

► ALARM CHECK VALVE

Part Number: ZSFZ

Wet system alarm valve is specially designed for fire protection system use. The valve is an important component in Wet system automatic sprinkler and fire extinguishing system and suitably applied to the system which is well and broadly used among the automatic sprinkler and fire extinguishing system. The design allows for installation under both variable and constant supply pressure conditions. When water flows into the sprinkler system due to the operation of one or more automatic fire sprinklers the alarm valve opens, allowing continuous flow of water into the system and transmission of an electrical or mechanical alarm.

Specification

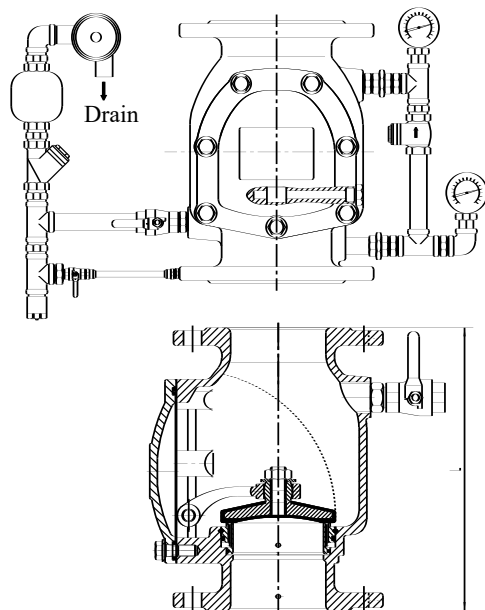
- Alarm check valves should be installed vertically orientation
- For use in wet pipe (automatic sprinkler) fire protection systems
- Multiple end type: Groove by Groove, Flange by Flange, Flange by Groove
- Excellent flow characteristic
- Automatically actuates electrically and/or hydraulically operated alarms when there is a steady flow equivalent to the discharge rate for one or more sprinklers.
- Retard chamber used in installations subject to variable pressure to help prevent false alarms.
- Flange connection is drilled per EN1092 - PN10/16 or ANSI B16.5 Class 150.
- FM 1041 approved
- Nominal size: DN100, DN 150, DN200.

Working pressure

- 0.4MPa to 1.6MPa

Material specification

PART	MATERIAL	SPECIFICATION
Body	Ductile iron	EN-GJS-500-7
Cover	Ductile iron	EN-GJS-500-7
Gasket	rubber	EPDM
Bonnet bolts and nuts	Stainless steel	BS10088-1 1.4401
Hang pin	Stainless steel	BS10088-1 1.4401
Disc	Bronze	BS1982 CC331G
Disc seat	rubber	EPDM
Seat retainer	Stainless steel	BS10088-1 1.4401
Body seat	Bronze	BS1982 CC331G
Retard chamber	Assembly	
Water motor gong	Assembly	
Ball valve	Stainless steel	BS10088-1 1.4401
Check valves	Stainless steel	BS10088-1 1.4401
Drain valves	Bronze	BS1982 CC331G
Strainer	Stainless steel	BS10088-1 1.4401
Pressure gauge	Assembly	



Corrosion protection

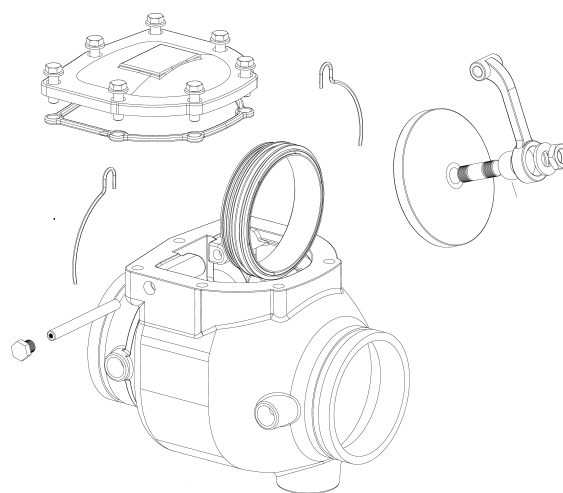
- Fusion bonded coating interior and exterior meet or exceed all applicable of AWWA C550 standard.

Option

- Multiple end type: Groove by Groove, Flange by flange, Flange by Groove.
- With or without retard chamber.

Parts List for Alarm Valves

Item	Description	Material
1	cover	Ductile iron
2	gasket	rubber
3	snap spring	Stainless steel
4	stem	Stainless steel
5	plug	copper
6	body	Ductile iron
7	seat	copper
8	clapper	copper
9	stud	Stainless steel
10	guide ring	Stainless steel
11	clapper arm	copper
12	washer	Stainless steel
13	Hex nut	Stainless steel

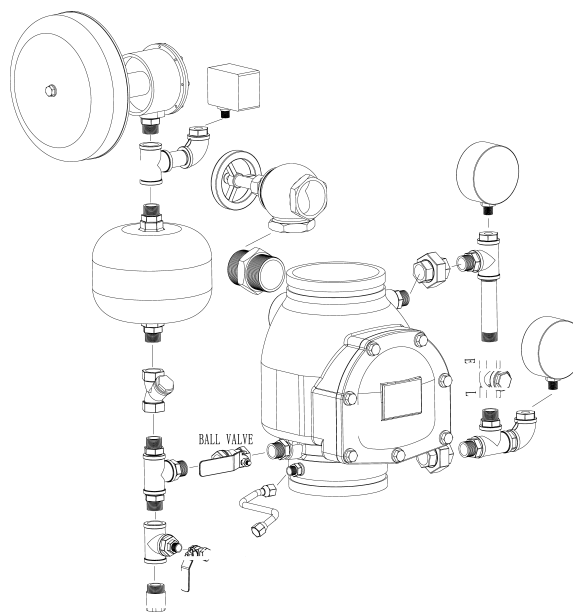


Operation

The fire protection system initially when being pressurized, will allow water to flow into the system until water supply and system pressure is equalized and the clapper closes the waterway. Once the pressure is stabilized, the fire protection system is ready to be placed in service and then the alarm control valve must be opened. Under normal condition, the water pressure gauge connected to the system side of the alarm valve would show a higher or equal pressure reading than the water pressure gauge connected to the supply side of the valve. This occurs because of the bypass line connecting downstream and upstream side of the alarm valve, which allows water pressure surge to pass without lifting the valve clapper off its seat, thereby causing excessive high-pressure surge entrapped in the system side due to presence of a check valve, which generally prevents false alarm. Sudden high-pressure surge, as might be encountered by start-up of a large fire pump may lead the valve clapper to lift momentarily, allowing water to flow through grooves in the valve seat to the retard chamber. The water in the alarm line is automatically drained out, which helps to prevent false alarm due to successive transient surge in supply pressure. Restriction assembly located beneath the retard chamber consists of inlet and drain restriction orifices, which are established by considering the volume of the retard chamber to meet the listing and approval requirement with regard to time to alarm. These requirements represent a balancing of the need to reduce the possible false alarm due to a transient surge in supply pressure and to achieve desired minimum time to alarm following a sprinkler operation. In constant pressure installation, the retard chamber is not required and the water passing through the groove in the alarm valve seat flows directly through restriction nozzle assembly to activate the mechanical and electrical alarm.

Installation

1. YQ Alarm Valve, Model ZSFZ must be installed vertically (Show in figure 1).
2. The alarm valve must be installed in a readily visible and accessible location and provision to be made in such a way that alarm line drain is visible and accessible.
3. Where water pressure fluctuates, the variable pressure trim with retard chamber must be used. Under non-fluctuating water pressure condition, the constant pressure trim, which does not include retard chamber, may be used.
4. The valve must be installed with trim in accordance with the trim data. Failure to follow the appropriate trim connection guidelines may prevent the device from functioning properly as well as void listing, approval and the manufacturer s warranty.
5. Care must be exercised while installing the check valve in the trim to ascertain that they are located with the arrow mark on the check valve body and pointed in proper direction.
6. The contraction and expansion associated with an excessive volume of trapped air could cause the waterway clapper to cycle open and shut. This may result in false alarm or an intermittent alarm. To avoid these, it is recommended to have breather valve in the system piping network and a vent valve at the extreme end of the system to bleed-off the air.
7. The ball valve provided on the alarm line must be kept open and strapped in set position.
8. Pipe connecting the retard chamber and sprinkler alarm bell must be supported properly to avoid loading on the retard chamber.
9. All the newly installed system pipes must be flushed properly before alarm valve is put into service.



Inspection and Maintenance

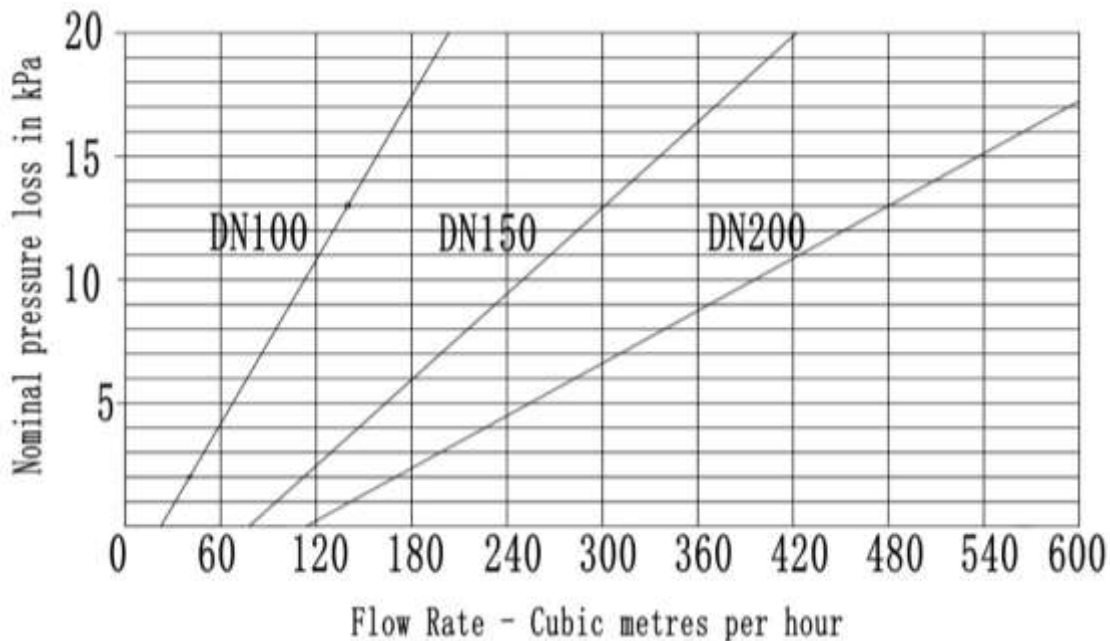
A qualified and trained person must commission the system. After few initial successful tests an authorized person must be trained to perform inspection and testing of the system.

It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that all the control valves are in proper position as per the requirement of the system and no damage has taken place to any component.

It is recommended that the alarm valve and its accessories should be examined and performed for following at least quarterly or as demanded by local authorities to ensure reliable and trouble-free operation and service.

1. Inspection and testing is to be carried out only by an authorized person. **DO NOT TURN OFF** the water supply valve to undertake repair work or to test the valve, without placing a roving fire patrol in the area covered by the system. The patrol should continue until the system is back into service. Also do inform the local security personnel and alarm control station, so that a false alarm is not signaled.
2. Open the alarm test valve. Verify that the sprinkler alarm bell and/or the pressure alarm switch/ electric alarm properly actuate. Close the alarm test valve and verify that water has ceased to flow from the alarm line drain.
3. Clean the strainer provided on the sprinkler alarm bell line.
4. Inspect the check valve clapper located on the bypass line.

Nominal Pressure Loss VS Flow Rate



False Alarm

1. Inspect the valve rubber clapper face. If worn or damaged, replace it. Be certain that dirt, stone or any other foreign object have not accumulated under the clapper face and lodged in the groove or holes. Clean the clapper face thoroughly. If the seat ring surface is nicked or scoured, it might be possible to repair the same using lapping compound. If not, replace the complete valve or return it to the manufacturer s works for repair.
2. If sprinkler alarm bell is not functioning or the impeller is jammed, please follow the maintenance guideline provided in the catalogue for sprinkler alarm bell.
3. If pressure alarm switch gives a steady signal, but sprinkler alarm generates an intermittent alarm, check sprinkler alarm bell shaft. If both the sprinkler alarm bell and pressure alarm switch are generating intermittent alarm then check for the possible air which is trapped within the sprinkler system. Trapped air is to be bled off. Also the intermittent alarm may occur due to sudden pressure drop and increase in the system. These problems can be corrected by maintaining a steady supply.

▲ Caution ▲

1. The FM Approval and manufacturer s warranty are valid only when the alarm valve is installed with YQ trim set and installed as per installation guidelines.
2. Pressure relief valve is required with wet pipe system, when a rise in ambient temperature can cause system pressure to exceed 16 Bar or 16.5 Bar relief valve setting should be used.
3. For proper operation of the wet system and to minimize unwanted false alarm, it is important to remove trapped air from the system. The air trapped in the system may also cause intermittent operation of the Water Motor Alarm during sustained flow of water.