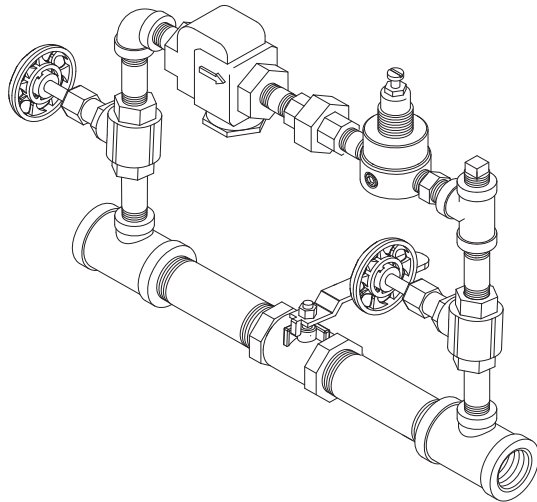




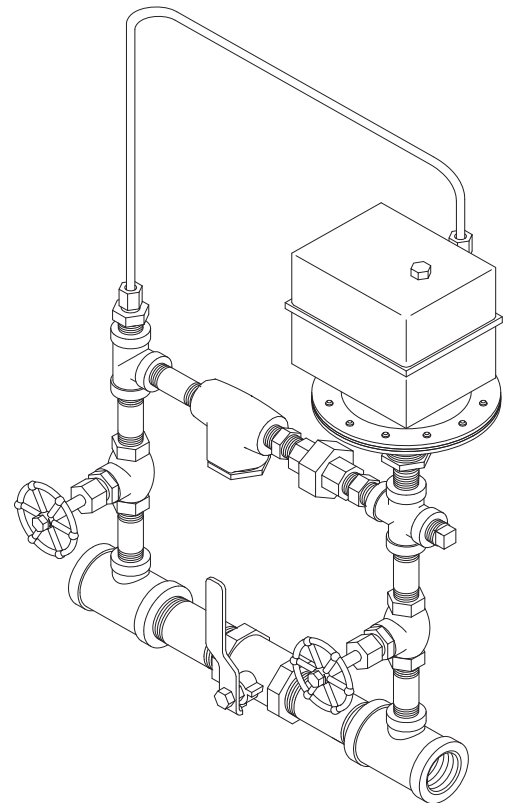
Models A-2 & B-1 Automatic Pressure Maintenance Devices

Instructions for Installation, Operation, Care and Maintenance



A-2

251FG01D
250CVR-E
251CVR-E



B-1

Operation

• **Model A-2 Pressure Maintenance Device (Refer to Figure 1)**

The Model A-2 Pressure Maintenance Device (PMD) is designed for use where a source of compressed air (plant air system, tank-mounted compressor with a pressure control, etc.) or nitrogen cylinder (equipped with a regulating device) is available (refer to the section in this technical bulletin titled "Installation"). The regulator in the Model A-2 PMD reduces higher pressure air or nitrogen to a level required by a dry pipe valve, dry pilot line, or a deluge valve based preaction system. The Model A-2 PMD will maintain a constant pressure in the system regardless of any pressure fluctuations from the compressed air or nitrogen source.

Basic functionality of components (refer to Figure 1): The strainer's (Item 2) function is to prevent any foreign matter that may be present in the air supply, from traveling to the regulator (Item 1) and the check valve (Item 3), thereby ensuring their normal operation. The check valve's function is to prevent the reverse flow of water resulting from a dry pipe or deluge valve's operation, from reaching the regulator. The globe valves (Item 4) allow for the servicing (if needed) of the strainer (Item 2) and regulator (Item 1) without having to shut down the sprinkler system. The ball valve (Item 5) permits the rapid restoration (quick-fill) of the required system air pressure after service or operation. The ball valve (Item 5) must be closed and the globe valves (Item 4) must be open for proper automatic operation.

• **Models B-1 Pressure Maintenance Device (Refer to Figure 2)**

The Model B-1 Pressure Maintenance Device (PMD) is designed for use in conjunction with the Reliable Model A Tankless Air Compressor in order to maintain the correct air pressure in a dry pipe valve or dry pilot line (refer to the section in this technical bulletin titled "Installation"). The Reliable Model A Tankless Air Compressor is controlled on or off by the air pressure level present in the dry pipe valve or dry pilot line via wiring between the compressor's motor and the contacts of the Model B-1 PMD's pressure switch.

Basic functionality of components (refer to Figure 2): A drop in the sprinkler system's air pressure causes the contacts of the pressure switch (Item 1) to close, thereby activating the air compressor. When the pre-adjusted level of air pressure is restored, the pressure switch's contacts re-open, thereby deactivating the air compressor. The pressure switch (Item 1) is also equipped with an unloader valve that automatically bleeds off the air compressor's outlet pressure each time the contacts of the pressure switch open. This protects the air compressor's motor from overloading during start-up. Like the Model A-2 PMD, the Model B-1 has a strainer (Item 2) for contamination control and a check valve (Item 3) to prevent reverse water flow. The ball valve (Item 5) and globe valves (Item 4) are also identical in configuration and function as with the Model A-2 PMD. Likewise, the ball valve (Item 5) must be closed and the globe valves (Item 4) must be open for proper automatic operation.

Adjustment

• **Model A-2 Pressure Maintenance Device (Refer to Figure 1)**

The pressure regulator (Item 1) is factory set to maintain a nominal system air or nitrogen pressure of 30 psi (2,1 bar). In order to change the outlet pressure, loosen the locknut at the top of regulator and turn the adjustment screw clockwise to increase pressure. To decrease the pressure, turn the adjusting screw counter clockwise. The resulting pressure can be determined at the sprinkler system air gauge once the air flow through the device has ceased, or at the optional gauge location. Shown on Figure 1.

Note: The locknut of the regulator (Item 1) must be tightened after adjusting in order to prevent an accidental change in the pressure setting.

Adjustable Outlet Pressure Range:

5 psi to 100 psi (0.34 bar to 6.9 bar)

Maximum Inlet Pressure: 175 psi (12 bar)

• **Model B-1 Pressure Maintenance Device**

The pressure switch (Item 1) is factory set to maintain a nominal system air pressure of 35 psi (2,4 bar). In order to change the setting, remove the pressure switch's cover and follow the directions contained within the switch.

Electrical Rating:

Single Phase: 120 Volts AC; 2 hp

240 Volts AC; 3 hp

600 Volts AC; 5 hp

Three Phase: 240 Volts AC; 5 hp

600 Volts AC; 5 hp

115-230 Volts DC; 3 hp

Adjustable Outlet Pressure Range:

14 psi - to - 60 psi (1,0 bar - to - 4,1 bar)

Maximum Inlet Pressure: 175 psi (12 bar)

Listings and Approvals

1. Listed by Underwriters Laboratories, Inc. (UL)
2. Listed by Underwriters' Laboratories of Canada. (ULC)
3. Certified by FM Approvals.
4. NYC MEA 258-93-E.

Model A-2 Pressure Maintenance Device

P/N 6304000135, (All steel pipe fittings are galvanized)

Item No.	Part No.	Description	No. Req'd
1	98681630	Regulator, 5-100 psi	1
2	98727606	Strainer, 1/4" NPT, 90	1
3	96816902	Check Valve, 1/4"	1
4	98840172	Globe Valve, 1/4"	2
5	98840108	Ball Valve, 3/4"	1
6	98815201	Union, 1/4"	1
7	96606616	Tee, 3/4" x 3/4" x 1/4"	2
8	98543234	Nipple, 3/4" x 3 1/2"	1
9	98543226	Nipple, 1/4" x 1 1/2"	5
10	98174404	Elbow, 1/4"	1
11	98543227	Nipple, 1/4" x Close	2
12	96606608	Tee, 1/4"	1
13	98614403	Plug, 1/4"	1
14	98543231	Nipple, 3/4 x 3"	1

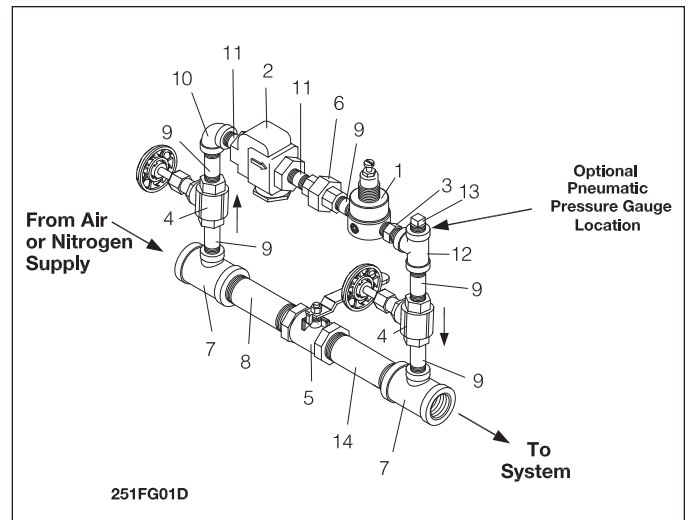


Figure 1

Model B-1 Pressure Maintenance Device

P/N 6304010100, (All steel pipe fittings are galvanized)

Item No.	Part No.	Description	No. Req'd
1	98728801	Pressure Switch, 3/8" NPT	1
2	98727607	Strainer, 1/4", 30 Mesh	1
3	96816902	Check Valve, 1/4"	1
4	98840172	Globe Valve, 1/4"	2
5	98840108	Ball Valve, 3/4"	1
6	98815201	Union, 1/4"	1
7	96606616	Tee, 3/4" x 3/4" x 1/4"	2
8	98543232	Nipple, 3/4" x 2"	1
9	98543226	Nipple, 1/4" x 1 1/2"	5
10	96606608	Tee, 1/4"	1
11	98750004	Cross, 1/4"	1
12	98543227	Nipple, 1/4" x Close	1
13	98523100	Restriction Nipple, 1/4"	1
14	98768000	Copper Tubing, 1/4" O.D.	1
15	98085630	Comp. Fitting, 1/4" x 1/4"	1
16	98048034	Reducer Bushing 3/8" x 1/4"	1
17	98614403	Plug, 1/4"	1
18	98543231	Nipple, 3/4" x 3"	1

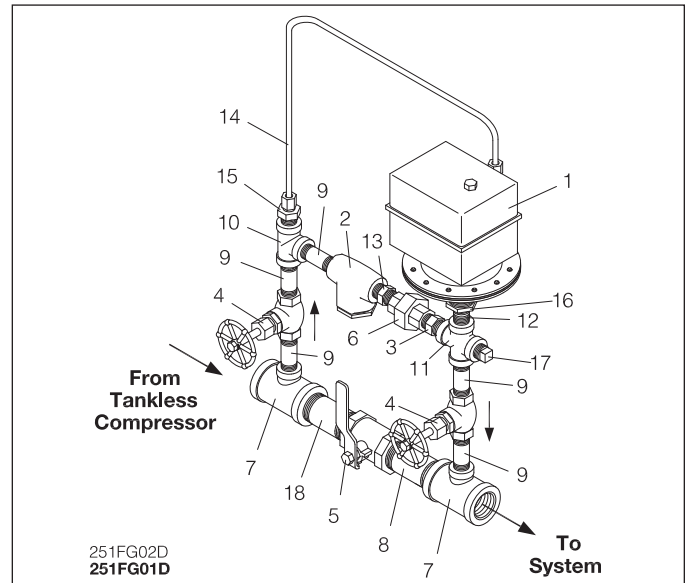


Figure 2

Inspection and Maintenance

Refer to Figures 1 & 2.

1. Review the latest NFPA 13 and NFPA 25 Standards, any appropriate dry pipe or deluge valve installation bulletins, and the section in this bulletin titled "Installation" to ensure that the pressure maintenance device is installed properly.
2. Make sure that both 1/4" globe valves (Item 4) are open and that the 3/4" ball valve (Item 5) is closed.
3. Check the gas pressure in the dry pipe, deluge or preaction system at the pressure gauge located on those devices. See the section titled "Adjustment" if any are required.
4. If maintenance is to be performed on Items 1, 2 or 3 of the pressure maintenance device, make sure that both globe valves (Item 4) are closed and that pressure has been relieved from the section through the 1/4" union (Item 6). These valves must be opened again in order to restore proper automatic operation.
5. The strainer (Item 2) should be cleaned periodically to prevent contamination from blocking air flow. This can be done by removing the strainer's cap and wiping or blowing off any collected debris.
6. Make sure the check valve (Item 3) is installed according to the schematic with the arrow on its hexagonal side pointing in the required direction of air flow.
7. If the regulator (Item 1) in the Model A-2 Pressure Maintenance Device is constantly leaking at the adjusting screw, the regulator may contain dirt keeping the poppet open and should be cleaned or replaced.
8. Check the inside housing of pressure switch (Item 1) of the Model B-1 Pressure Maintenance Device for dirt or foreign matter and verify that the wiring is fastened securely and is wiring insulation is in good condition.

WARNING: Do not contact the electrical wiring when the power is on

Installation

As shown in Figures 4 through 13, Pressure Maintenance Devices are installed in the air supply line leading to the dry pipe valve, deluge or preaction systems. With the Model A-2 PMD the air supply is a tank mounted compressor with a pressure control switch, or a Nitrogen supply equipped with a regulating device. With the Model B-1 PMD, the air supply is an air compressor without a pressure control switch. An extra outlet connection is provided on all of the models for mounting an optional pressure gauge to monitor the outlet pressure.

- **Model A-2 Pressure Maintenance Device**
 - a. Make sure the air flow through the Pressure Maintenance Device is as shown by the arrows in Figures 1, 4, 6, 8, 9 and 11-13.
 - b. Install the Pressure Maintenance Device as close to the dry pipe valve air line trimmings as possible. Install the Pressure Maintenance Device in the air supply immediately leading to the deluge or preaction trim. Refer to separate dry pipe valve, deluge valve or preaction system bulletins for the additional installation information.
- **Model B-1 Pressure Maintenance Device**
 - a. Make sure the air flow through the Device is as shown by the arrows in Figures 2, 5-7 and 10.
 - b. Remove the pressure switch's (Item 1) cover and connect the wiring in accordance with the National Electric Code or other appropriate standards. The connections should be as shown in Figure 3 for single phase wiring of thermally protected compressor motors. Refer to separate dry pipe valve and deluge valve bulletins for additional installation information.

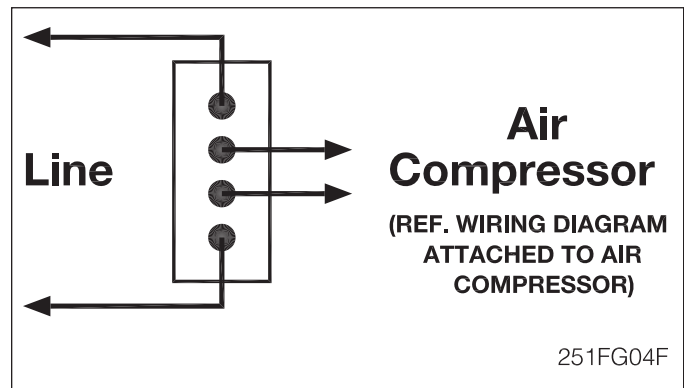


Figure 3

- c. For 3-phase wiring, a listed and/or approved, properly sized magnetic motor starter with appropriate NEMA enclosure must be provided. The wiring of the pressure switch, motor starter, and air compressor must be in accordance with the National Electrical Code, or other appropriate standards.

**Model A-2 Pressure Maintenance Device
with Model D Dry Pipe Valve Trim**

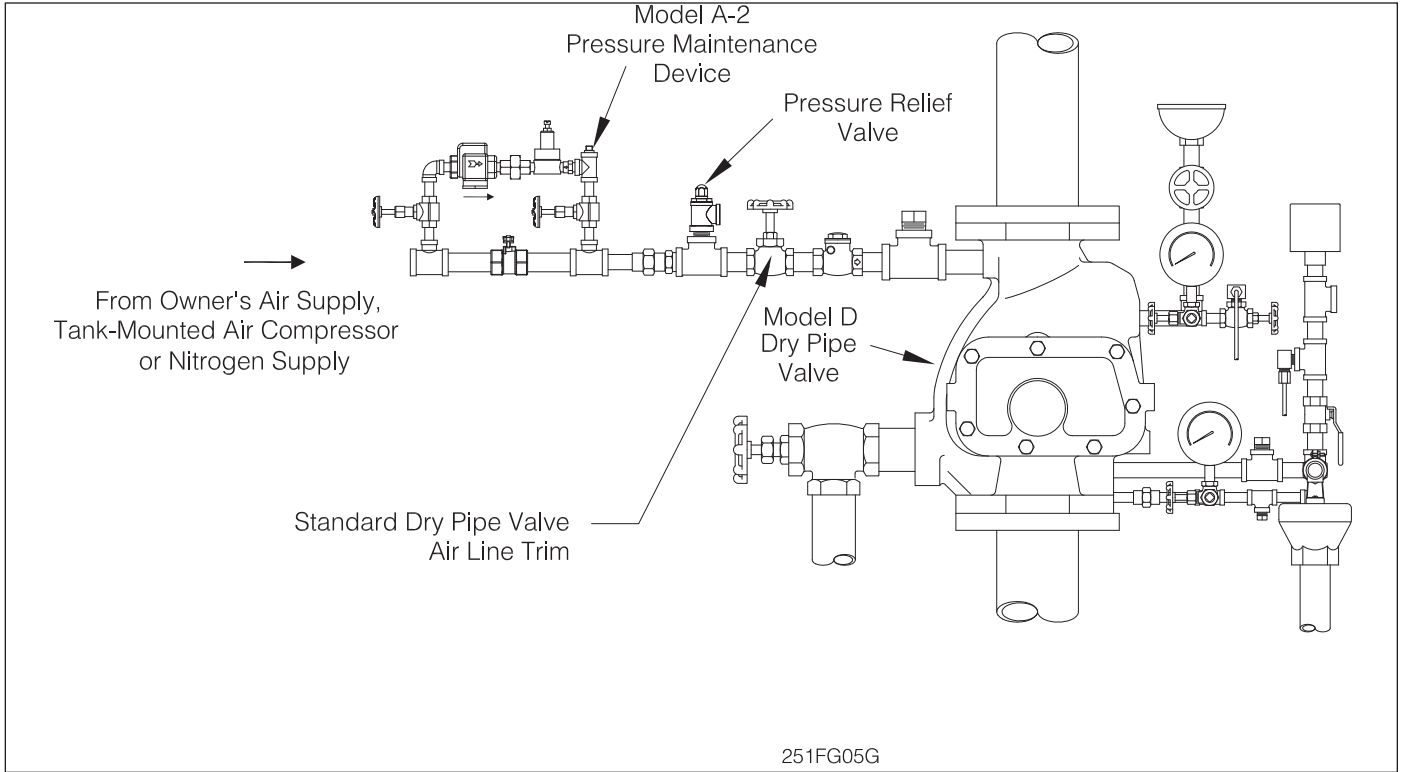


Figure 4

**Model B-1 Pressure Maintenance Device
with Model D Dry Pipe Valve Trim**

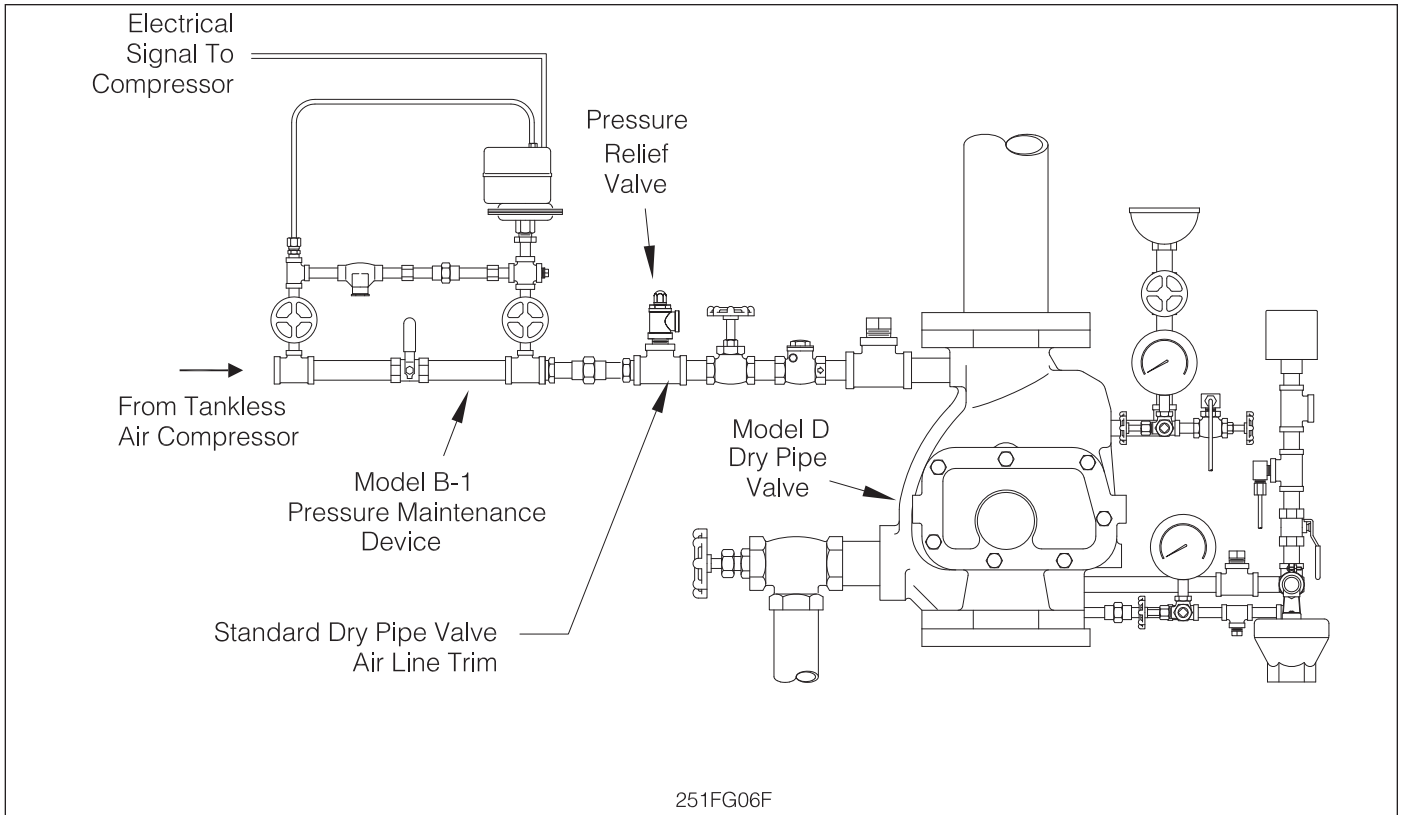


Figure 5

Model A-2 Pressure Maintenance Device with Model BX Dry Pilot Line Deluge Trim

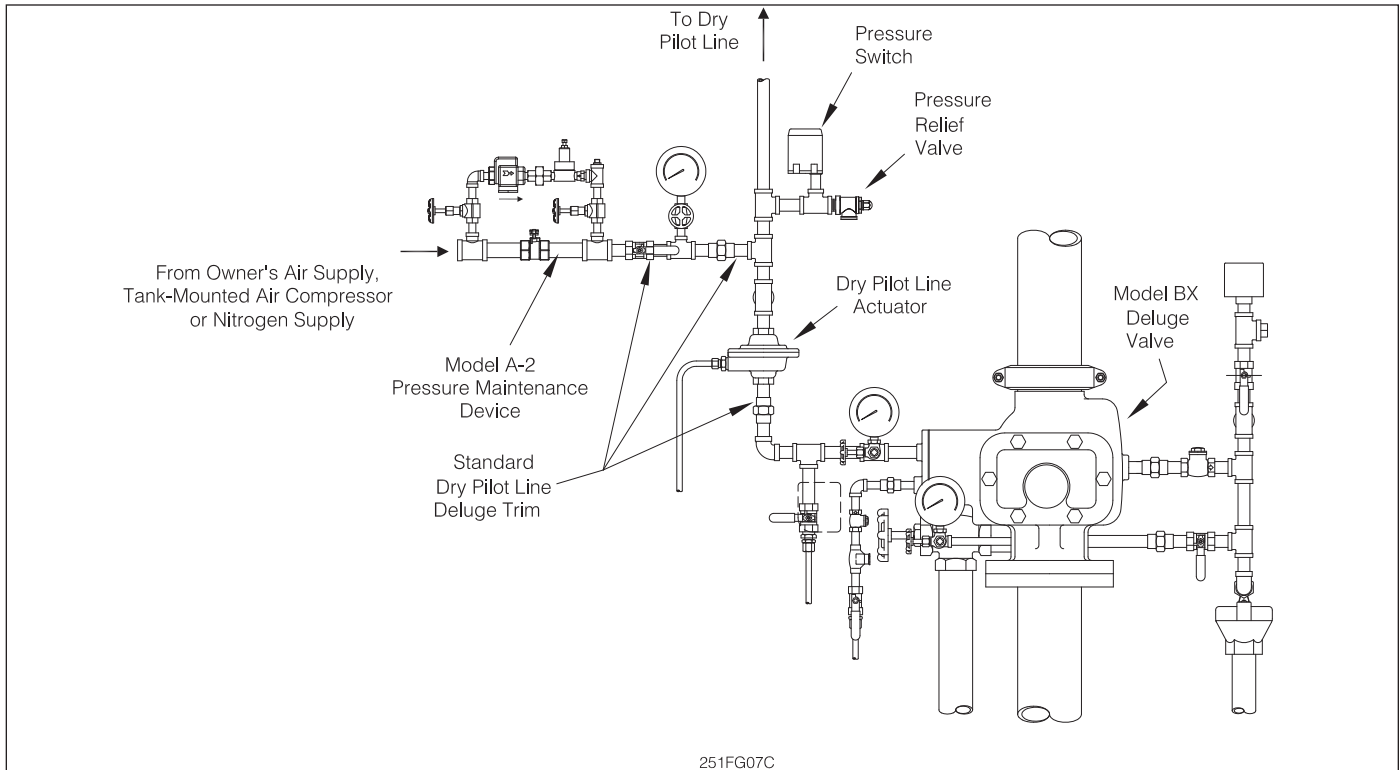


Figure 6

Model B-1 Pressure Maintenance Device with Model BX Dry Pilot Line Deluge Trim

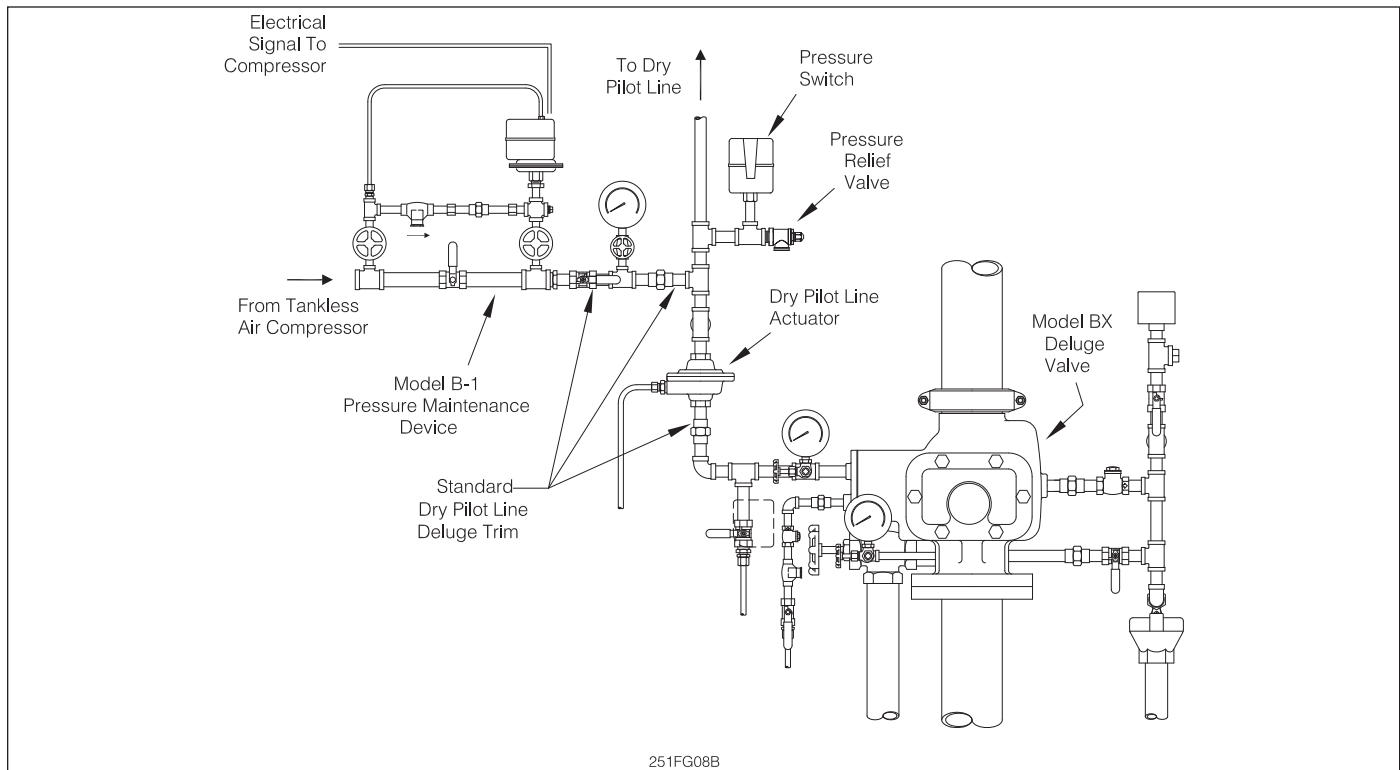


Figure 7

Model A-2 Pressure Maintenance Device with Model LDX Dry Pipe Valve Trim

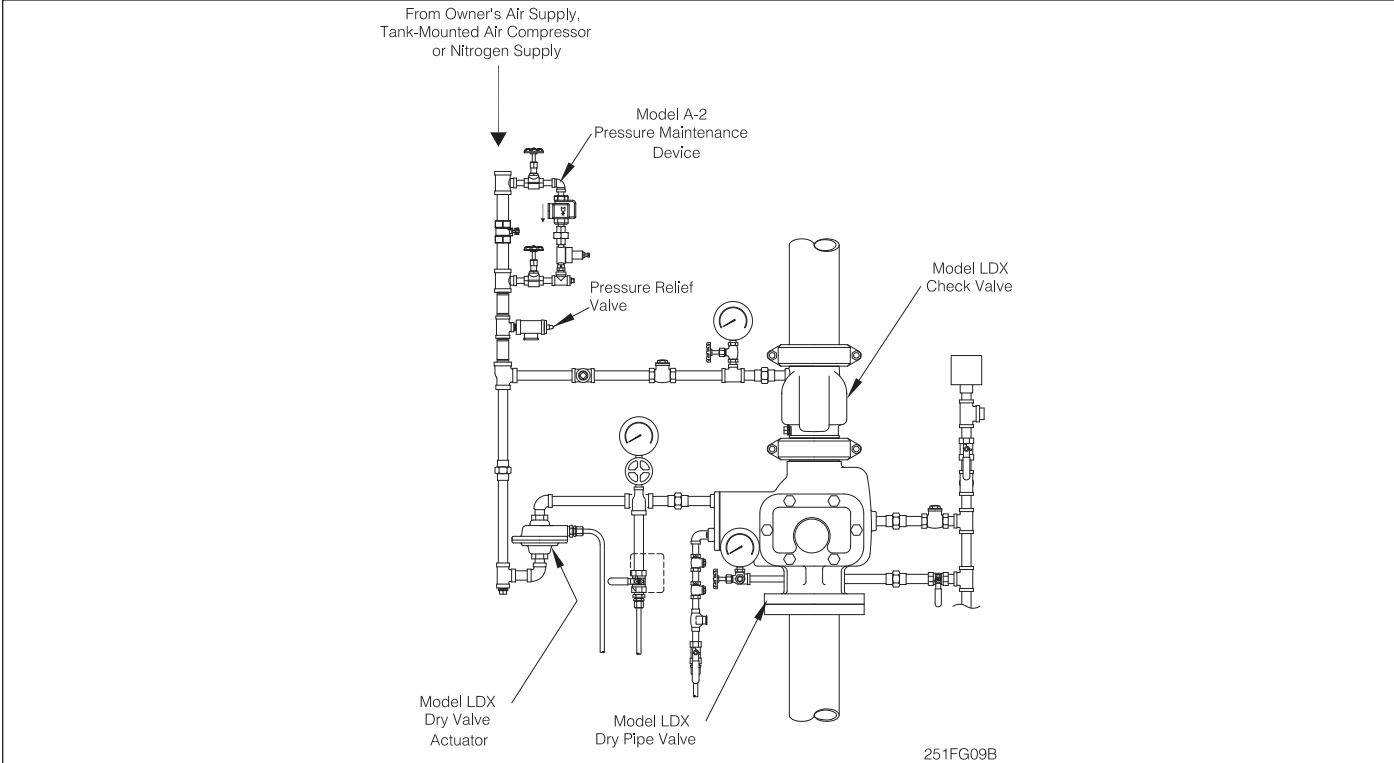


Figure 8

Model A-2 Pressure Maintenance Device with Model DDX Dry Pilot Line Deluge Valve Trim

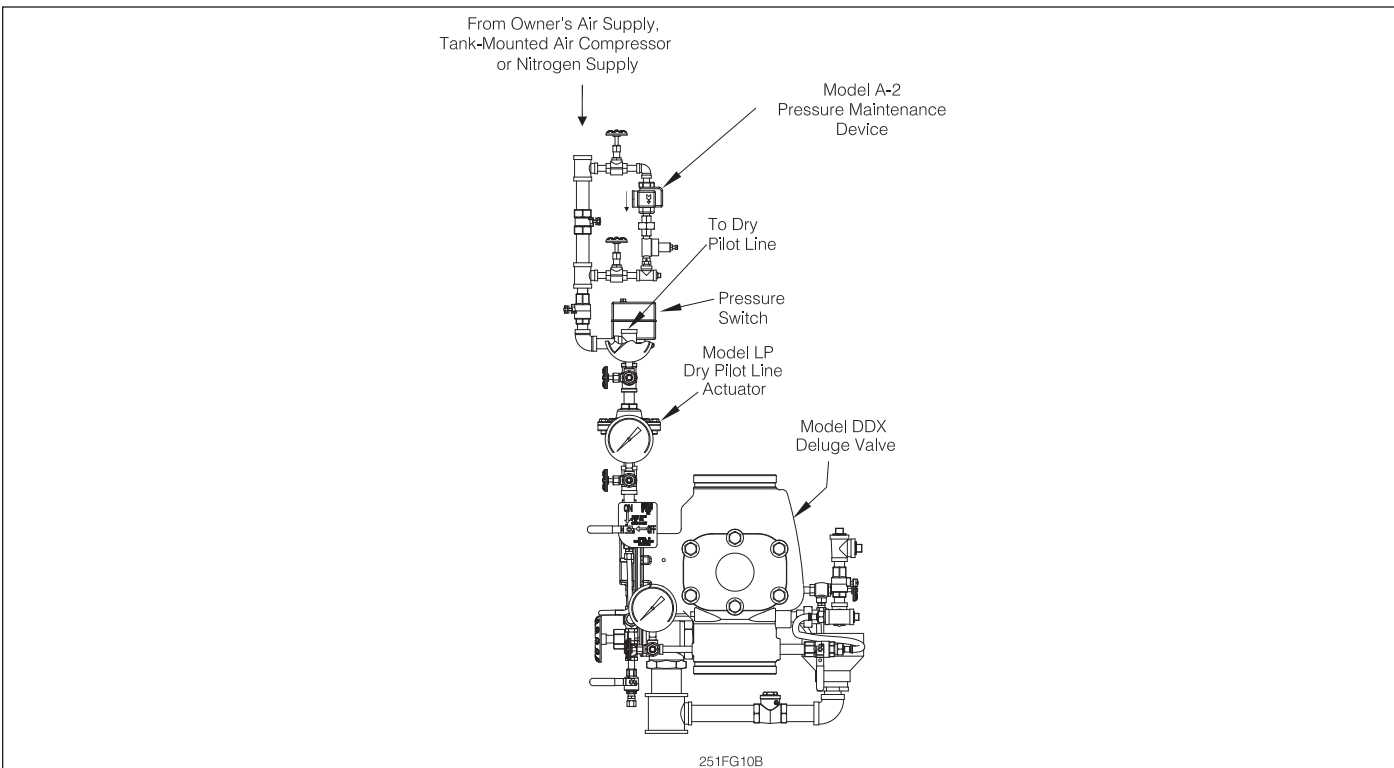


Figure 9

**Model B-1 Pressure Maintenance Device
with Model DDX Dry Pilot Line Deluge Trim**

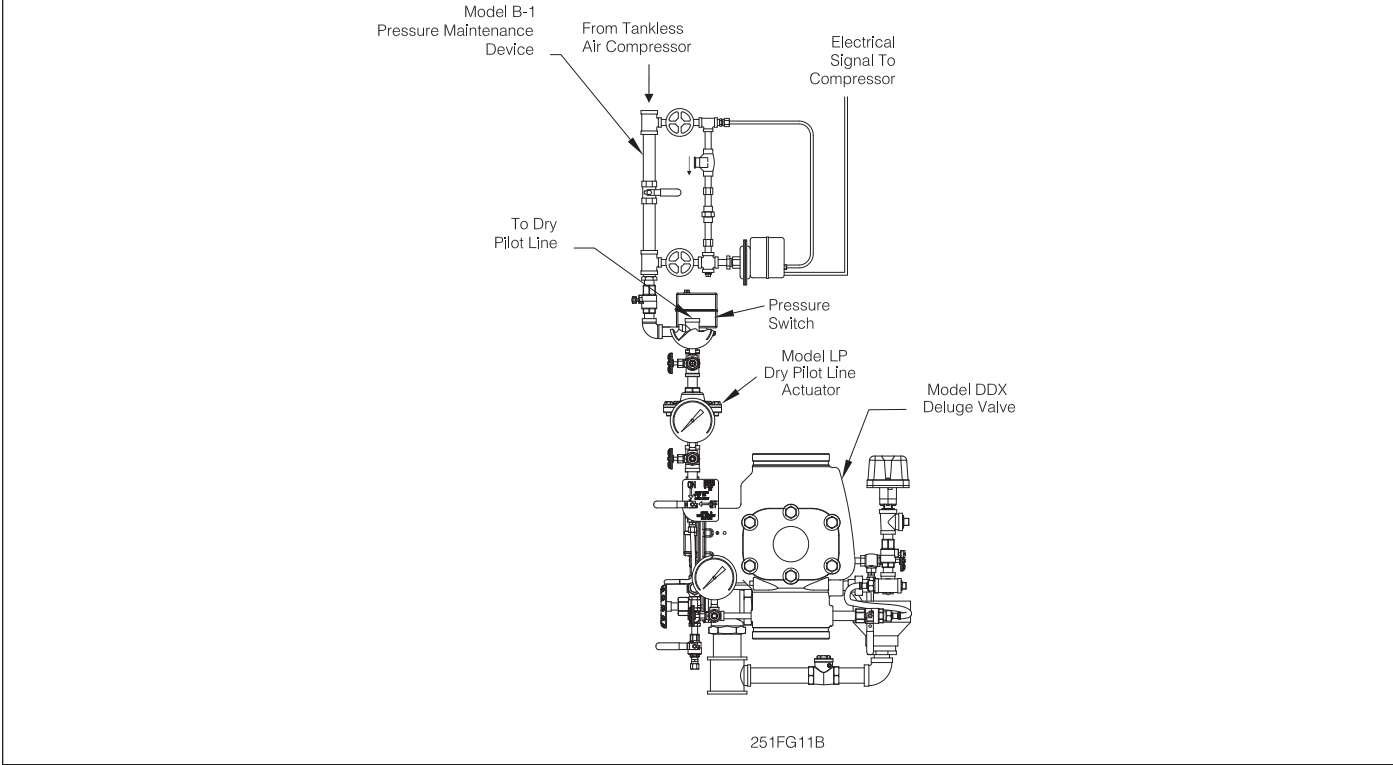


Figure 10

**Model A-2 Pressure Maintenance Device
with Model DDX Dry Pilot Line Single Interlock Preaction Trim**

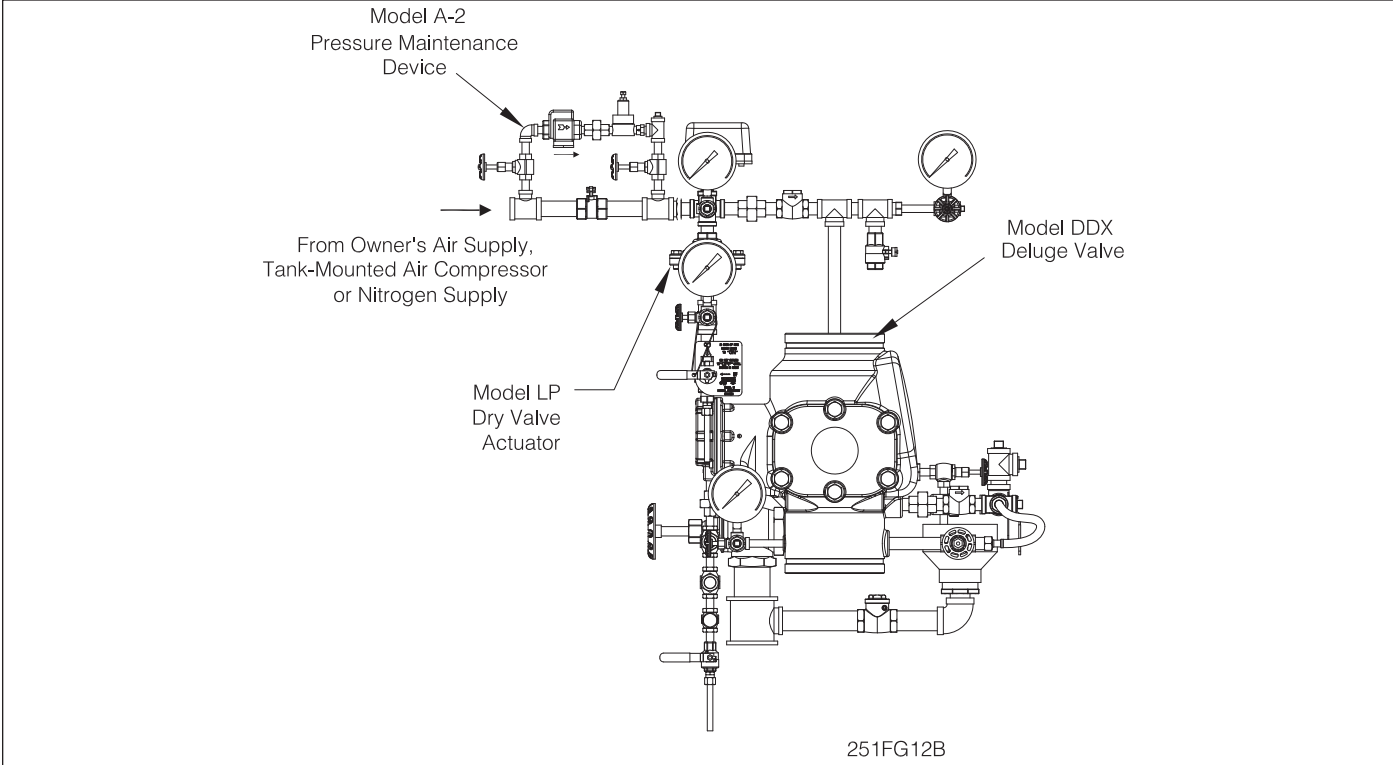


Figure 11

Model A-2 Pressure Maintenance Device with Model DDX Type F Double Interlock Preaction Trim

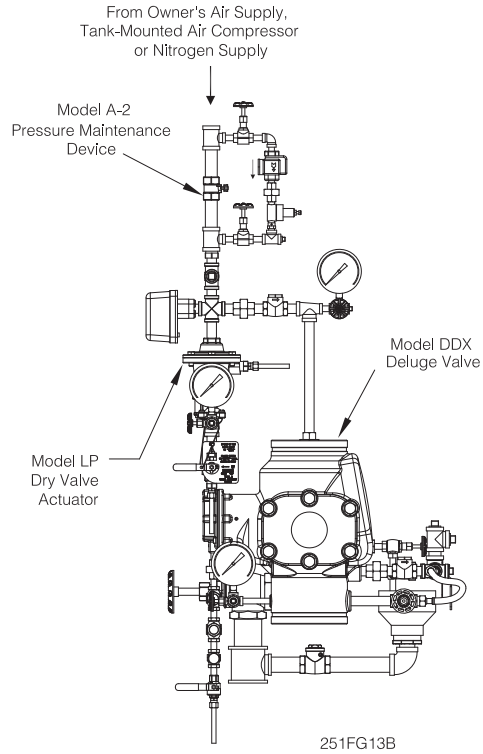


Figure 12

Model A-2 Pressure Maintenance Device with Model DDX- LP Dry Pipe Valve Trim

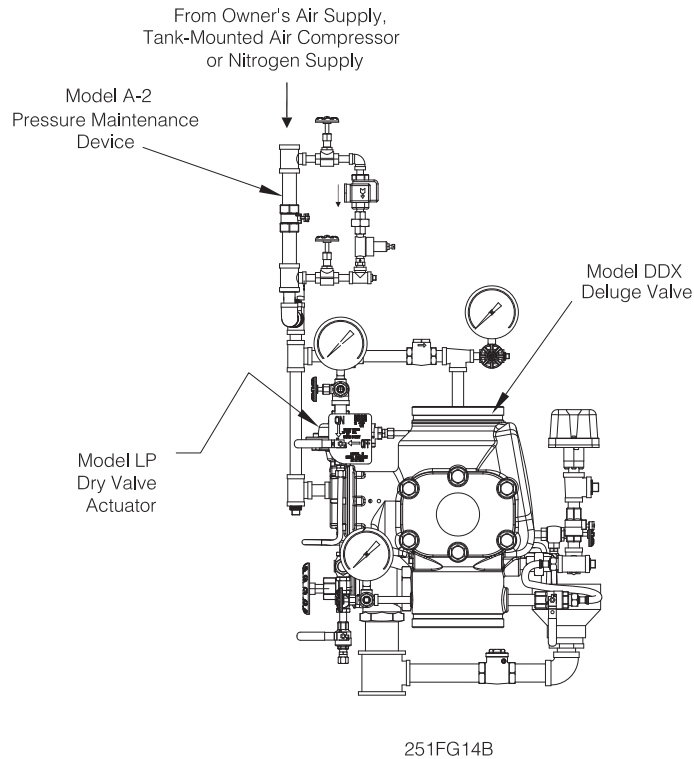


Figure 13

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.

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- Flush automatic sprinklers
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- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding 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
- 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 published 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 almost 100 years.

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