

JM-I-CV-ZSFZ8X9000-01

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For Series: ZSFZ8X9

# Installation & Maintenance Instruction for Grooved Alarm Valve

**Jinan Meide Casting Co., Ltd.**

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## I. General Introduction

The alarm check valve works as a check valve by preventing the reverse flow of water from the system piping to the water supply. The valve is trimmed with a water bypass line, which has an in-line swing check valve. The bypass line allows pressure surges to enter the system and to be trapped above the alarm check valve's clapper without the clapper lifting and causing false alarms.

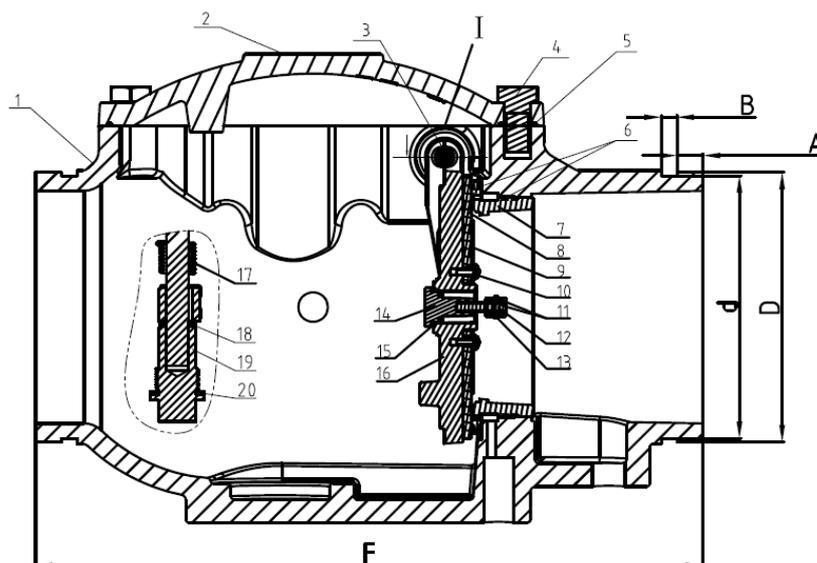
When there is water, such as from an open sprinkler, the alarm valve clapper lifts and allows water to enter the system. Simultaneously, water enters an intermediate chamber, which allows the water to activate an alarm either through a water motor alarm or through a water pressure alarm. These alarms continue to sound until the flow of water is stopped.

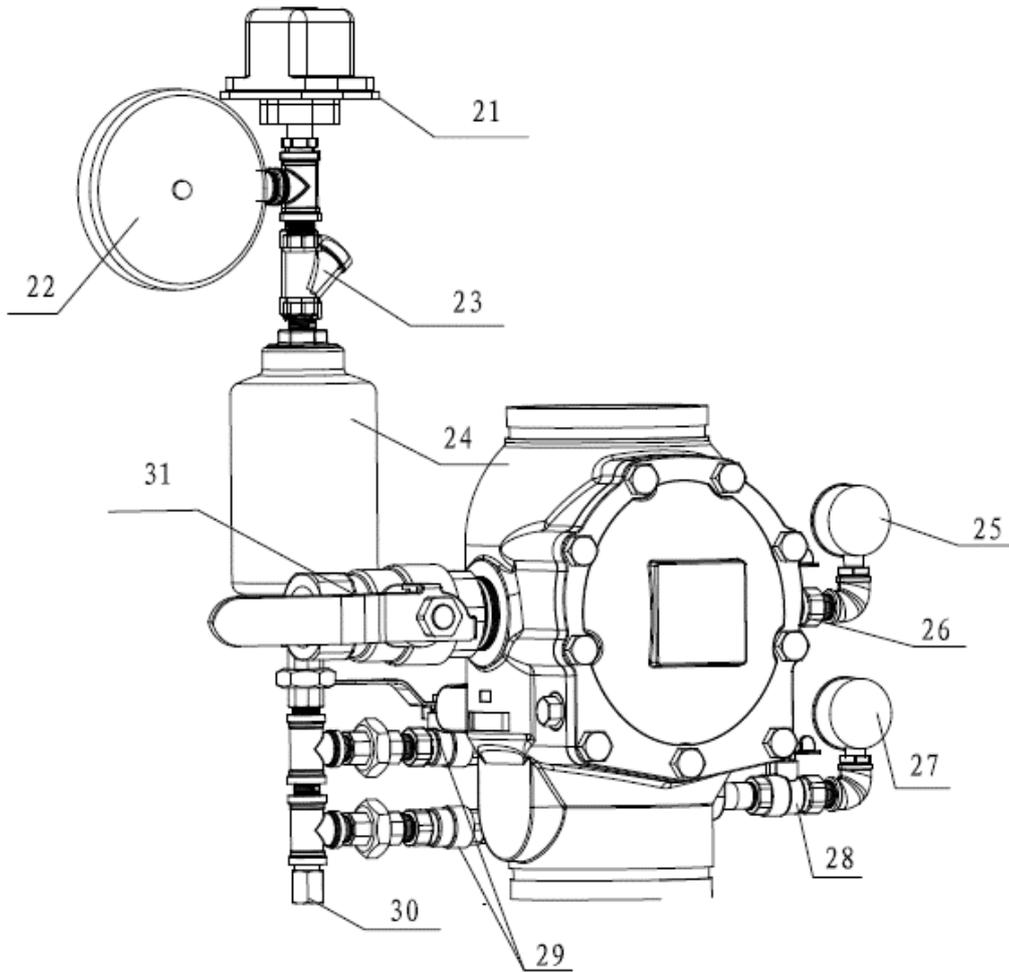
## II. Property Specifications

<b>Design Standard</b>	UL 193 / ULC C193/FM1041
<b>Valves Test</b>	UL 193 / ULC C193/FM1041
<b>Connection Ends</b>	Groove to AWWA C606, ISO 6182
<b>Rated Working Pressure</b>	200PSI/250PSI/300PSI/PN16/PN10
<b>Working Temperature</b>	4~70°C
<b>Coating</b>	Fusion Bonded Epoxy Coating in accordance with ANSI/AWWA C550
<b>Certification</b>	UL

## III. Structure Design & Working Principle

For the structure of flanged resilient swing check valve, please see Figure 1.  
For the dimensions, please see the Table 1.





**Figure 1-- Structure**

**Table 1-- Dimensions**

DN		Dimension(mm)			
Inch	mm	OD	A	B	Φd
3"	80	88.9	15.88	7.93	84.94
4"	100	114.3	15.88	9.53	110.08
6"	150	159	15.88	9.53	154.45
6"	150	165.1	15.88	9.53	160.9
6"	150	168.3	15.88	9.53	163.96
8"	200	219.1	19.05	11.1	214.4

## IV. Material Construction of Major Components:

Material Specifications(American Standard)			
Material Specifications(American Standard)	Part	Standard Specification	Options
1	Valve Body	ASTM A536,65-45-12	
2	Bonnet	ASTM A536,65-45-12	
3	Pin	ANSI304	ANSI316
4	Hex Bolt	Carbon Steel Zinc Plated	
5	Gasket	EPDM	NBR
6	O-Ring	NBR	EPDM
7	Seat	C89833	
8	Gasket	EPDM	NBR
9	Gland	AISI304	
10	Slotted screw	ANSI304	
11	Hexagonal nut	ANSI304	
12	Adjusting screw	ANSI304	ANSI316
13	Card board	C89833	
14	Compensator	C89833	
15	O-Ring	NBR	EPDM
16	Disc	C89833	
17	Spring	ANSI304	
18	Sealing fillet gasket	PTFE	
19	Sealing plug	ANSI304	

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20		Sealing fillet gasket	PTFE	
External accessories				
21	Pressure switch	27	Pressure gauge	
22	Alarm	28	Ball valve	
23	Strainer	29	Locking valve	
24	Decelerator	30	Orifice	
25	Pressure gauge	31	Check Ballvalve	
26	Ball valve			

**Table 1—Dimensions**

## V. Working principle:

Wet systems are the simplest and most common type of sprinkler system installation, with relatively few components (Figures 1, 3, 4). The system provides fixed fire protection using piping filled with pressurized water supplied from a dependable source at all times. Water is continually discharged through sprinklers that have activated over or near the fire, thereby minimizing water damage. Closed heat-sensitive automatic sprinklers spaced and located in accordance with recognized installation standards are used to detect a fire. Upon operation, the sprinklers distribute the water over a specific area to control or extinguish the fire.

Wet alarm valve is always in the ready condition. The sprinkler system is filled with water. When fire occurs in the control area of the automatic sprinkler system, the heat sensitive components of the sprinkler will be automatically sprayed by heat and wet alarms are provided. The pressure in the sprinkler side will drop. Under the action of the pressure difference, the valve disc is automatically opened. Water flows into the sprinkler system to infuse water to the pipe network. The system is in the Sprinkler state to extinguish. At the same time, a small part of the water flows through the holes in the seat ring to the Retard Chamber and the water gong. When the pressure and flow rise, the water flows through a nozzle, which restricts the flow into a pressurized stream directed onto the impeller. Force from the water stream turns the impeller and drive shaft, causing the striker arm to rotate. The striker impacts against the gong, producing a continuous alarm. The 2# ball valve between the wet alarm valve alarm valve and the Retard Chamber must remain fully open and locked, while the test alarm control ball valve (ball valve connected to the water supply side) must be closed.

When test alarm function, close the ball valve between the alarm port and the retarder and open 2#,Ball Valve. Then conduct the alarm function test.

Warning: Please restore 2# and 3# ball valves to their original state.

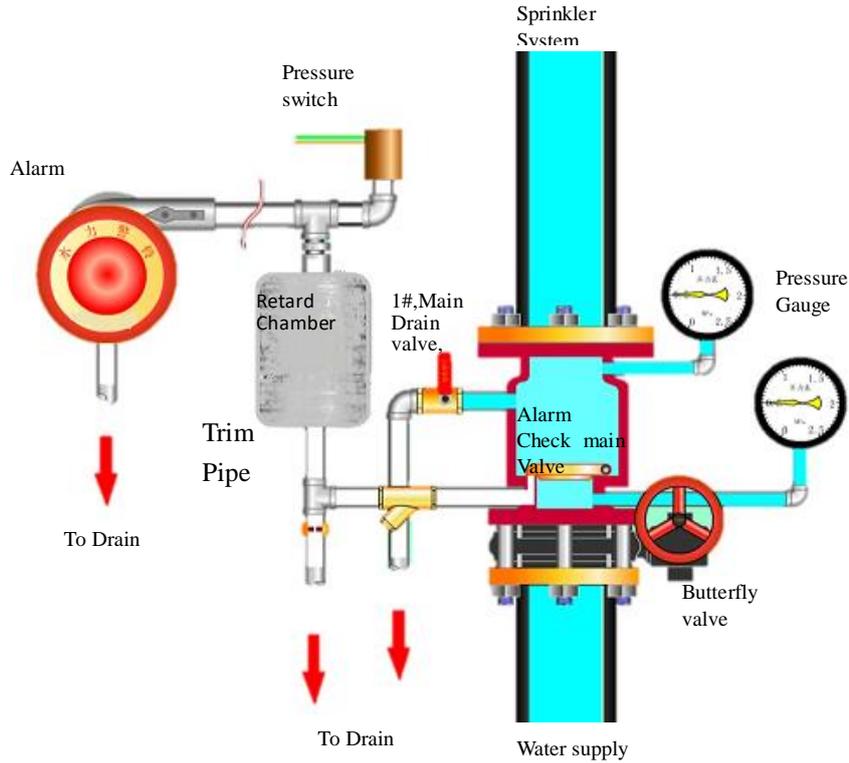


Figure 3, ready condition

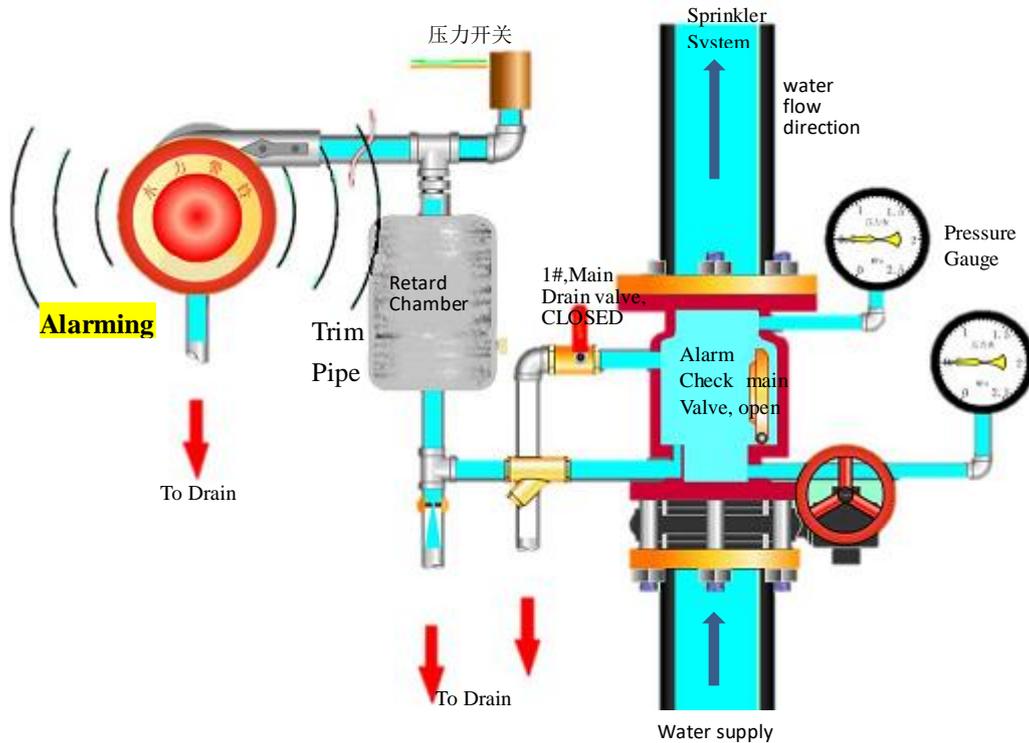


Figure 4, operating condition

## VI. Transportation

1. The valves should not be damaged during the transit. Before transportation, rope, lift and transportation should be ready. Check the package of valves. Valves should be repacked, if there are damages on the package.
2. Valves should be lifted lightly with ropes tied hardly in the rings.
3. Valves should not dragged on the ground or moved with the faces on ground to keep the surface, metal plates and sealing surface from damaging.
4. Valves should not be unpacked if they are to be installed. Valves should be placed in a safe place, and make good waterproof, dustproof work.

## VII. Storage

1. The valve is to be stored in dry cool conditions in the warehouses with good ventilation.
2. The waterway and ends of the valves are to keep sealed.

## VIII. Installation

When wet alarm valve is installed vertically, with a height of 1.2m above the ground, a distance of no less than 0.5M from the wall on both sides, no less than 1.2M from the wall on the front side, and corresponding drainage measures shall be taken on the ground. The ambient temperature range shall be 4 °C-70 °C. Please note to keep a space for maintenance and maintenance.

The system piping should be thoroughly cleaned during installation to ensure that there is no dirt in the piping. The seal of each pipeline interface should be reliable.

All discharge outlets shall be draining into sewers for uniform discharge.

The installation of the pressure gauge should be easy to read and the valve handle should be placed in a convenient position.

The pipeline to connect the water gong should use 3/4" corrosion resistant pipe, the maximum length should not be longer than 20 meters, the height difference between the water gong and the alarm valve is not more than 5 meters.

## IX. Maintenance

1. Conduct the alarm function test every month.
2. Check and inspect the following items of the alarm valve and its accessories every six months.
3. Check the sealing surface of the rubber gasket on the clapper and remove dirt and foreign matter on the sealing surface of the valve gasket. If there is any wear or damage, it should be replaced in time.
4. Check the small holes and sealing surfaces of the valve seat. Remove the sundries if there are sundries in the valve seat. Repair the seat if the surface of the valve seat is scratched. Replace it if cannot be repaired.
5. Check and remove the dirt in the Y-type strainer of the alarm valve trim pipe.

6. Check and remove the dirt in the retard chamber of the alarm valve trim pipe.
7. Always check and confirm the butterfly in the water supply side at the open position.
8. Inspect and check whether the pressure in the upper and lower chambers of the wet alarm valve is the system design pressure.
9. Note: Under normal conditions, the upper and lower chamber pressures are different. If it is found that the readings on the two tables are exactly the same and all the trial bell valves and sprinklers are not checked, it shows that there is a leak somewhere in the system.
10. Inspect the rubber sealing of the wet alarm check valve every year, and remove debris that has settled in the valve chamber and Y-type strainer.

## X. Common Problems and Proposed Solutions

Possible Problems	Possible Causes	Proposed Solutions
False alarm from the water gong or false signal from pressure switch	There is debris or valve gasket damage between the valve disc and the valve seat.	Open the valve bonnet and clean up the debris in the valve groove or replace the gasket.
	Throttle block at the lower end of the retarder chamber.	Remove for clean up the debris.
Water gong does not work.	The y-type strainer is clogged by debris and the water flow is too small	Remove for clean up the debris.
	The pipe under the delayer falls off	Remove for clean up the debris.
	The pipe under the delayer falls off	Re-install and contact the pipe.
	The valve disc compensator is stuck in the normally open state, resulting in excessive alarm flow	Open the valve bonnet, remove the disc, repair the inner compensator
Alarm time exceeds the standard	The air on the system side is not drained.	Drain the air in the system
	The pressure of the system side is higher than the water supply side.	Adjust system pressure
Intermittent alarm	There is a lot of air in the sprinkler system that prevents water supply into the system normally.	Drain the air in the system

## XI. Quality Assurance

1. The valve quality is guaranteed for 18 months since valves are shipped out of factory. Manufacturer is responsible for the material defects and quality issue happens in normal operation and using conditions and not for the improper installation,

maintenance, and modification.

2. When quality problems are found, should inform manufacturers, manufacturers maintain the rights of investigating these issues.
3. What should the manufacturers ensure are limited to the following conditions:
  - material repair costs
  - replacing parts and material cost
  - to compensate users purchasing cost
4. Manufacturer is not liable of the damages caused by unexpected natural disasters such as earthquake, typhoon, etc. beyond the valve itself defects.
5. Beyond the limits of other guarantee, agreed by the user and the manufacturer.

## XII. Service

1. If stipulated in the contract, the factory can provide on-site installation and debugging.
2. Quality tracking should be provided by the manufacturer and other services should also be offered according to customers' requirements.

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