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Grooved Wet Alarm Valve User Manual (ZSFZ8X9)



Product Review

The ZSFZ wet alarm valve is a water spray system that only allows water to be injected in from one direction and will give alarm at a specified flow rate. The wet sprinkler system, together with other components such as pressure switch, water flow indicator, sprinkler etc, is a widely used fixed fire extinguishing system. The pipe network of the system is full of pressurized water and is in standby working state. When a fire breaks out in a protected area, the temperature of the area rises, the temperature sensitive element of the sprinkler is broken, the nozzle sprays water, and the automatic system starts to spray water directly to the fire. At the same time, the alarm signal is issued in the occurrence area, which has achieved the purpose of alarming, extinguishing and controlling fire.

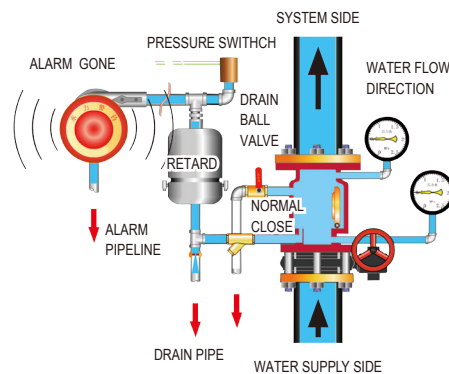
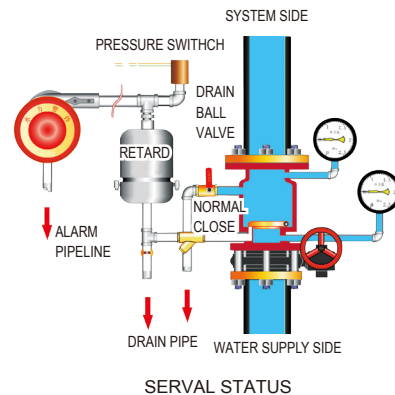
ZSFZ wet alarm valve device is suitable for places with an ambient temperature of 4°C - 70°C, usually installed in places with fire hazards, including warehouses, hotels, shopping malls, hospitals, theaters, office buildings, conference centers, especially suitable for high-rise buildings and underground engineering.

Specification & Standard

Design Standard		GB/T5135.2-2003, UL193, FM1041
Connection Standard		AWWA C606
Coating Standard		ANSI/AWWA C550
Nominal Pressure PN		PN16/300PSI
Nominal Diameter DN		DN3"-8"/80 ~ 200mm
Test Pressure	Strength Test	3.2MPa
	Sealing Test (Optional)	2.4MPa
Working Temperature		0 ~ 80°C
Media		Water

Working Principle

The wet alarm valve device is in a waiting state for a long time, and the system is filled with water at working pressure. When a fire occurs in the control area of the automatic sprinkler system, the heat sensitive element in the closed sprinkler on the system pipe network is heated and bursts automatically, the pressure of the alarm valve system drops. Under the action of the pressure difference, the valve flap automatically opens, and the water on the water supply side flows into the system side to supply water to the pipe network, and the entire pipe network is in an automatic sprinkler state. At the same time, a small amount of water flows to the retarder and hydraulic alarm bell through the small holes on the seat ring. Under certain pressure and flow conditions, the hydraulic alarm bell sounds an alarm. The servo state of the control ball valve between the alarm port of the wet alarm valve and the retarder must be kept fully open and locked, and the test alarm control ball valve (the ball valve connected to the water supply side) must be closed. When a trial alarm is required: remove the locking device of the control ball valve between the alarm port and the retarder and close it. At this time, open the test alarm control ball valve to start the alarm test. Immediately after the test, the two control ball valves were restored to their original state.



Product Feature

- Precise delay device prevents false alarms. The alarm delay time of the delay device is 5-90S. There is a drip valve under the delay device, which can drain the water in the delay device within 5Min.
- The internal compensation device prevents malfunction, and the internal compensation device balances the pressure of the upper and lower chambers in time to prevent the valve from malfunctioning.
- Full diameter design, small water loss.
- The valve clack assembly can be screwed out of the body, and the sealing gasket can be replaced online.

Design & Dimensions

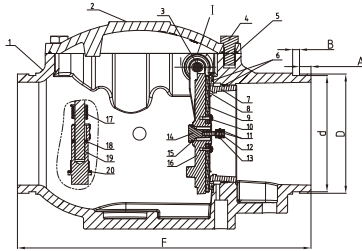


Fig. 1 Structure

Material Specifications

Part No.	Part	Standard Configuration
1	Valve Body	ASTM A536 65-45-12
2	Bonnet	ASTM A536 65-45-12
3	Pin	AISI 304
4	Hex Bolt	Carbon Steel Zinc Plated
5	Gasket	EPDM
6	O-Ring	NBR
7	Seat	C89833
8	Gasket	EPDM
9	Gland	AISI 304
10	Slotted Screw	AISI 304
11	Hexagonal Nut	AISI 304
12	Adjusting Screw	AISI 304
13	Card Board	C89833
14	Compensator	C89833
15	O-Ring	NBR
16	Disc	C89833
17	Spring	AISI 304
18	Sealing Fillet Gasket	PTFE
19	Sealing Plug	AISI 304
20	Sealing Fillet Gasket	PTFE

Dimension

DN		OD	Dimensions(mm)				
Inch	mm		A	B	φ d	φ D	F
3"	80	88.9	15.88	7.93	84.94	88.9	320.3
4"	100	114.3	15.88	9.53	110.08	114.3	382
6"	150	165.1	15.88	9.53	160.9	165.1	406.4
		168.3	15.88	9.53	163.96	168.3	406.4
8"	200	219.1	19.05	11.1	214.4	219.1	446

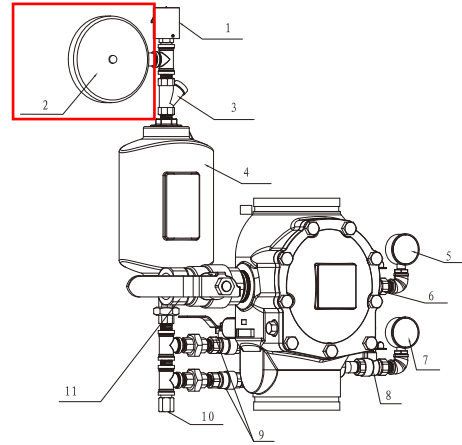


Fig. 2 Structure

Part No.	Part	Part No.	Part
1	Pressure Switch	7	Pressure Gauge
2	Alarm	8	Ball Valve
3	Strainer	9	Ball Valve
4	Decelerator	10	Drip Valve
5	Pressure Gauge	11	Ball Valve
6	Ball Valve		

Installation & Application

1. Preparation Before Installation

- 1.1 Check whether all pipe fittings of the valve are complete and damaged.
- 1.2 Check whether the valve nameplate, certificate and valve body casting information are consistent.
- 1.3 The pipeline should be thoroughly cleaned before installing the valve to ensure that there is no debris, welding slag, etc. in the pipeline.

2. Installation Steps and Notes

- 2.1 The wet alarm valve should be installed in a place that is convenient for observation and easy access, and necessary maintenance space should be reserved around.
- 2.2 A signal butterfly valve must be installed before the main valve.
- 2.3 Unpack the package and check whether the flange joints of the wet alarm valve are bumped, whether the seal is intact, and whether the valve flap action is flexible and free of obstruction. If the above damage occurs, it should be replaced in time or troubleshooting.
- 2.4 During installation, the arrow of the wet alarm valve is upward or the direction of the water flowing to the system pipe network.
- 2.5 In order to facilitate the observation of the condition of the alarm pipeline, it is best to drain it through an open port or install it in a form where the drainage status can be seen.
- 2.6 The wet alarm valve should be installed vertically with a height of 1.2M from the ground, no less than 0.5M from the wall on both sides, no less than 1.2M from the front to the wall, and appropriate drainage measures on the ground, with an ambient temperature of 0°C-80°C, and a place with sufficient maintenance and maintenance space.

3. Installation and Debugging

3.1 After the system is installed, fill the system pipeline with water (system water supply pressure is 0.14-1.2MPa, flow rate is 6m/s), slowly increase the pressure and drain the air in the pipeline until the system working pressure is reached. Check that there is no leakage at each interface of the system, and do the following tests after passing the inspection.

3.2 Alarm Test

Open the terminal test valve (installed in the automatic sprinkler system) or the test valve on the alarm device. When the flow is equivalent to the flow of the standard nozzle with a diameter of 15mm, the alarm bell should alarm, and the pressure switch and water flow indicator should act accordingly.

3.3 Water Supply Pipeline Test

Open the drain ball valve, and a large amount of water should flow out steadily.

Transportation and Storage

1. The valve should not be damaged during transportation. Before transportation, the ropes, elevators and transportation must be prepared. Check the packaging of the valve. If the packaging is damaged, the valve should be repackaged.
2. The valve should not be dragged on the ground or moved along with the ground surface to avoid external connection and surface damage.
3. The valve should not be disassembled during installation. The valve should be placed in a safe place and waterproof and dustproof.
4. The valve should be kept in a cool and dry place.
5. Both ends of the passage need to be sealed. When not in use for a long time, regular inspections should be carried out every six months to remove dirt and replace the anti-rust oil. Special attention should be paid to the cleaning of the sealing surface to prevent damage to the sealing surface.

Common Problems and Solutions

1. The valve is not closed tightly

Trouble phenomenon: there is continuous water leakage at the drain outlet of the retarder; intermittent alarm will occur when it is serious; the alarm valve is abnormally sensitive or the sensitivity is reduced.

Treatment method: Open the valve cover of the alarm valve, remove the deposits on the seat ring and valve cushion surface; replace the gasket.

2. Delayer Failure

Fault phenomenon: The alarm valve cannot send out an alarm signal within 5-90s during the terminal water test device test and the alarm bell test; after the test is completed. The drain time of the retarder exceeds 5 minutes.

Treatment method: check whether the position and interface size of the water inlet, outlet and drip valve of the retarder meet the product requirements, and whether the drip valve accessories are complete, otherwise it should be reassembled; check that the drip valve is not blocked; the retarder drain pipe should be controlled up and down valve.

3. The alarm valve pressure value is abnormal

Trouble phenomenon: abnormal pressure gauge value

Treatment method: select a suitable pressure gauge, ensure that the pressure indication value is within the range of 1/3-2/3 of the pressure gauge, and check the pressure gauge regularly; the operating pressure of the voltage stabilizing device should meet the fire protection requirements; All pressurized water sources should be introduced from the alarm valve water source pipeline so that the water source can pass through the alarm valve.

4. Failure of the main drain valve

Failure phenomenon: The failure of the main drain valve is mainly the leakage or damage of the valve. If the drain pipe does not stop leaking, the drain valve is rusted and stuck, making it difficult to operate.

Treatment method: When there are many mechanical debris in the water, a filter should be installed at the water source inlet of the alarm valve; the main drain valve should be a valve with copper or stainless steel valve seat, stem and stem nut; often check and operate regularly.

5. Pressure Switch Failure

Trouble phenomenon: The pressure switch alarms by mistake or does not alarm.

Solution: Check whether the minimum operating pressure of the pressure switch meets the requirements; check whether the contact resistance and insulation resistance of the pressure switch contacts meet the requirements; check whether the electrical circuits and signal modules are normal.

6. Alarm Valve Signal Slot Failure

Trouble phenomenon: The alarm water flow is reduced, and the hydraulic alarm is not loud enough or even does not ring.

Treatment method: Improve the quality of the water source and add a water source filter that meets the requirements. When the alarm water flow is found to be reduced, the signal slot should be cleared in time.

7. Hydraulic Alarm Bell Failure

Trouble phenomenon: The hydraulic alarm bell does not alarm after the alarm valve is activated; the hydraulic alarm bell intermittently alarms or the alarm bell is not loud enough after the alarm valve is activated.

Treatment method: When the alarm test, it is found that the impeller box has no water outflow or the water flow is very little, usually the nozzle is blocked, the mesh size of the filter should be checked; when the alarm test, the impeller box drainage is normal, but there is no sound. Whether the water pipe and the drain pipe are reversed (If the hydraulic alarm bell has been disassembled, it is easy to be reversed, it should be reassembled as required); check whether the bell hammer has fallen off.

8. Intermittent Alarm

Trouble phenomenon: the alarm bell rings and stops

Treatment method: release the air on the side of the system

Maintenance

1. The alarm valve and its accessories should be inspected and tested once every two years to ensure that it can work safely and reliably.
2. Check the annular groove and small hole of the valve seat, do not allow the accumulation of sand and dirt, and clean it if necessary. The sealing surface of the valve seat should be flat, free of bruises and indentations, and should be repaired or replaced if necessary.
3. If water continuously flows out from the drain port of the retarder, it indicates that the valve flap is not tightly sealed and should be repaired.
4. Check the leaking joint of the retarder, and clean it if necessary to make it unblocked.
5. Check the flexibility of the hydraulic alarm bell transmission parts to ensure that its movement is unimpeded.
6. Check the filter and clean it if necessary.