# DRY PIPE STATION

Model F2522

Dry pipe valve 3”, 4”, 6”, 8”

Technical sheet 0334 Rev. R00

**Updated document**

## Specifications

The dry pipe control station marketed by AG Fire Sprinkler, model F2522, consists of a clapper-type check valve approved for a working pressure of 300 psi and a complete trim kit for use in fire protection systems.

The advantage of dry pipe valves over wet pipe valves lies in their ability to be installed in environments with freezing temperatures. The control station is connected to a network of closed-head sprinklers supplied with pressurized air or nitrogen. This eliminates the risk of damage to the system caused by water freezing inside the pipes, provided that the valve is located in an area that does not reach critical temperatures.

In the event of a fire, the sprinkler heads will activate, releasing the pressurized air or nitrogen from the network. This causes a drop in pressure in the pneumatic actuator, which in turn releases the water from the activation circuit, allowing the clapper to open and activate the valve. This fills the system’s piping with water, discharging it over the fire, which will extinguish or at least mitigate the flames.

The F2522 dry pipe control station is supplied with grooved connections at both ends. These grooves are machined according to the standard dimensions for steel pipe grooves.

The diaphragm that enables the activation of the clapper and the unit itself is made of peroxide-cured EPDM with textile reinforcement. In addition, both the trim and the valve body comply with the NFPA 13 and EN-12845 standards for sprinkler system installations.

The valve body features an internal and external fusion-bonded epoxy coating in accordance with AWWA C550 standards.

The F2522 dry pipe control station must be installed vertically for proper operation.

Both the dry pipe valve and the trim components must be inspected and tested periodically to ensure proper operation. Damaged parts must be properly replaced.

The dry pipe control station described in this document is an excellent option for fire protection systems using sprinklers in areas with very low temperatures and a risk of water freezing. Furthermore, it is much less susceptible to corrosion than conventional wet systems.

## Air supply requirements

The system’s air supply must be adjusted to the pressure specified in the following table. The minimum operating water pressure for the valve is 30 psi; operation below this value cannot be guaranteed.

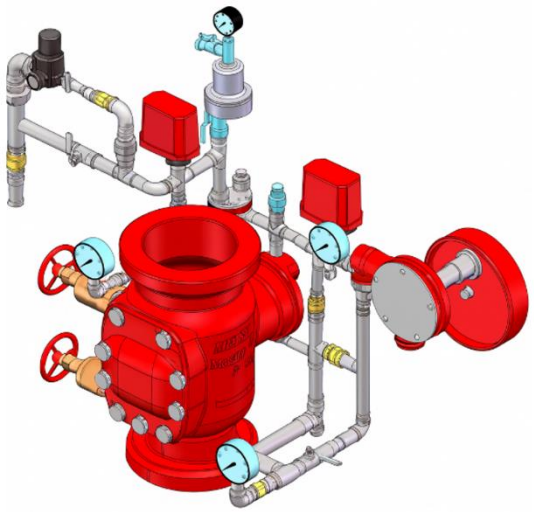
The valve will operate before the pressure drops approximately 5 psi (34 kPa) after a sprinkler head opens.

An air pressure different from the system’s required value may cause a reduction in the control station’s response time.

If the tabulated air pressure is not sufficient to properly seal the low-pressure actuator, increase it accordingly.

| Water pressure | | Recommended air / nitrogen pressure | |
|---|---|---|---|
| psi | kPa | psi | kPa |
| 30-140 | 21-966 | 15 | 103 |
| 141-250 | 967-1725 | 21 | 145 |
| 251-300 | 1726-2060 | 24 | 166 |

## Approvals



1. UL listed.
2. FM Approved.
3. CE Marked.

## Technical information

- **Model**: F2522 Grooved–Grooved.
- **Working Pressure:** 300 psi (20.7 bar) for UL/FM; 16 bar for CE.
- **Available Sizes:** 3” (DN80), 4” (DN100), 6” (DN150), 8” (DN200).
- **Connections:** Grooved ends machined to standard steel pipe groove dimensions.
- **Coating:** Fusion-bonded epoxy, internal and external, in accordance with AWWA C550 standard.
- **Standards and Approvals:** UL/ULC Listed (260), FM Approved (1020/1021), and CE Certified.
- **Installation Orientation**: Vertical.
- **Included Accessories:** Accelerator and air maintenance device.
- **Optional Accessories**: Hydraulic alarm motor, air supervisory pressure switch, and alarm pressure switch.

## Care and maintenance

The F2522 dry pipe control station must be kept free from foreign matter, freezing conditions, corrosive atmospheres, contaminated water supplies or any other conditions that may impair its operation or damage the device.

This control station must be installed in accordance with sprinkler system installation standards NFPA 13 and EN-12845. Instructions for installing, setting up, maintaining or replacing any component (or the valve itself) are provided in the Installation, Operation, and Maintenance Manual (IOM).

Depressurize and drain the piping system before attempting to install, remove, adjust or perform maintenance on any piping product.

Before interrupting the operation of any fire protection system by closing the main water supply, the necessary authorization must be obtained, and competent authorities and all affected personnel must be notified.

The owner is responsible for the inspection, testing, and maintenance of both the fire protection system as a whole and the devices described in this document.



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## Operation

This dry pipe valve model is designed with a flap that incorporates a replaceable rubber face, which allows for proper sealing and facilitates maintenance when necessary. The flap comes into direct contact with the valve seat ring, which has holes that allow access to the valve's intermediate chamber, thus forming part of the internal mechanism that ensures its proper operation. In addition, the flap also makes contact with the latch, and this latch, in turn, comes into contact with the diaphragm. This sequence of components ensures proper movement within the system.

When the valve is in the closed position, the pressure of the water supply from the top of the control valve is maintained in the diaphragm chamber. This pressure keeps the flap in the closed/set position, preventing water from flowing into the dry pipe system. The water remains retained in the diaphragm by one of the system's release mechanisms, which may be pneumatic, hydraulic, or electric, depending on the system installed.

Once an appropriate activation event is detected within the sprinkler system, the water supply pressure in the diaphragm chamber is released, allowing the valve to open and water to flow into the system.

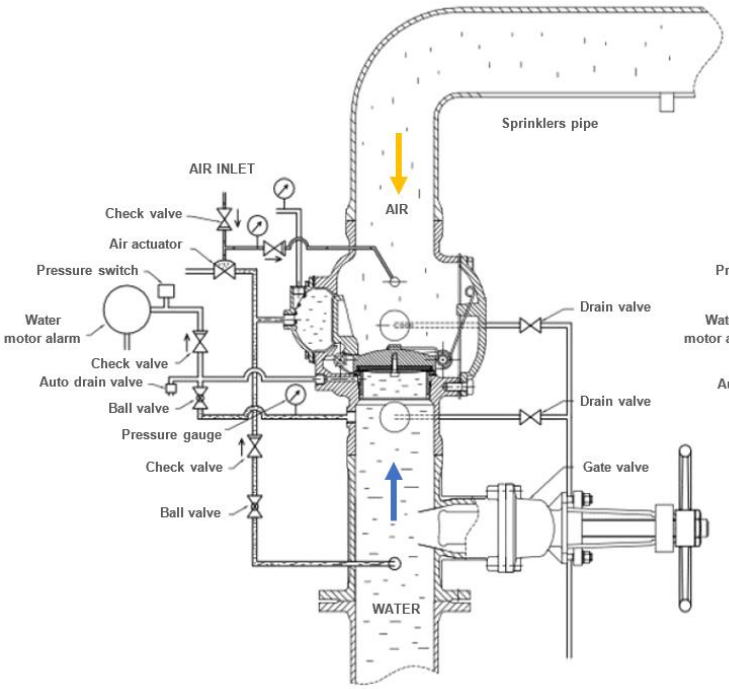
This release of pressure allows the latch to move to its open position, which in turn allows the flap to pivot freely. Thanks to this movement of the flap, water can finally enter the pipe system.

After the flap moves, water begins to flow through all open sprinklers in the pipe, ensuring that the flow is distributed to the areas where it is needed.

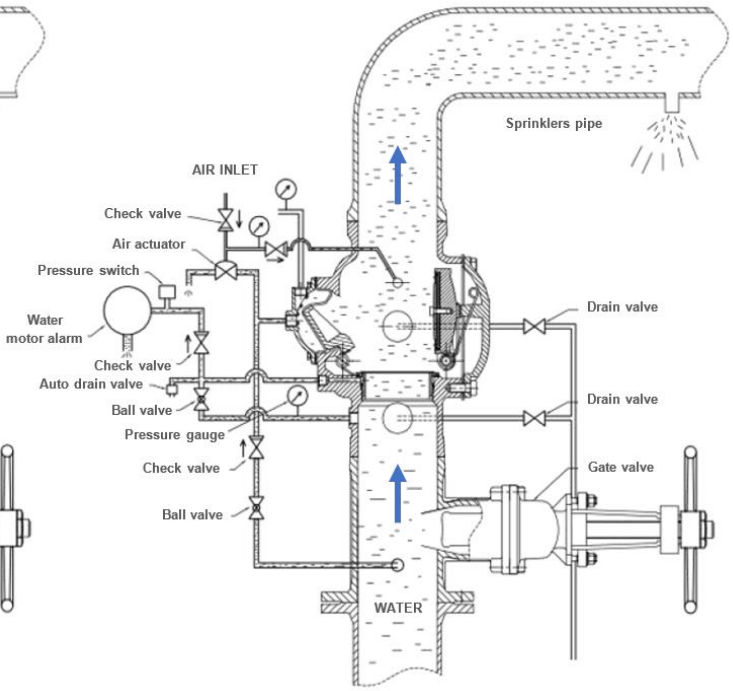
In addition to flowing to the sprinklers, some of the water also enters the valve's intermediate chamber through the holes in the seat ring. From this intermediate chamber, the water continues its journey to the alarm line, and it is this action that triggers the system alarms. These alarms will remain activated and sound continuously as long as water continues to flow through the valve.

When the water flow eventually stops, the spring-assisted flap automatically returns to the closed position. From that moment on, the valve temporarily functions again as an alarm control valve, remaining in that state until the entire system is restored and put back into service as a sprinkler system.

**TRIM INSTALLATION DIAGRAM:**
**Clapper in the closed/set position**



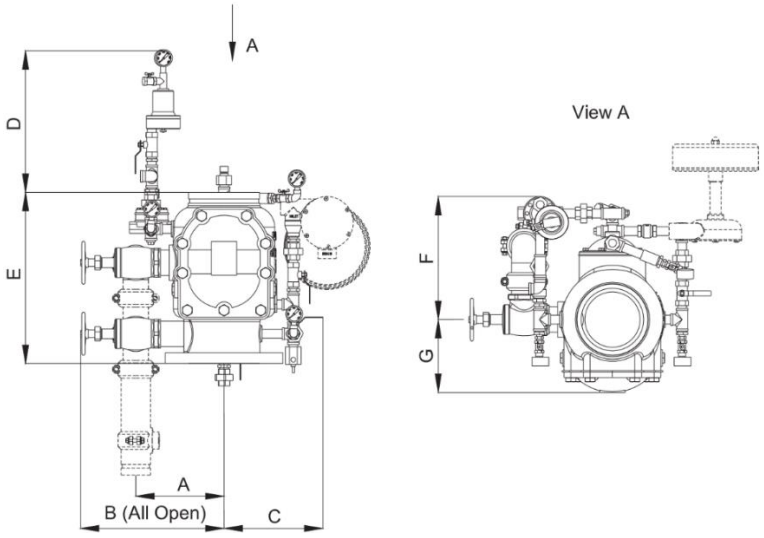

**TRIM INSTALLATION DIAGRAM:**
**Clapper in the open position**





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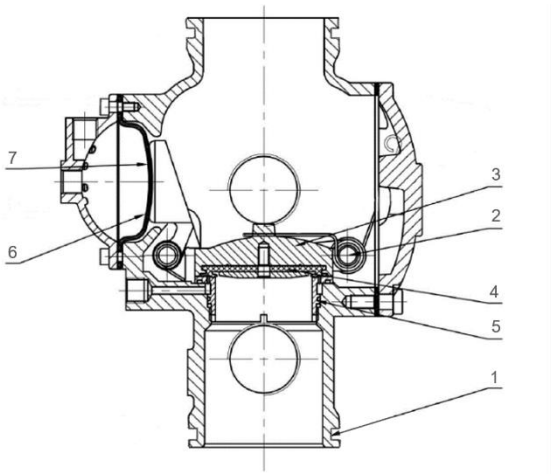
## Dimensions




| Size | | Dimensions (mm/inch) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| Inch | mm | | | | | GRxGR | | |
| 3” | 80 | 150 / 5.90 | 300 / 11.81 | 210 / 8.27 | 375 / 14.76 | 310 / 12.20 | 265 / 10.43 | 120 / 4.72 |
| 4” | 100 | 180 / 7.09 | 350 / 13.78 | 210 / 8.27 | 375 / 14.76 | 343 / 13.50 | 265 / 10.43 | 135 / 5.31 |
| 6” | 150 | 210 / 8.27 | 375 / 14.76 | 250 / 9.84 | 345 / 13.58 | 405 / 15.94 | 290 / 11.42 | 175 / 6.89 |
| 8” | 200 | 240 / 9.45 | 415 / 16.34 | 275 / 10.83 | 325 / 12.80 | 445 / 17.52 | 310 / 12.20 | 190 / 7.48 |

## Material specifications

| Main valve | | |
|---|---|---|
| Nº | Name | Material |
| 1 | Body | Ductile iron |
| 2 | Hinge pin | Stainless steel |
| 3 | Clapper | Bronze |
| 4 | Clapper seal | Rubber |
| 5 | Body seat | Bronze |
| 6 | Diaphragm | Rubber |
| 7 | Latch | Bronze |




| Accesories | |
|---|---|
| Name | Material |
| Screwed pipe | Stainless steel |
| Pipe fittings | Stainless steel |
| Ball valve | Brass |
| Pressure gauge | Assembly |
| ½” Check valve | Brass |
| 2” Angle valve | Brass |
| ½” Y-Strainer | Brass |
| Restrictor | Brass |
| Water motor | Assembly |
| Pressure switch | Assembly |
| Drain valve | Brass |

## Order information

| VALVE SIZE | COMPLETE STATION | ACCELERATOR SPARE |
|---|---|---|
| 3” DN80 | PSF300P080RR0 | VSF25 |
| 4” DN100 | PSF300P100RR0 | |
| 6” DN150 | PSF300P150RR0 | |
| 8” DN200 | PSF300P200RR0 | |

The equipment presented in this technical data sheet must be installed in accordance with the latest relevant standards of the National Fire Protection Association (NFPA), FM Global, LPCB, VdS or other similar organizations, as well as applicable governmental regulations.
This document is non-binding. AG Fire Sprinkler reserves the right to make any changes to this document without prior notice.


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