎠	10kgf/㎠	10kgf/㎠	22kgf/㎠
Size	100A		125A	150A	
Max. Flow (4.5m/sec)	2,100 ℓ /min		3,300 ℓ /min	4,800 ℓ /min	
Weight	42kg	44.5kg	63kg	82kg	89.5kg
Pressure Loss	Within 0.3kgf/㎠				
Direction	Vertical or Horizontal				
Packaging	1Ea				

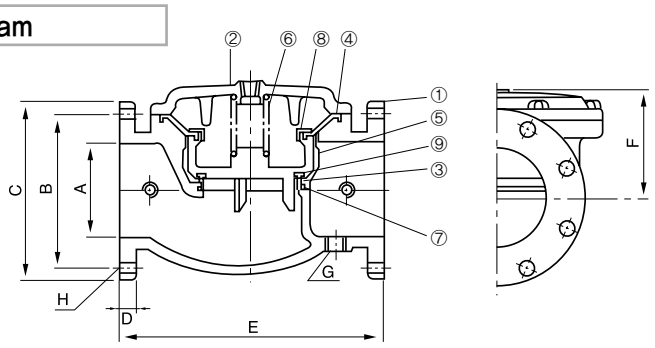
Dimension

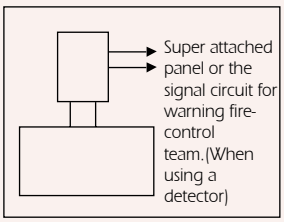
Model No. \ Size		A	B	C	D	E	F	G	H
FPB 80	10kgf/㎠	80	150	185	22	254	105	PT3/4″	8-Ø19
FPB 100	10kgf/㎠	100	175	210	24	316	128	PT1″	8-Ø19
	22kgf/㎠		185	225	26	320			8-Ø23
FPB 125	10kgf/㎠	125	210	250	24	364	151	PT1″	8-Ø23
FPB 150	10kgf/㎠	150	240	280	26	416	168	PT1″	8-ø23
	22kgf/㎠		260	305	28	420			12-Ø25

Material

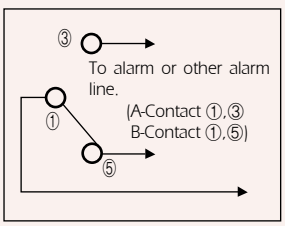
No.	Part	Material	No.	Part	Material
1	Body	Cast Iron(GC200)	6	Spring	STS304
2	Cover	Cast Iron(GC200)	7	O-Ring	NBR
3	Seat Ring	Bronze(BC6)	8	Clamp Ring	Cast Iron(GCD45)
4	Clapper Rubber	EPDM	9	Seat Rubber	EPDM
5	Clapper	Cast Iron(GCD45)			

Assembly Diagram





Solenoid Valve Wiring



Pressure Switch Wiring

Handling & Installation

Transport

⚠ Caution

Paradise preaction & deluge valves are made of steel pipe from the valve body to the test & drain valve. Paradise preaction & deluge valves must be handled with extreme care to prevent any damage during loading and unloading.

Contents Check-up

Open the box and check if the following contents are all intact.

Part	Qty.	Remark
Valve Body	1	Incl. pipes.
Pressure Gauge	2	Delivered in separate package.
Pressure Switch	1	Delivered in separate package.
Test Box	1	Custom ordered.
Super Attached Panel	1	Custom ordered.

Installation Procedure

A. Before Installation

- Prepare two gasket packings (3t) suitable for the alarm valve flange to be installed.
- Flange Bolt & Nut (Incl. plain and spring washer)
  100A : M16×75ℓ ····· 16Ea
  150A : M20×75ℓ ····· 16Ea
- Also prepare teflon tape for piping purpose and wiring materials if needed.

B. Pipe Flange Welding

Properly position alarm valve and bolt hole and then firmly weld in accordance to the pipe flange plan considering the height of alarm valve and gasket packing.

C. Pipe Cleaning

When the installation is completed, clean thoroughly the pipe interior. Remove slag by knocking welded parts of pipe with a hammer, and if possible, flush the interior with pressurized water of 5kgf/㎠ until it is completely rinsed out.

Negligence of cleaning will:

1. cause repeated false alarm due to the damaged seat rubber in the alarm valve.
2. retard or even result in failure of fire suppression when the orifice of sprinkler head is choked up.

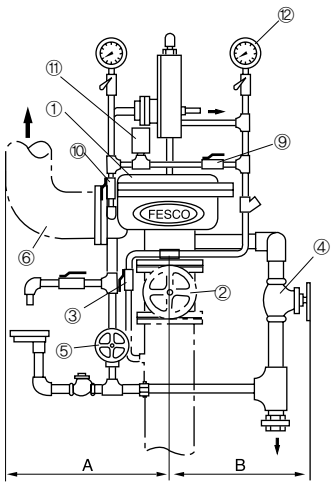
D. Valve Installation

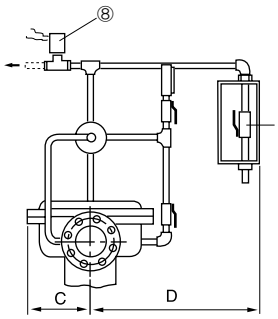
1. Once again, clean interior of valve body before installation.
2. Install valve control piping carefully check for any leakage.
3. Install rest of valve parts (incl. pressure switch, pressure gauge, solenoid valve (excluded when using detecting head)).
4. Connect two P.O.R.V (FPV type only), one manual valve, one solenoid valve, and one valve body drain pipe to the main pipe.
5. Install Pre-Action & Deluge Valve control pipe connecting from OS & Y valve ② inlet to Ball Valve ③.
6. Refer to the solenoid valve and pressure switch wire connection diagram below.

⚠ Caution

1. Apply frost-protection to where the risk of frost is expected in order to prevent any frost-caused leakage.
2. Make sure to perform flushing of piping after the installation. Otherwise, the system may not engage in proper operation due to the clotting of pipe hole or seat rubber damage by dirt or foreign particles.
3. Do not step on the pipe. It may damage the pipe.

FPV Type Assembly



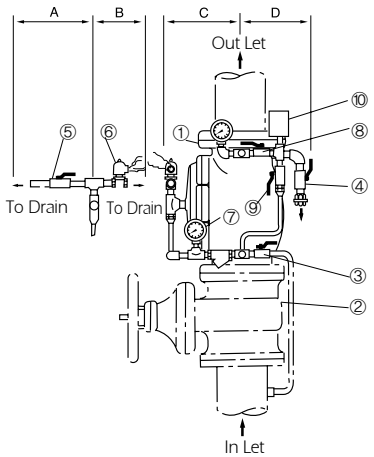


Dimension

Size	A	B	C	D
50A	140	273	273	178
80A	178	356	279	216
100A	375	400	179	330
150A	440	430	233	385

No.	Part	No.	Part
1	Pre-Action & Deluge Valve	7	Emergency Valve (Manual Valve)
2	OS&Y Valve	8	Solenoid Valve
3	Ball Valve	9	Test Valve
4	Drain Valve (Inlet)	10	Ball Valve
5	Drain Valve (Outlet)	11	Pressure Switch
6	Ball Valve	12	Pressure Gauge

FPB Type Assembly



Dimension

Size	A	B	C	D
80A	115	140	172	187
100A	115	213	206	207
125A	134.5	253	220	215
150A	157	259	230	235

No.	Part	No.	Part
1	Pre-Action & Deluge Valve	6	Solenoid Valve
2	OS&Y Valve	7	Pressure Gauge
3	Ball Valve	8	Ball Valve
4	Drain Valve (Inlet)	9	Test Valve
5	Emergency Valve	10	Pressure Switch

Operation Test

A. Initial State of Valves.

FPV Type

NO	Part	State	NO	Part	State
1	Pre-Action & Deluge Valve	Close	6	Ball Valve	Close
2	OS&Y Valve	Close	7	Emergency Valve (Manual Valve)	Close
3	Ball Valve	Close	8	Solenoid Valve	Close
4	Drain Valve (inlet)	Close	9	Test Valve	Close
5	Drain Valve (outlet)	Close	10	Ball Valve	Close

FPB Type

NO	Part	State	NO	Part	State
1	Pre-Action & Deluge Valve	Close	5	Emergency Valve (Manual Valve)	Close
2	OS&Y Valve	Close	6	Solenoid Valve	Close
3	Ball Valve	Close	8	Ball Valve	Close
4	Drain Valve	Close	9	Test Valve	Close

B. Operation

1. From the initial valve open/close state, open ball valve ⑩(⑧For FPB) of pressure switch and that of inlet/outlet pressure gauge
2. Operate pump to pressurize up to inlet of OS & Y Valve.
3. Open ball valve ③ and wait until the inlet pressure gauge of preaction and deluge valve ① is raised slowly and balanced with pump pressure. (At this moment, outlet pressure gauge should indicate "0").
4. Slowly open OS&Y Valve ② and check any leakage and if the outlet pressure gauge indicates "0". Also, thoroughly check if any pressure gauge and electrical parts has been electrically operated and if there would be any problem when the water flows through piping.
5. Close ball valve ③ and wait for 5 minutes to check any abnormality.
6. Open drain valve ④ & ⑤ (④ for **FPB type**) and then slowly open ball valve ⑨ to check the proper operation of pressure switch and alarm. If no problem is found, close the ball valve ⑨.
7. From above step #6, if the alarm stops and the water is completely drained out, slowly open manual valve ⑦ (⑤ for **FPB type**) to operate preaction & deluge valve.
8. Check if the operation of preaction & deluge valve triggers the pressure switch and alarm. Close the manual valve ⑦(Except **FPB type**) and check if preaction & deluge valve is still opened. (It should not be closed).
9. If no problem is found, close OS&Y Valve ② to stop its operation and continue to open drain valve ④ & ⑤ (④ for **FPB type**) to completely drain out the water from outlet piping. Open ball valve ⑥ (**FPB type** does not have) to complete drainage of water and then, close it.

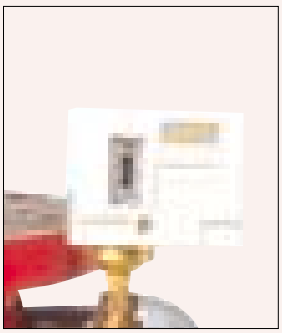
Valve Open/Close Status at Warning State

FPV Type

NO	Part	State	NO	Part	State
1	Pre-Action & Deluge Valve	Close	6	Ball Valve	Close
2	OS&Y Valve	Open	7	Emergency Valve (Manual Valve)	Close
3	Ball Valve	Close	8	Solenoid Valve	Close
4	Drain Valve (Inlet)	Close	9	Test Valve	Close
5	Drain Valve (Outlet)	Close	10	Ball Valve	Open

FPB Type

NO	Part	State	NO	Part	State
1	Pre-Action & Deluge Valve	Close	5	Emergency Valve (Manual Valve)	Close
2	OS&Y Valve	Open	6	Solenoid Valve	Close
3	Ball Valve	Close	8	Ball Valve	Open
4	Drain Valve	Close	9	Test Valve	Close



Pressure Switch

Check-up

A. Daily Check-up (Routine)

1. Does the outlet pressure gauge of preaction & deluge valve indicate "0"?
2. Open ball valve ④ & ⑤ (④ for **FPB type**) to drain the water out of pipe and then open ball valve ⑥ to check complete drainage of water (**FPB type** does not have one). Close ball valve ④, ⑤, and ⑥(④ for **FPB type**).
3. Is the manual valve ⑦(⑤ for **FPB**) completely closed?
4. Are the inlet and outlet pressure gauge ball valves opened?
5. Is the pressure switch ball valve ⑩ (⑧ for **FPB**) opended and test valve ⑨ closed?
6. Is the inlet pressure gauge normal?
7. Is the O.S & Y Valve ② is completely opened?
8. Check if ball valve ③ is closed.

It is advised to check the system according to the test operation procedure when there is no risk of fire and alarm operation does not matter. After testing, return the valves to the standby state.

B. Regular Check-up

When there is no risk of fire and no person exists within the protected area, check the followings.

1. Proper operation of P.O.R.V (**FPV type** only)
2. Clean strainer net and check if overall standby states are appropriate.

Maintenance

Condition	Check-Up	Correction
Cannot reset to standby state.	Check if the inlet pressure gauge is raised and if P.O.R.V operates. (FPV type only)	If not raised, check the next. If raised, replace P.O.R.V.
	Check the ball valve line from ③ to P.O.R.V (Solenoid valve for FPB)	Repair line if the water supply is not proper.
When manual valve is closed after operation, all operation stops.	Check if water flows from two P.O.R.V drain lines. (FPV Type only)	If no water, replace P.O.R.V
Alarm is triggered without fire.	Outlet pressure gauge is raised,	Open ball valve ④ to drain the water.
	Pump is started without any action after prolonged power outage.	Drain the water completely and reset to standby mode.
	Pressure switch failure.	Replace pressure switch.

Specification

Type	SIPS
Max. Pressure	15kgf/㎠
Test Pressure	16.5kgf/㎠
Pressure Adj. Range	1-10kgf/㎠
Power	DC or AC
Pipe Connection Screw	UNF7/16(20Threads)