

# Reliable®

## Nitrogen Automatic Pressure Maintenance Devices

### Product Features

#### NS-ASAM

- Designed for two separate nitrogen or air sources
- Automatically switches between primary and secondary source
- Bypass valve provided for quick fill of system
- Low-pressure switch for primary source
- For use on single or multiple systems
- Keyhole slots provided for easy wall mounting

#### NS-PaK

- For bottled nitrogen use on a single system
- Low-pressure switches for nitrogen source and system
- Bypass valve provided for quick fill of system
- Keyhole slots provided for easy wall mounting

#### Nitrogen Regulator

- For bottled nitrogen use on single or multiple systems
- Low-pressure switch for nitrogen source

### General Description

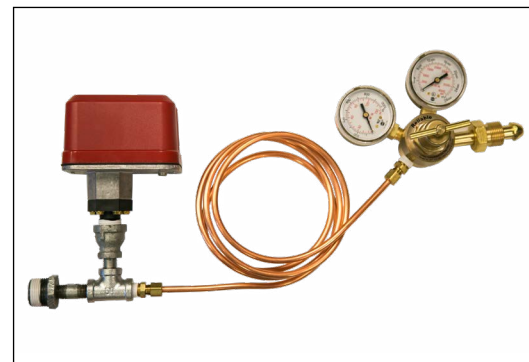
Reliable Nitrogen Automatic Pressure Maintenance Devices are designed to connect nitrogen cylinders to dry pipe and preaction systems. The NS-ASAM is designed to connect a primary and secondary cylinder or bank of cylinders to single or multiple systems, and provides automatic switchover between sources. The NS-PaK is a self-contained unit for connection of a cylinder or bank of cylinders to a single system. The Nitrogen Regulator reduces cylinder pressure and can be connected to the Model A Pressure Maintenance Device on single or multiple systems. Each device includes a low-pressure switch to signal that the nitrogen source is depleting and needs service. High-pressure cylinders (not included) can typically be obtained from a local source.



Model NS-ASAM



Model NS-PaK



Nitrogen Regulator

Table A

Model	Product Description	Listing and Approvals
NS-ASAM	Nitrogen maintenance device with automatic switchover	cULus Listed FM Approved
NS-PaK	Single system nitrogen maintenance device with high pressure regulator	cULus Listed FM Approved
Nitrogen Regulator	High-pressure regulator for connection to single or multiple pressure maintenance devices	N/A

## Model NS-ASAM

### Technical Specifications

**Threads:** 1/2" NPT

**Min. Inlet Pressure:** 100 psi (6.9 bar)

**Max. Inlet Pressure:** 250 psi (17.2 bar)

**Min. Outlet Pressure:** 10 psi (0.7 bar)

**Max. Outlet Pressure:** 70 psi (4.8 bar)

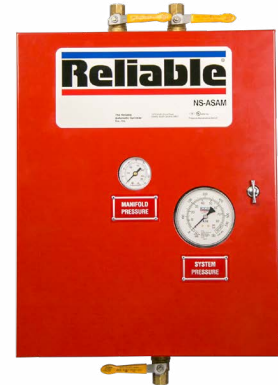
### Listings and Approvals

cULus Listed

FM Approved

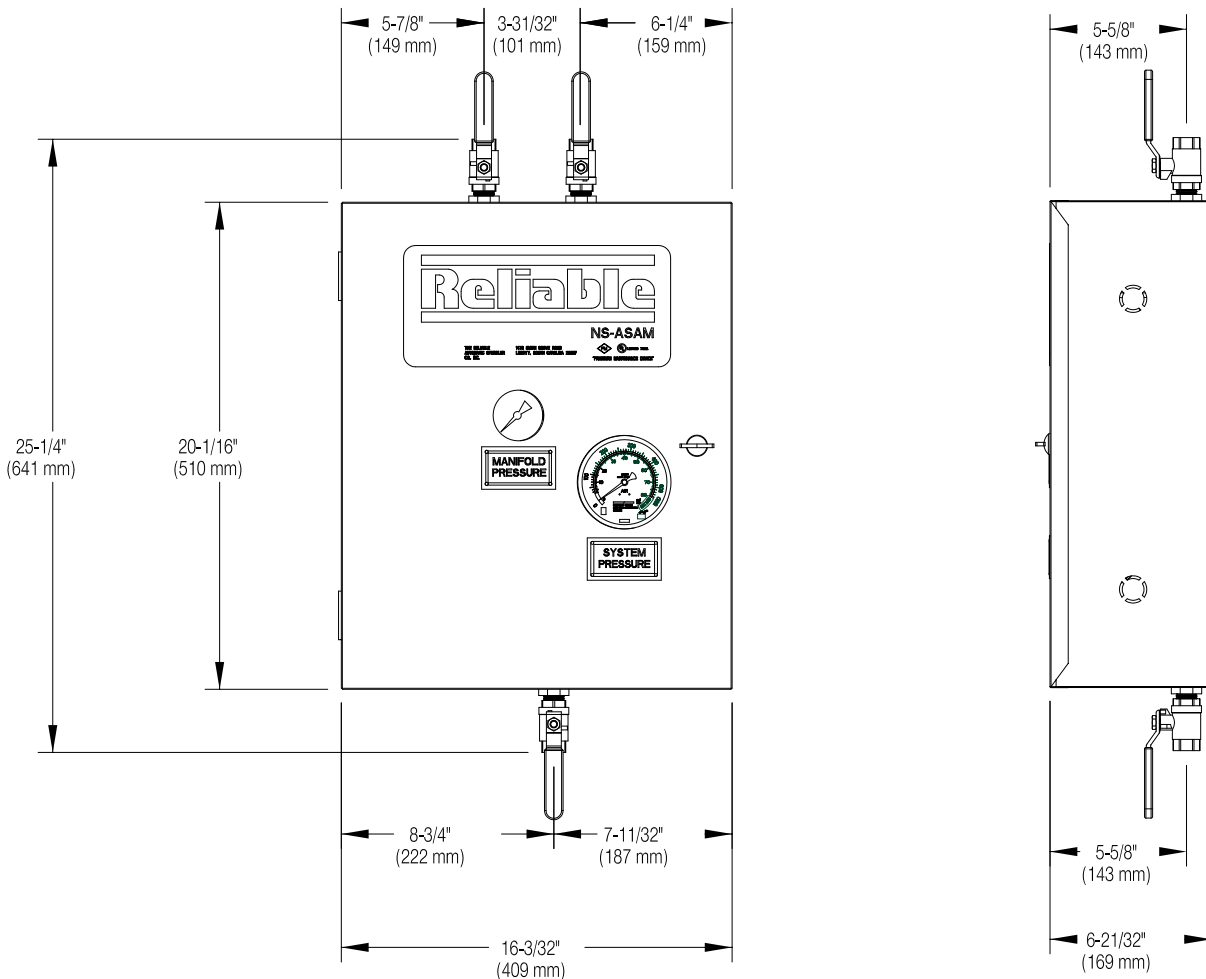
### System Operation

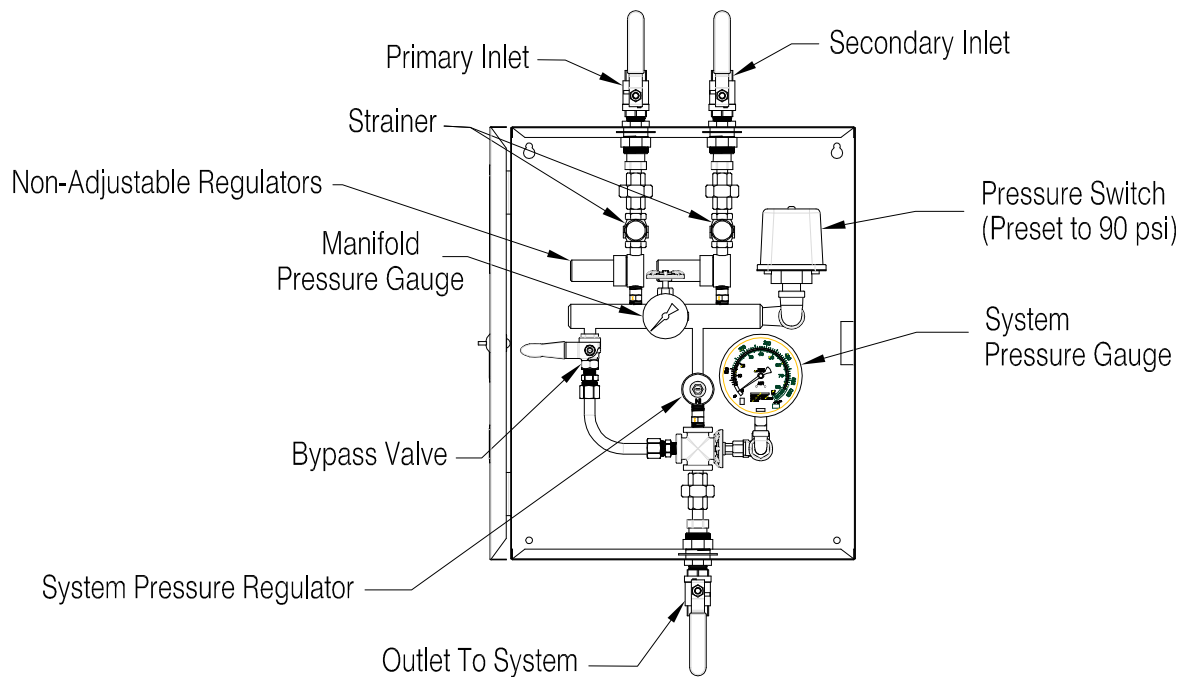
Primary and secondary sources of nitrogen or air are connected to the primary and secondary inlets, respectively, of the Model NS-ASAM Pressure Maintenance Device. The primary and secondary nitrogen or air sources should supply a recommended pressure of 120 psi (8.3 bar) to the NS-ASAM, although a minimum pressure of 100 psi (6.9 bar) up to a maximum pressure of 250 psi (17.2 bar) are permitted. The NS-ASAM will admit nitrogen or air from the primary source, until the primary source depletes to a pressure of approximately 80 psi (5.5 bar). Nitrogen or air from the secondary source is admitted through the NS-ASAM, when the pressure of the nitrogen or air supplied by the primary source is less than approximately 80 psi (5.5 bar). A pressure switch in the NS-ASAM is factory-set to activate at a pressure of 90 psi (6.2 bar) to indicate depletion of the primary source. The pressure switch includes an auxiliary set of contacts that may be field adjusted to indicate loss of pressure from the secondary source. The system pressure may be set with the system pressure regulator of the NS-ASAM. A bypass valve is provided to rapidly introduce nitrogen or air into the system. Individual low-pressure switches (not provided) should be installed in the dry pipe or preaction valve trim to indicate low system pressure.



## Model NS-ASAM Dimensions

Figure 1





## Installation and Adjustment

1. Securely mount the NS-ASAM enclosure to the wall using the keyhole slots.
2. Confirm that all valves are closed.
3. Securely mount and properly pipe the primary and secondary sources of nitrogen or air in accordance with appropriate local, state, or federal standards.
4. Connect the primary source of nitrogen or air to the primary inlet of the NS-ASAM and connect the secondary source of nitrogen or air to the secondary inlet of the NS-ASAM.
5. Connect the NS-ASAM outlet to the port provided for pneumatic supply to the sprinkler system (see note 1).
6. Before applying pressure to the sprinkler system, turn the adjustment screw on the System Pressure Regulator within the NS-ASAM fully counterclockwise.
7. Adjust the primary and secondary sources of nitrogen or air to a recommended pressure of 120 psi (8.3 bar); the minimum required inlet pressure is 100 psi (6.9 bar) and the maximum rated inlet pressure is 250 psi (7.2 bar).
8. Open the Primary Inlet Valve and the Secondary Inlet Valve.
9. Open the Bypass Valve and the NS-ASAM Outlet Valve to allow nitrogen or air to flow into the system piping.
10. When the system pressure rises to within 2 psi (0.15 bar) of the required system pressure, fully close the Bypass Valve.
11. Slowly turn the adjustment screw of the System Pressure Regulator clockwise to increase pressure to the level required by the system. Tighten the lock-nut on the System Pressure Regulator (see note 2).
12. If desired, supervise the contacts of the Pressure Switch in accordance with NFPA 72 to provide notification that the primary nitrogen or air source is depleted. The auxiliary contacts of the pressure switch may also be supervised to indicate depletion of the secondary source of nitrogen or air. When supervising the auxiliary contacts, the primary contacts of the pressure switch should remain at the factory setting of 90 psi (6.2 bar) to indicate depletion of the primary source and the auxiliary contacts should be adjusted to a pressure setting of approximately 70 psi (4.8 bar).
13. If necessary, adjust the setting of the low-pressure switch for each system.
14. Use a soap solution at all joints to verify leak-tight connections.

### Notes:

1. When applying more than one system, each system must have an individual Pressure Maintenance Device.
2. For multiple systems, the NS-ASAM system regulator must be set a minimum of 5 psi above the highest system pressure required. Use the regulator on the Pressure Maintenance Device of each system to make final adjustment.

## Model NS-PaK

**Listings and Approvals**  
cULus Listed

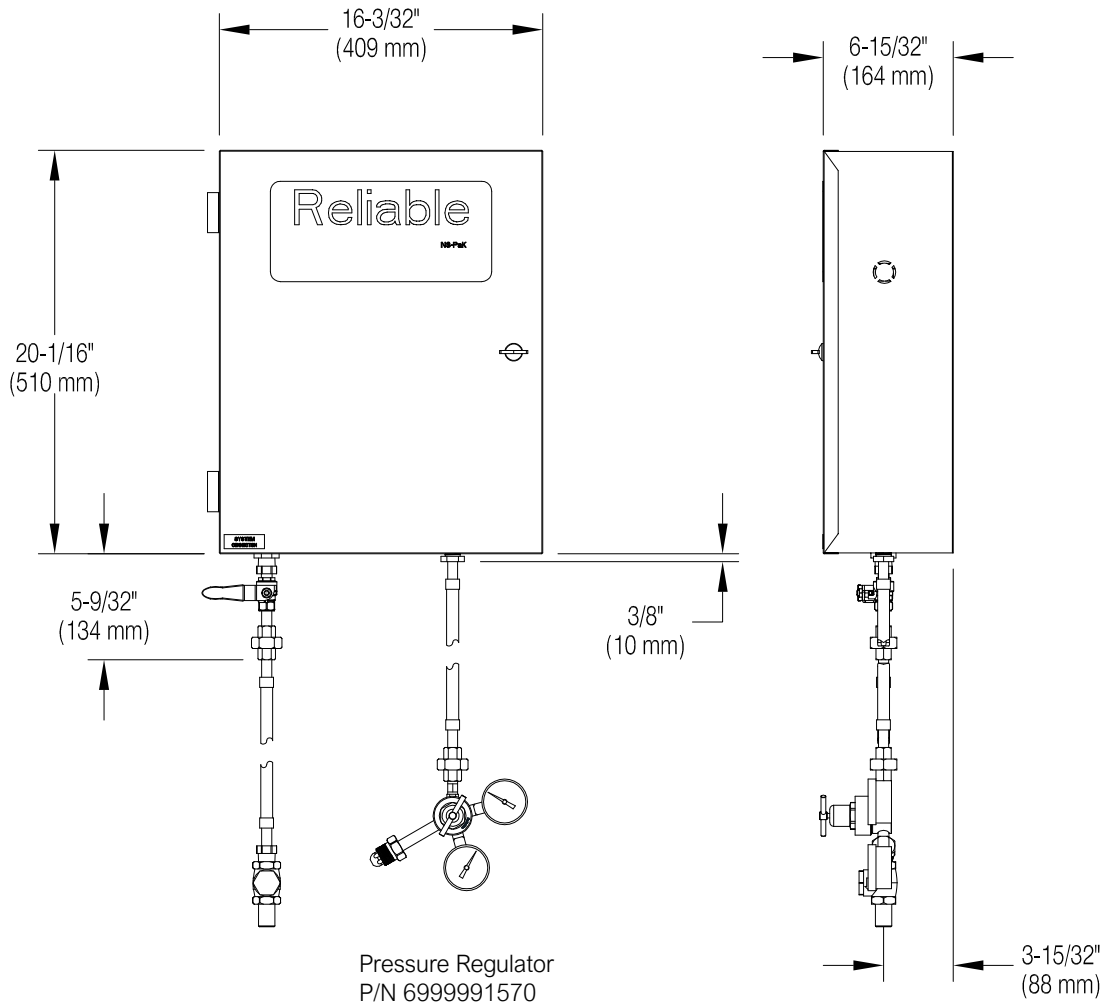
### System Operation

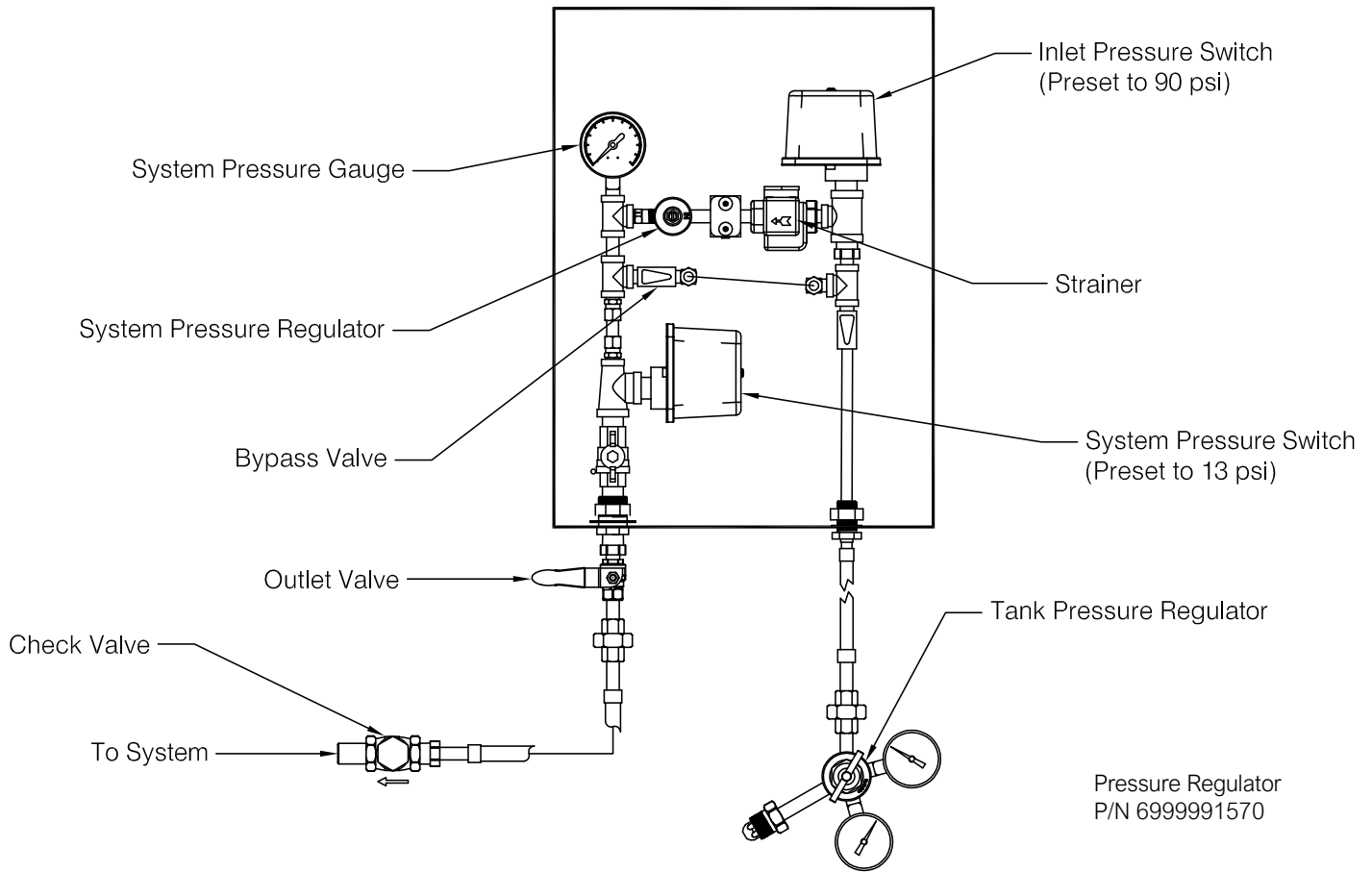
High-pressure nitrogen contained in the cylinder(s) is reduced by the adjustable regulator (included with NS-PaK) to a recommended setting of 100 psi (6.9 bar). The high-pressure regulator supplies a field adjustable System Pressure Regulator in the NS-PaK controlling pressure to the system. As the cylinder pressure depletes below 90 psi (6.2 bar), the Inlet Pressure Switch activates to indicate low nitrogen pressure and notify the owner that the nitrogen supply requires servicing. The field adjustable System Pressure Switch is factory preset to signal low system pressure at approximately 13 psi (0.9 bar).



### Model NS-PaK Dimensions

Figure 3





Pressure Regulator  
P/N 6999991570

### Installation and Adjustment

1. Securely mount the NS-PaK enclosure to the wall using the keyhole slots.
2. Confirm that all valves are closed.
3. To prevent damage to equipment and personal injury, confirm that the nitrogen cylinder is securely mounted in accordance with appropriate local, state, or federal standards.
4. Before connecting the Tank Pressure Regulator, inspect both the cylinder outlet and the Tank Pressure Regulator inlet for damaged threads or foreign matter. Remove foreign matter with a clean cloth, and replace cylinders or pressure regulators having damaged threads.
5. Momentarily open the cylinder control valve a small amount to dislodge any foreign matter from inside the valve and prepare it for mounting the Tank Pressure Regulator.
6. Apply thread sealant to male threads and tighten the Tank Pressure Regulator to the cylinder control valve securely with a wrench. Do not over tighten.
7. Using the the stainless steel hose provided, connect the Tank Pressure regulator to the inlet of the NS-PaK assembly.
8. Using the stainless steel hose provided, connect the NS-PaK outlet to the open port provided for pneumatic supply to the sprinkler system (see note 1).

9. Before applying pressure to the system, turn the adjustment screw on the System Pressure Regulator within the NS-PaK fully counterclockwise.
10. Open the cylinder control valve and supply inlet valve in the NS-PaK.
11. Open the Bypass Valve and the NS-PaK Outlet Valve to allow nitrogen to flow into the system piping.
12. When the system pressure rises to within 2 psi of required system pressure, fully close the Bypass Valve.
13. Slowly turn the adjustment screw of the System Pressure Regulator clockwise to increase pressure to the level required by the system. Tighten the lock-nut on the System Pressure Regulator.
14. If necessary adjust the pressure setting of the System Pressure Switch based upon the system pressure (see note 2).
15. Use a soap solution at all joints to verify leak-tight connections.

**Notes:**

1. The check valve provided with the stainless steel hose must be installed in the horizontal position.
2. The System Pressure Switch in the NS-PaK replaces the low-pressure switch normally located at the dry pipe or deluge valve.

## Nitrogen Regulator

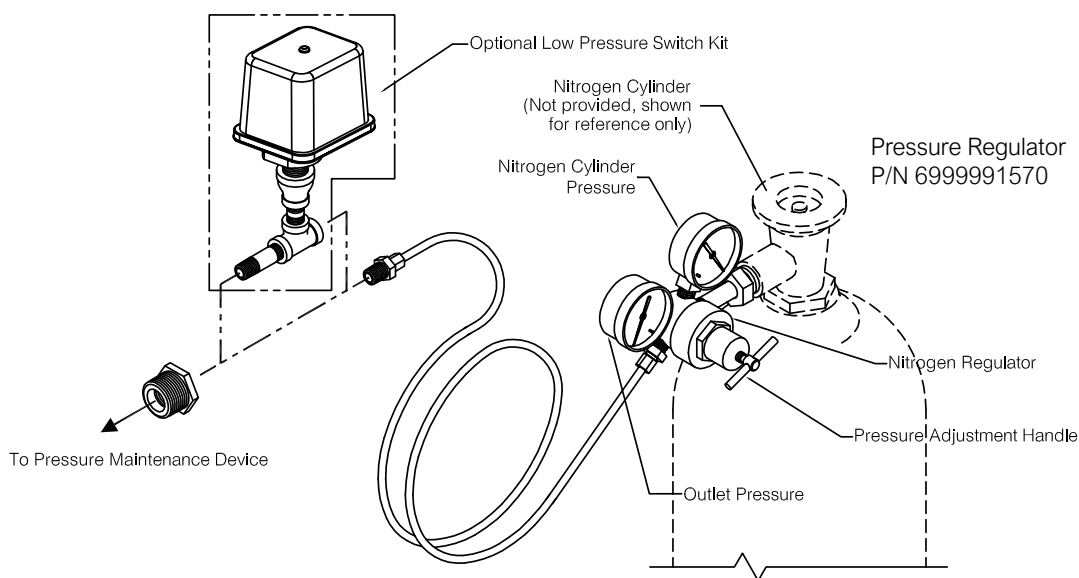
### Product Description

High-pressure nitrogen contained in the cylinder is reduced by the Nitrogen Regulator. The Nitrogen Regulator supplies one or more Pressure Maintenance Device(s) (not included) controlling pressure to the sprinkler system(s). As the cylinder pressure depletes below 90 psi (6.2 bar), the Optional Low Pressure Switch activates to indicate low nitrogen pressure. Individual low pressure switches (not provided) installed on dry pipe or preaction valve trim provide notification of low system pressure.



### Nitrogen Regulator Components

Figure 5



### Installation and Adjustment

1. Confirm that all valves are closed.
2. To prevent damage to equipment and personal injury, confirm that nitrogen cylinders are securely mounted in accordance with local, state, or federal standards.
3. Before connecting the Nitrogen Regulator, inspect both the cylinder outlet and the Nitrogen regulator inlet for damaged threads or foreign matter. Remove foreign matter with a clean cloth, and replace cylinders or Nitrogen Regulators having damaged threads.
4. Momentarily open the cylinder control valve a small amount to dislodge any foreign matter from inside the valve and prepare it for the Nitrogen Regulator mounting.
5. Apply thread sealant to male threads and tighten the Nitrogen regulator to the cylinder control valve securely with a wrench. Do not over tighten.
6. Using the copper tubing provided, connect the Nitrogen Regulator to the inlet of Pressure Maintenance Device (not provided) (see note).
7. Before applying pressure to the system, turn the adjustment screw on the regulator of the Pressure Maintenance Device fully counterclockwise.
8. Open the cylinder control valve.
9. Open the bypass valve of the Pressure Maintenance Device to allow nitrogen to flow into system piping.
10. When the system pressure rises to within 2 psi of required system pressure, fully close the bypass valve.
11. Slowly turn the adjustment screw of the Pressure Maintenance Device regulator clockwise to increase pressure to the level required by the system. Tighten lock-nut on pressure regulator.
12. If necessary, adjust the setting of the low-pressure switch for each system.
13. Use a soap solution at all joint to verify leak-tight connections.

**Note:** The Nitrogen Regulator can supply a single system or multiple systems. When supplying more than one system, each system must have a Pressure Maintenance Device. Follow steps 7-12 for each system.

## Maintenance

The owner is responsible for maintaining all parts of the fire protection system in proper operating condition. Any system maintenance or testing that involves placing a system component out of service may eliminate the fire protection that is provided by the fire protection system.

The Reliable Model NS-ASAM, NS-PaK, and Nitrogen Regulator shall periodically be given a thorough inspection and test. NFPA 25, "Inspection, Testing, and Maintenance of Water Based Fire Protection Systems," provides minimum maintenance requirements. System components shall be tested, operated, cleaned and inspected at least annually and parts replaced as required.

## Caution

The transportation, handling, installation, and restraint of high-pressure cylinders must be performed in accordance with local, state, and federal standards.

## Guarantee

For the Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit [www.reliablesprinkler.com](http://www.reliablesprinkler.com).

## Patents

Patent Pending (Model NS-ASAM)

## Ordering Information

Specify the following when ordering.

**Model NS-ASAM**

**Model NS-PaK**

**Nitrogen Maintenance Device**

Pressure Switch Kit: None, UL Listed, ULC Listed