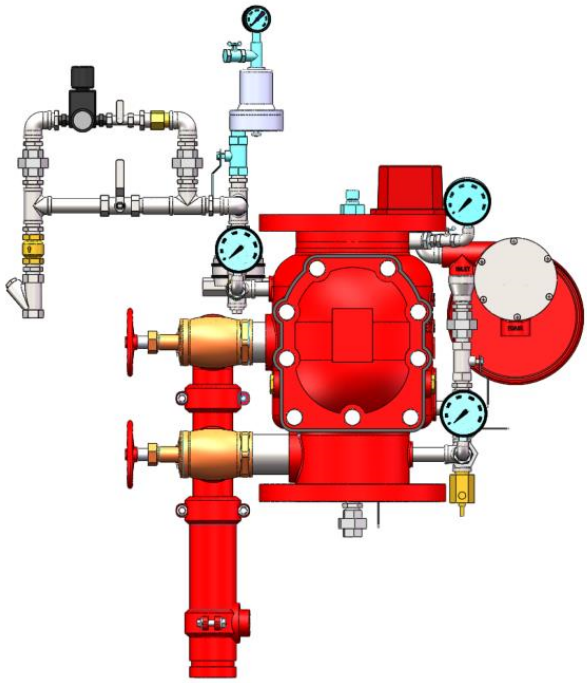
Document No: IOM/DPV
Date: Feb. 28th, 2022
Rev. E

OPERATION & MAINTENANCE INSTRUCTION MANUAL
DRY PIPE VALVE

General

The dry pipe valve is a water flow control/alarm device designed for installation in the main supply to a dry pipe sprinkler system.



Size:	3 inch (DN80) 4inch(DN100) 6 inch(DN150) 8 inch(DN200)
Rated pressure:	300psi (2067 kPa)
Manufacturer test:	Hydrostatic test: 600psi (4134 kPa) Water seat: 600psi (4134 kPa) Air seat:100psi (690 kPa)
Multiple end type:	F2522-300, Groove by Groove F2512-300, Flange by Groove F2511-300, Flange by Flange

UL/ULC Listed, FM Approved

Main Valve Material

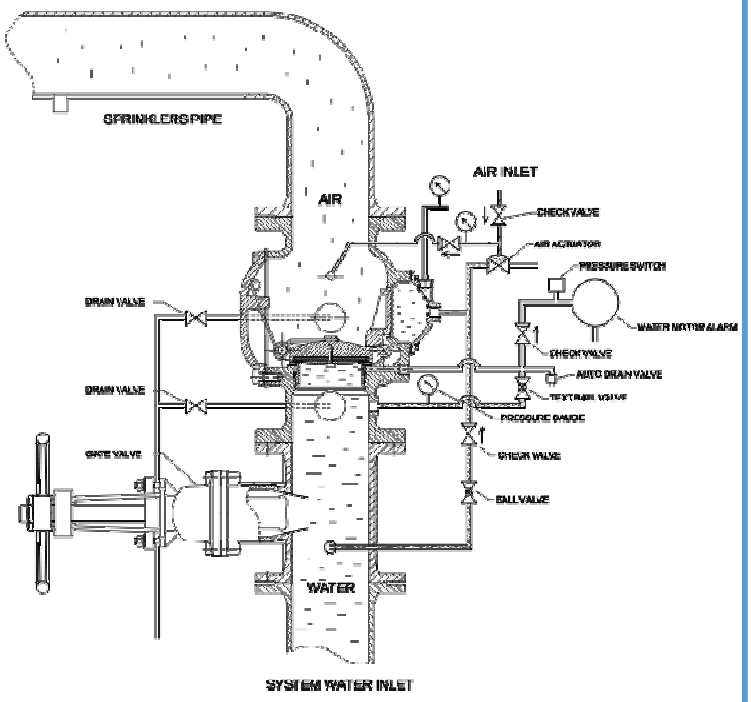
No.	Part Name	Material	ASTM Specification
1	Body	Ductile Iron	A536 Grade 65-45-12
2	Cover	Ductile Iron	A536 Grade 65-45-12
3	Body/Cover Gasket	Rubber	D2000 EPDM
4	Hinge Pin	Stainless Steel	A276 Type 304
5	Clapper	Bronze	B148 C95500
6	Clapper Seal	Rubber	D2000 EPDM
7	Body Seat	Bronze	B62 C83600
8	Diaphragm	Rubber	Peroxide cured EPDM with fabric
9	Latch	Bronze	B148 C95500
10	Spring	Stainless Steel	A276 Type 304
11	Bonnet Fasteners	Carbon Steel	A307 Grade B

OPERATION & MAINTENANCE INSTRUCTION MANUAL
DRY PIPE VALVE

Operation

This model dry pipe valve is constructed with a clapper having a replaceable rubber face. The clapper makes contact with the valve seat ring which has access holes to the intermediate chamber of the valve. The clapper is contacted by the latch which is contacted by the diaphragm. In the set position, water supply pressure from upstream of the water supply control valve is maintained in the diaphragm chamber which holds the clapper in the closed/set position. The water is maintained in the diaphragm by one of the system release mechanisms (pneumatic, hydraulic or electric). Upon the detection of an appropriate actuating event of the sprinkler System the water supply pressure in the diaphragm chamber is released.

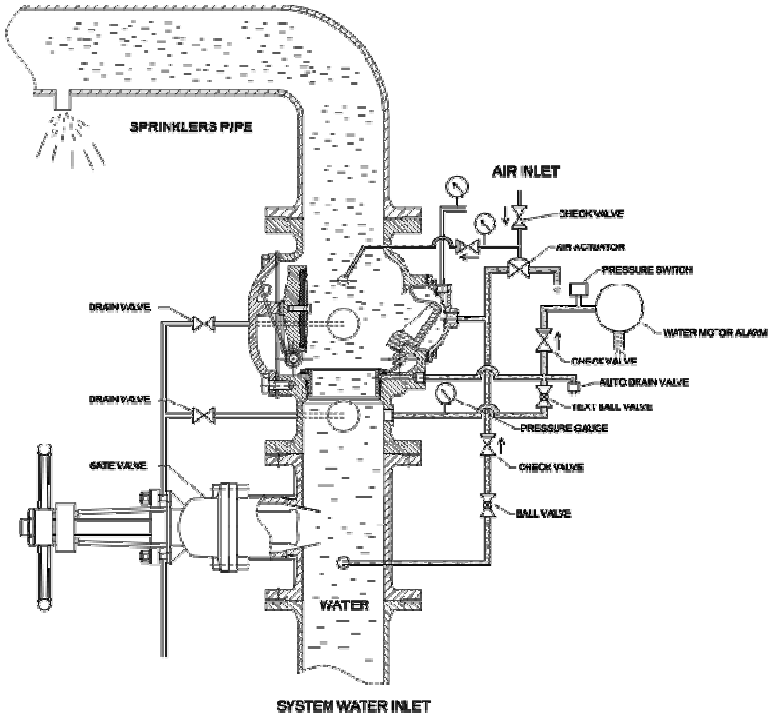
TRIM INSTALLATION DIAGRAM
Clapper in the closed/set position



This release allows the latch to move to its open position, permitting the clapper to pivot freely, thus allowing water into the system. Water will flow from all open sprinklers in the piping. Also, water enters the intermediate chamber of the valve through the holes in the seat ring. The water flows from the intermediate chamber to the alarm line thus activating the system alarms. These alarms will continue to sound until the flow of water is stopped. When the flow of water is stopped the spring assisted valve clapper returns to the closed position and the valve acts as an alarm check valve until the system is put back into service as a sprinkler System.

This model dry pipe valve Minimum operating pressure: 30 psi.

TRIM INSTALLATION DIAGRAM
Clapper in the open position



OPERATION & MAINTENANCE INSTRUCTION MANUAL
DRY PIPE VALVE

Air Supply Requirements

Set the air pressure to the required system air pressure. It will be operate before the pressure drops about 5 psi / 34kPa after controlling the flow of air to the orifice is opened. Air pressure differing from the required system air pressure could reduce system operation response time.

TABLE 3-Air Pressure Settings

Water Pressure		Recommended Pressure	
psi	kPa	psi	kPa
30-140	21-966	15	103
141-250	967-1725	21	145
251-300	1726-2070	24	166

NOTE:

If the air pressure cannot seal Low-Pressure Actuator, increase the pressure appropriately.

Settings for Air Supervisory Pressure

Switches and Alarm Pressure Switches

Air supervisory pressure switches are required for sprinkler systems and must be set according to the following instructions.

Wire the air supervisory pressure switches to activate a low-pressure alarm signal. NOTE: In addition, the local authority having jurisdiction may require a high-pressure alarm. Contact the local authority having jurisdiction for this requirement. Set the air supervisory pressure switches to activate at 2-4 psi/ 14-28 kPa below the minimum air pressure required.

Wire the alarm pressure switch to activate a water flow alarm. Set the alarm pressure switch to activate on a pressure rise of 4-8 psi/ 28-55 kPa.

Packages

Dry Pipe Valve
Required Installation Pipeline
Water Pressure Gauge
Low-Pressure Actuator
Automatic Drain Valve
System Main Drain Valve
Air Pressure Maintenance Device
Limiting Inlet Pipe
Dry Accelerator
Water motor alarm (Optional/Sold Separately)
Air Supervisory Pressure Switch (Optional/Sold Separately)
Alarm Switch (Optional/Sold Separately)
Water flow Detectors (Optional/Sold Separately)

Installer Safety Instructions

WARNING

***the valve trim as specified by the Standard for the Installation of Sprinkler Systems, ANSI/NFPA 13.**

***An experienced, trained installer must install this product in accordance with all instructions. These instructions contain important information.**

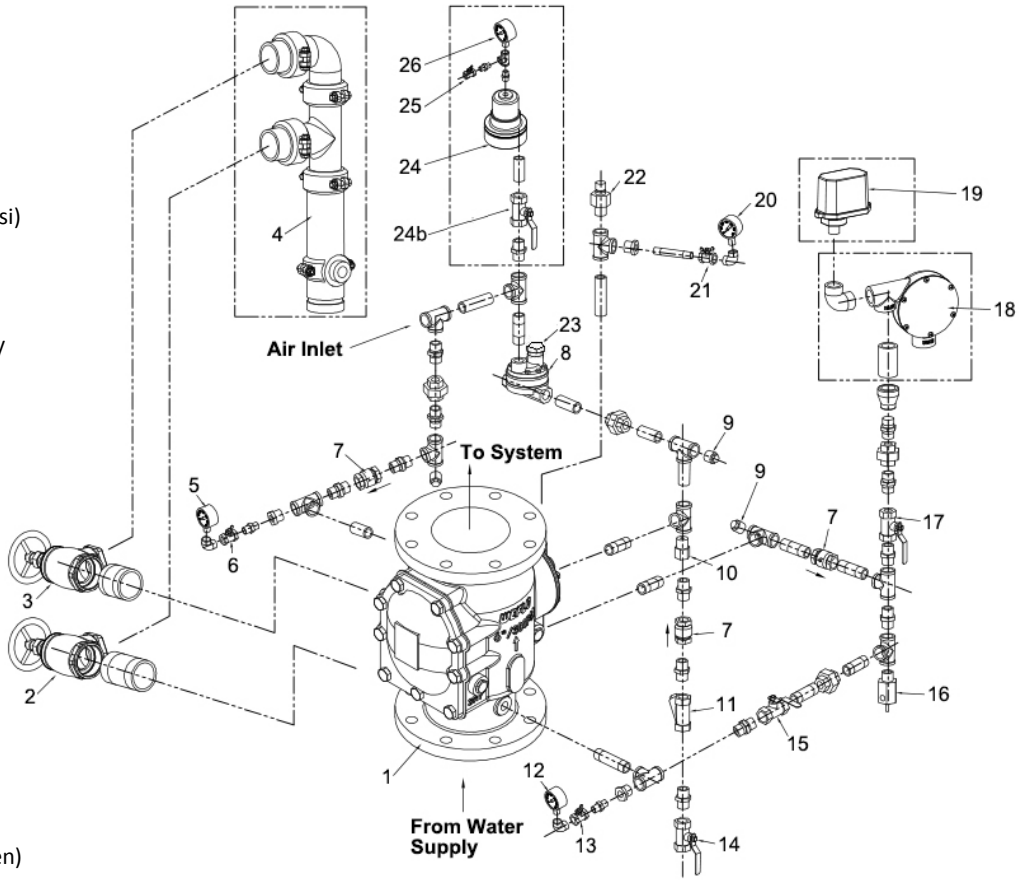
*** Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any piping products.**

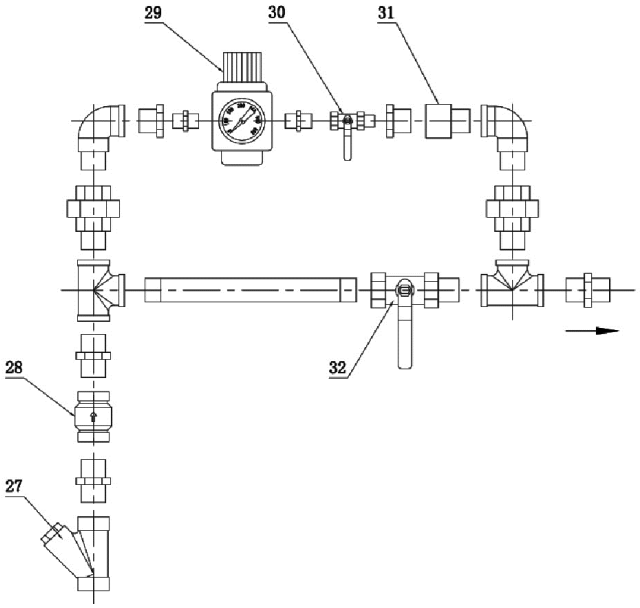
***Failure to follow these instructions can cause product failure, resulting in death or serious personal injury and property damage.**

OPERATION & MAINTENANCE INSTRUCTION MANUAL
DRY PIPE VALVE

TRIM COMPONENTS

1. Dry Pipe Valve Assembly
2. Water Supply Main Drain Valve
3. System Main Drain Valve
4. Drain Connection Kit (Optional)
5. System Pressure Gauge (0-300 psi)
6. Gauge Valve
7. Check Valve
8. Low-Pressure Actuator Assembly
9. 1/2" Plug
10. Restrictor
11. Strainer
12. Water Supply Pressure Gauge (0-300 psi)
13. Gauge Valve
14. Diaphragm-Charge-Line Ball Valve
15. Alarm Test Ball Valve (Normally Closed)
16. Automatic Drain Valve
17. Alarm Ball Valve (Normally Open)
18. Water Motor Alarm
19. Alarm Pressure Switch
20. Diaphragm-Charge-Line Pressure Gauge (0-300 psi)
21. Gauge Valve
22. Auto Drain valve
23. 1/2 plug
24. Dry Accelerator
24b. Ball valve
25. Ball Valve
26. Air Pressure Gauge (0-0.4Mpa)
27. Strainer
28. Check Valve
29. Air Regulator
30. Slow Fill Ball Valve (Normally Open)
31. Restrictor
32. Fast Fill Ball Valve (Normally Closed)

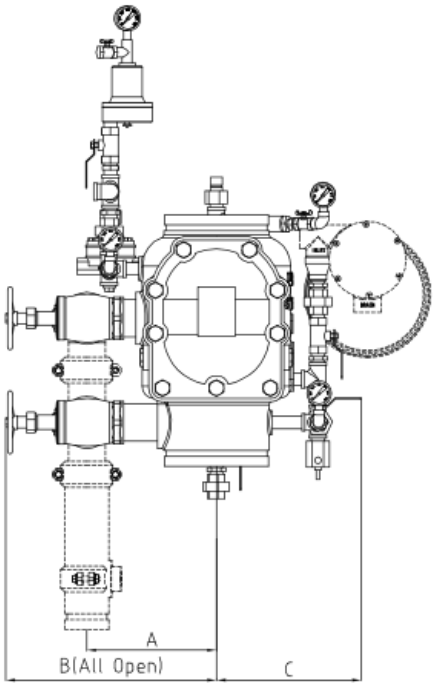


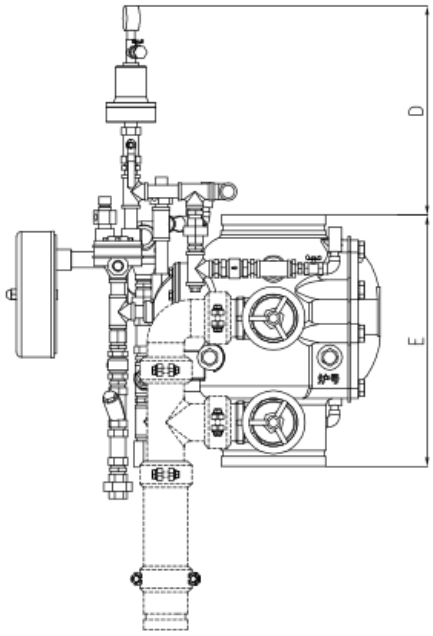


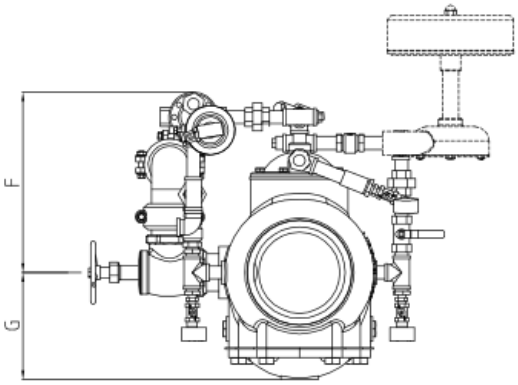
Air Pressure Maintenance Device

OPERATION & MAINTENANCE INSTRUCTION MANUAL
DRY PIPE VALVE

TRIM DIMENSIONS







	A	B	C	D	E			F	G
					FXF	FXG	GXG		
DN80	150	300	210	375	325	310	310	265	120
DN100	180	350	210	375	355	343	343	265	135
DN150	210	375	250	345	431	405	405	290	175
DN200	240	415	275	325	460	445	445	310	190

NOTES:

1. Components shown as dotted lines denote optional equipment.
2. The 3-inch/ 88.9-mm configurations contain 1 ¼-inch/31-mm drain valves. The 4-8 inch/ 114.3-219.1mm configurations contain 2-inch/ 50-mm drain valves.

OPERATION & MAINTENANCE INSTRUCTION MANUAL
DRY PIPE VALVE

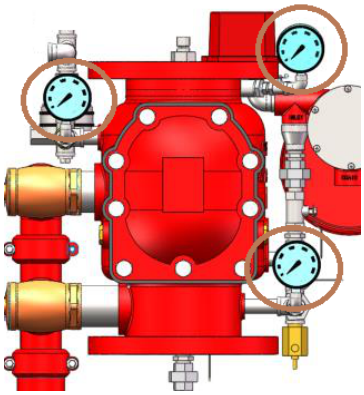
IMPORTANT INSTALLATION

1. Confirm that adequate space is available for valve, trim, and accessories.
2. Flush water supply piping. Before installing the Dry pipe Valve, flush the water supply piping thoroughly to remove all foreign material.
3. Protect system from freezing temperatures. Dry pipe Valve and supply piping MUST NOT be located in an area where the valve can be exposed to freezing temperatures or mechanical damage.
4. Supply air or nitrogen to the system. Air or nitrogen supply to the piping system must be clean, dry, and oil-free and must be regulated, restricted, and uninterrupted. Observe the system air pressure over a 24-hour period to confirm system integrity. If there is degradation in system air pressure, find and correct all leaks. NOTE: NFPA requires less than 1.5psi/10 kPa/0.1 bar leakage in 24 hours.
5. Valve must be installed in vertical position with the trim.
6. Ensure that all components are included in the shipment and that all necessary tools are available for installation. Verify that the provided trim drawing matches the system's requirements.
7. Remove all plastic caps and foam spacers from the valve.
8. Install the valve assembly into the riser.

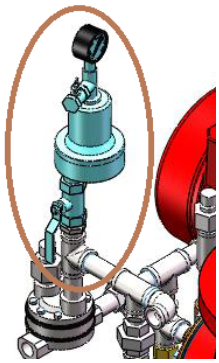
NOTE: The ball valve #14 must be connected to the front of the globe valve or butterfly valve.

9. Install the Pressure Gauge、Air Pressure Maintenance Device and other parts. For components shipped separate from the valve, apply a small amount of pipe joint compound or PTFE thread sealant tape to the external threads of all threaded connections. DO NOT get any tape, compound, or other foreign material into the openings of the threaded connections.

9a. Install the Pressure Gauge (5), (12) and (20)

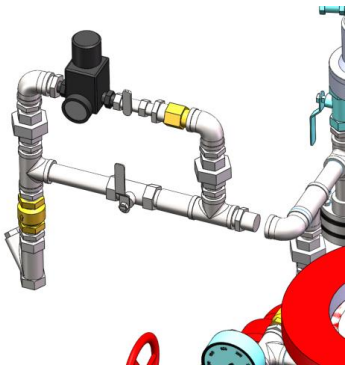


9b. Install the Dry Accelerator (24)



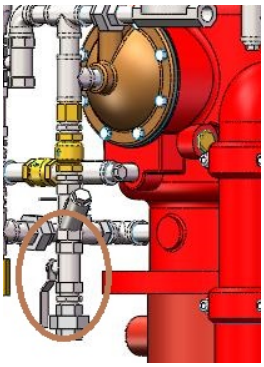
9c. Install the Air Pressure Maintenance Device.

(Adjust the angle according to the actual situation)



9d. Install the Water Motor Alarm (18), supervisory pressure (19) and Automatic Drain Valve

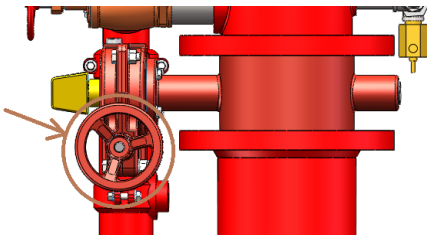
10. Install the Limiting Inlet Pipe.



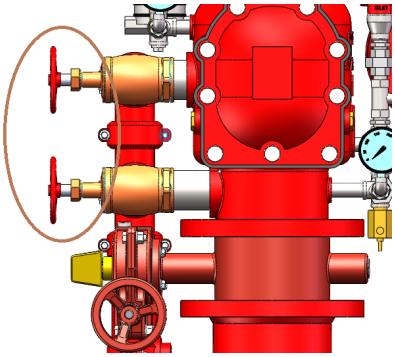
Setting Procedure

Step 1. Make sure the clapper at set position.

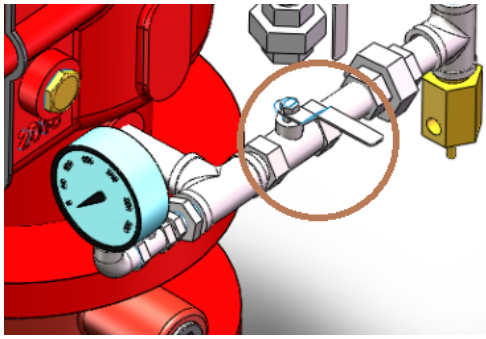
Step 2. Close the main water supply control valve to the sprinkler system (OS&Y, Wafer Butterfly or other), make sure it no leaks. All pressure gauge shows zero.



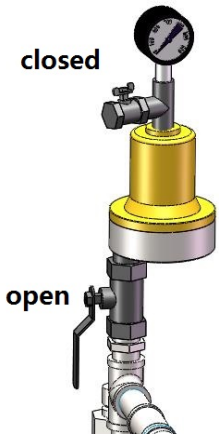
Step 3. Open the (2) drain valve and (3) drain valve, make sure there is no water in the valve. Then close both drain valves.



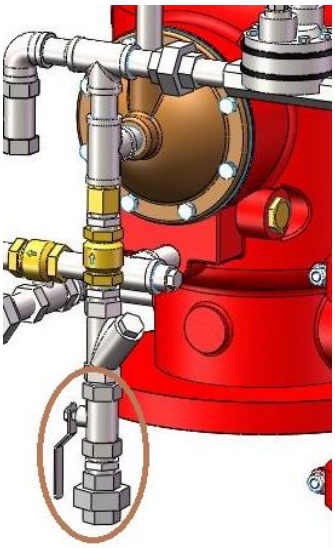
Step 4. Make sure the (15) Alarm Test Ball Valve was closed.



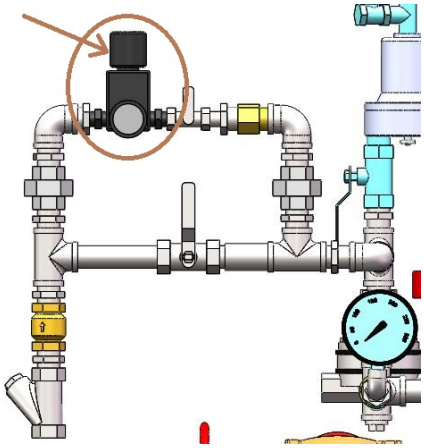
Step 5. Open the (24b) ball valve, make sure the (25) ball valve was closed.



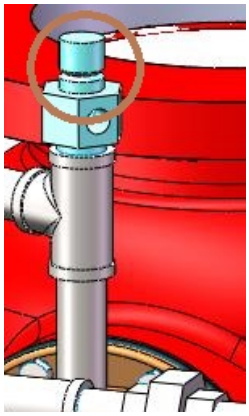
Step 6. Open the (14) Diaphragm-Charge-Line Ball Valve, Allow water to flow through the (22) auto drain valve and (8) low-pressure actuator.



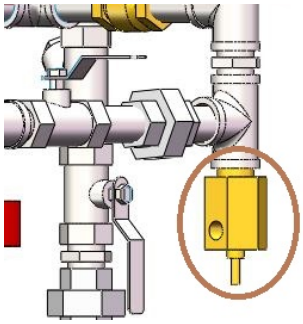
Step 7. Adjust the (29) Air Regulator of Air Pressure Maintenance Device make air pressure according to table 3. Open (32) Fast Fill Ball Valve until the pressure in the pipe close to the set point, close the (32) fast-fill ball valve and Open the (30)slow-fill ball valve.



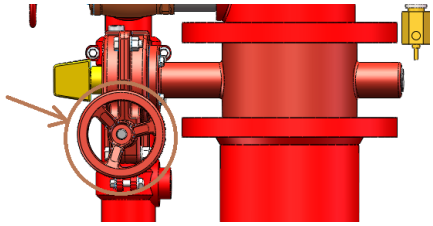
Step 8. Pull up the (22) auto drain valve until there is no water leak from outlet. Check the (20) Diaphragm-Charge-Line Pressure Gauge, It shows the pressure of the water supply.



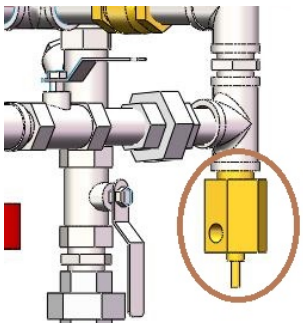
Step 9. Manually open the (16) drip check valve. Make sure there is no air/water leakage.



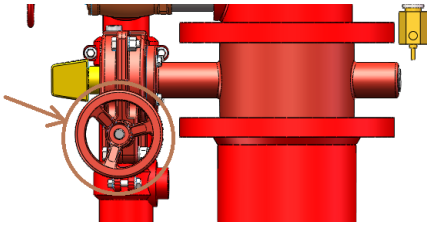
Step 10. Slowly open 1/3 of the main water supply control valve.



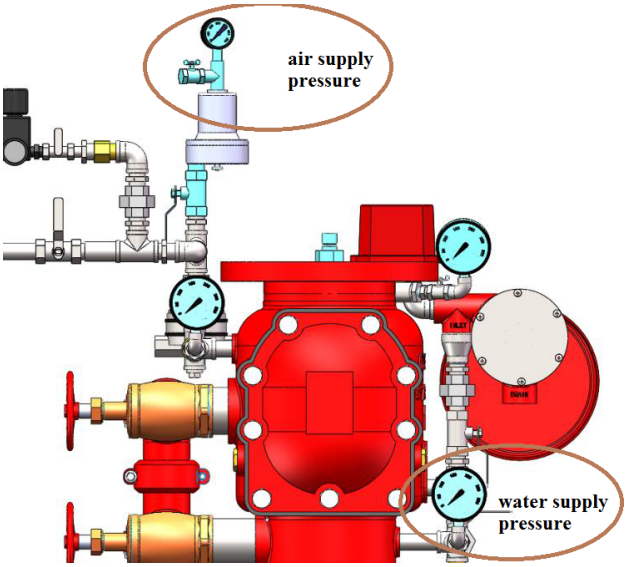
Step 11. Check the (16) drip check valve, no water and no air leaks.



Step 12. Open the main water supply control valve fully.



Step 13. Record water supply and air supply pressure.



Step 14. Confirm that all valves are in their normal operating positions.

Step 15. Increase the air pressure value about 10% to ensure the stable pressure of the system.

Valve	Normal Operating Position
Water Supply Main Control Valve	Open
(2)Water Supply Main Drain Valve	Closed
(3)System Main Drain Valve	Closed
(14)Diaphragm-Charge-Line-Ball Valve	Open
(15)Alarm Test Ball Valve	Closed
(30)Slow-Fill Ball Valve	Open
(32) Fast Fill Ball Valve	Closed
(25)Ball Valve	Closed
(6), (13) and (21) Gauge Valve	Open
(9)Plug replaceable for Emergency manual opening	Closed