

Reliable®

Model A 2½" (65mm) Dry Pipe Valve

Features

1. Differential type...simple...light-weight construction.
2. Threaded-in one piece air and water seat—eases maintenance.
3. Bronze seat with “O” ring seals—minimizes corrosion and leakage.
4. Single hinge pin and latch design—no complicated levers.
5. Simple to reset—no special tools required.
6. Tapered air and water seats.
7. One piece rubber facing—provides more reliable rubber-to-metal water seal.
8. Furnished in 2½" NPT, 2½" grooved ends or 65mm threads.

Listings & Approvals

1. Listed by Underwriters Laboratories, Inc. (UL)
2. Listed by Underwriters Laboratories of Canada. (ULC)
3. Certified by FM Approvals
4. Loss Prevention Council. (LPC, UK)
5. NYC BS&A No. 587-75-SA.
6. Scientific Services Laboratories (SSL, Australia)
7. Conforms to EN 12259-3 (CE)



The Reliable Model A Dry Pipe Valve makes possible the installation of automatic sprinkler systems in buildings in which freezing temperatures prevail. This type of system, called the dry system, has air under pressure instead of water in the piping above the dry pipe valve. When one or more automatic sprinklers operate due to fire, the air pressure in the system is reduced, the dry pipe valve opens and water under pressure flows to the activated sprinkler(s) and is then distributed on the fire.

Operation

The Reliable Model A Dry Pipe Valve in its closed and open positions is shown in Figures 1 and 2. The closed position is maintained as long as the air pressure in the system pipes above the dry pipe valve is sufficient to exert a greater force on the top side of the clapper than is exerted on its underside by the pressure of the water supply. Since the area included by the air seat is approximately six times that of the water seat (The Differential Principle) the air pressure needed to keep the dry pipe valve closed is only a fraction of that of the water supply. Table 1 gives the recommended air pressure for various water supply pressures for Model A Dry Pipe Valves.

Table 1

Water Pressure In Supply Line psi (bar)	Air Pressure To Be Pumped Into System psi (bar)	
	Maximum	Not less than
20 (1.4)	10 (0.7)	20 (1.4)
50 (3.4)	15 (1.0)	25 (1.7)
75 (5.2)	20 (1.4)	30 (2.0)
100 (6.9)	25 (1.7)	35 (2.4)
125 (8.6)	30 (2.0)	40 (2.7)
150 (10.3)	35 (2.4)	45 (3.1)
175 (12.0)	40 (2.8)	50 (3.4)

Note: 1 bar = 100 kPa

When one or more automatic sprinklers operate due to fire, the air pressure in the system pipes above the dry pipe valve is reduced. The pressure of the water supply, now by exerting the greater force, raises and rotates the clapper to its open position, permitting the water to flow to the operated sprinkler(s). Water also flows from the alarm outlet of the dry pipe valve through a strainer to the mechanical sprinkler alarm and electric alarm switch to automatically actuate mechanical and electrical alarms.

Reliable Model A Dry Pipe Valves can be reset quickly and easily without the use of special tools.

Automatic Air Maintenance Devices

The use of an automatic air maintenance device is strongly recommended with any dry system. It becomes a necessity when the system is as small as that associated with a 2½" (65mm) valve. Typically, these systems may have a capacity of only 10 to 25 gallons. In a system with such a small amount of compressed air, even a very tiny

leak could drop the air pressure to a point where the dry pipe valve would operate.

The use of an automatic air maintenance device compensates for these small leaks and maintains the system at a safe pressure. However, it is especially designed to not retard the operation of the dry pipe valve when a sprinkler does open.

Reliable's Model A-2 and Model B-1 Automatic Air Maintenance Devices are described in greater detail in Bulletin 254.

Quick Opening Devices

The use of a quick opening device is not recommended because of the small size of systems usually associated with a 2½" (65mm) dry pipe valve.

A slight leak in a small system could cause an accelerator to operate thereby operating the dry pipe valve prematurely.

Valve Description

1. Rated working pressure: 175 psi (12.3 bar)
2. Factory hydrostatic test pressure: 350 psi (24.6 bar)
3. End and trim connections – three valve connection styles are available:
 - a) 2½" American Standard taper pipe thread inlet and outlet.
 - Threads per ANSI B 2.1
 - Color — Black
 - b) 2½" Grooved, inlet and outlet per ANSI/AWWA C606 standard.
 - Outlet diameter — 2.875"
 - Groove diameter — 2.72"
 - Groove width — 5/16"
 - Outlet face to groove — 3/8"
 - Color — Black
 - c) 65mm inlet and outlet
 - Threads per ISO 7/1-R.
 - Color — Red
4. Friction loss—9.5 ft (2.9m)—Expressed in equivalent length of Sch. 40 pipe, based Hazen & Williams formula with C=120.

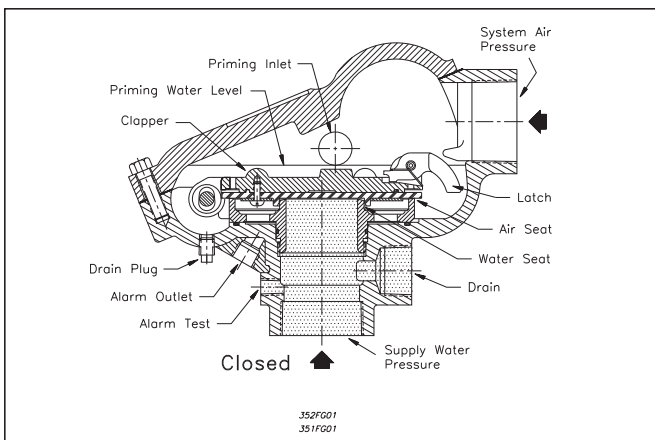


Figure 1

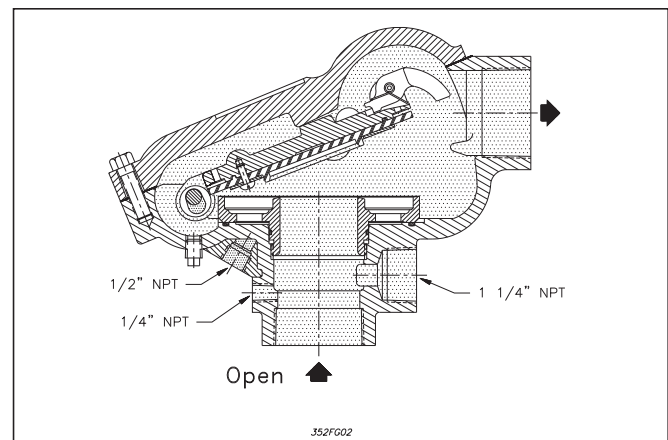


Figure 2

Trim Description

The trims for Reliable Model A Dry Pipe Valves (Figure 4) are arranged for rapid, easy and compact attachment and serve as connection points to alarm and other devices. They also serve as a means of setting and resetting the dry pipe valve prior to and after operation as well as allowing testing of the alarm devices without causing the system to operate.

The Model A Basic Trim Set is shown in Figure 4 (the electric sprinkler alarm switch and strainer are not part of the trim set and must be ordered separately). This trim set provides the air supply, drain, priming level and alarm connections. An alarm test valve, which allows the alarm devices to be tested without operating the dry pipe valve, is included. The Basic Trim Set includes all items such as ball drip valves, pressure gauges, etc. which are needed to enable proper dry pipe valve operation.

Two additional trim attachments are offered; these are the Priming Chamber Attachment and the Fill Line Attachment. The Priming Chamber Attachment allows the priming level to be maintained while the system remains pressurized. The Fill Line Attachment provides a source of water for maintaining the prime level.

The trim sets, connections, operation and maintenance of the additional items which comprise a dry pipe valve system, such as air maintenance devices, air compressors, electric alarm switches and mechanical sprinkler alarms are described in Bulletins 254, 275, and 612.

All valves are listed and approved by Underwriters Laboratories, Inc. and Factory Mutual Research Corp. only when used with the valve manufacturer's trim sets.

Ordering Information

Specify

- Valve size—Either 2½" or 65mm. When size is specified in millimeters, a metric valve per 3.c. will be supplied.
- Inlet and outlet connection—either threaded/threaded or grooved/grooved
- Trim—Basic Trim Kit
Priming Chamber Attachment
Fill Line Attachment
- Additional equipment—Air maintenance devices, air compressors, electric sprinkler alarm switches and mechanical sprinkler alarms must be separately ordered.

Installation Dimensions in Inches

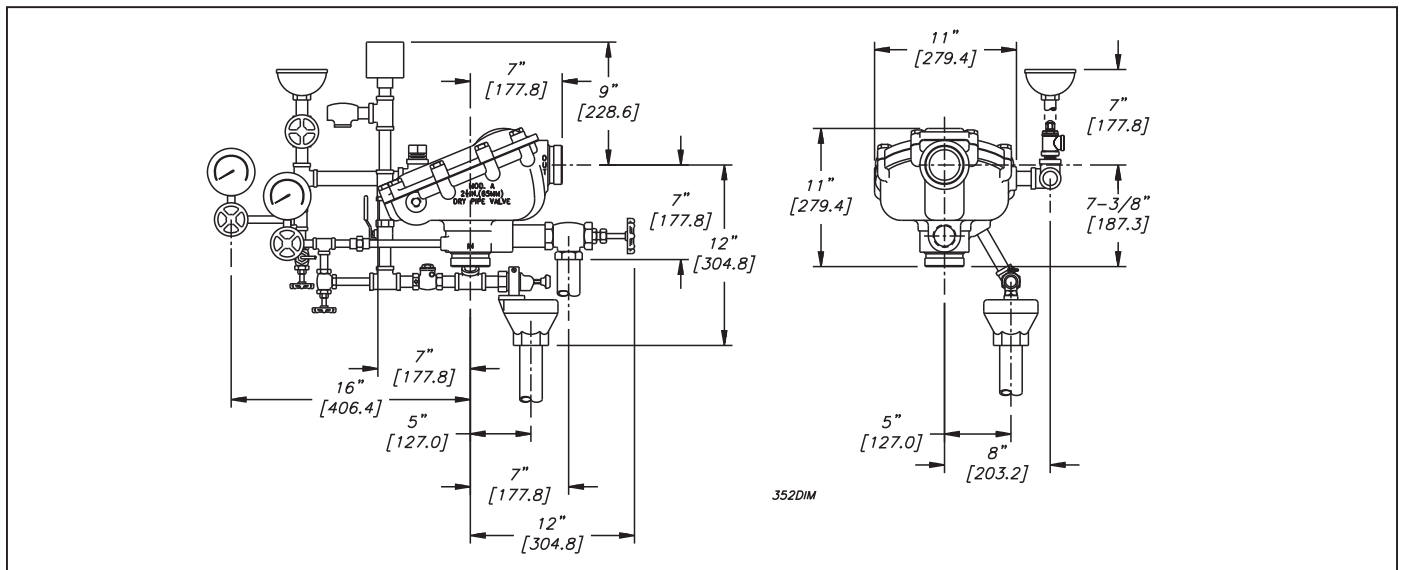


Figure 3

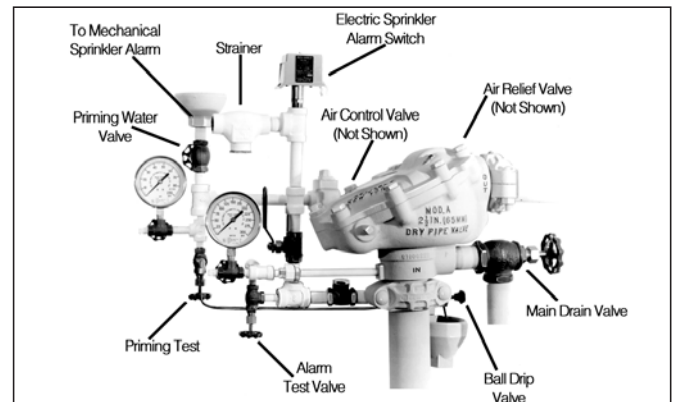


Figure 4. Model A Dry Pipe Valve and Trim

Reliable...For Complete Protection

Reliable offers a wide selection of sprinkler components. Following are some of the many precision-made Reliable products that guard life and property from fire around the clock.

- Automatic sprinklers
- Flush automatic sprinklers
- Recessed automatic sprinklers
- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retard chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Supertrol electrical system
- Sprinkler emergency cabinets
- Sprinkler wrenches
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

The equipment presented in this bulletin is to be installed in accordance with the latest pertinent Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable.

Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by

Reliable[®]

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