

**SHORT SPECIFICATION
NITROGEN / AIR MAINTENANCE DEVICE**

Furnish and install FM Approved nitrogen / air maintenance device(s) for supplying supervisory pressure to the preaction or dry-pipe fire sprinkler system piping network(s). The device(s) shall be Model NAMD-1, manufactured by UNITED Fire Systems, Kenilworth, NJ USA (908-688-0300), and shall contain all components factory-assembled and tested to make up complete, ready-to-install device(s).

1. RELATED SPECIFICATIONS

- A. Preaction Fire Sprinkler System
- B. Dry-Pipe Fire Sprinkler System.
- C. Quality Control.
- D. Common Work Results for Fire Suppression.
- E. Schedules for Fire Suppression.
- F. Contract drawings
- G. General provisions of the contract, including General and Supplementary Conditions.

2. PERFORMANCE REQUIREMENTS

- A. The device(s) shall be FM Approved per FM Approvals *Standard for Pressure Maintenance Devices – Class Number 1032*, October 2019 edition.
- B. The device(s) shall be pre-assembled and fully factory tested.
- C. Design and performance of the device(s) shall comply with NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2016 edition.
- D. Contractor shall furnish and install the nitrogen / air maintenance device(s) per this specification and all applicable contract drawings.
- E. Device Operation. The device shall operate to maintain supervisory pressure within the sprinkler system piping to within $\pm 2\%$ of the original pressure setting.

3. SUBMITTALS

- A. Product Data. Include, as applicable, product rated capacities, operational characteristics, and materials and standards of construction.
- B. Shop Drawings. Show device installation locations and details.
- C. Closeout Submittals
 - 1. Location of devices on system as-built drawings.
 - 2. Operation and maintenance instructions.
- D. Operation and Maintenance Submittals.

4. NITROGEN / AIR MAINTENANCE DEVICE(S). Furnish and install FM Approved nitrogen / air maintenance device(s) to provide supervisory pressure to the preaction or dry-pipe fire sprinkler system piping network(s). The device(s) shall be Model NAMD-1, manufactured by UNITED Fire Systems, Kenilworth, NJ USA (908-688-0300), and shall contain all components factory-assembled and tested to make up a complete, ready-to-install device. The device shall have:

- A. Shutoff valves: 1/4-turn ball valves with brass bodies; one (1) at inlet and one (1) at outlet of regulator line.
- B. Strainer: Upstream of regulator with 20 mesh screen to capture particles in the gas flow that are 0.42 mm and larger.
- C. Regulator: High-precision device capable of consistent gas flow over a wide range of inlet pressures. Multi-stage regulation is not permitted.
- D. Pressure gauge: 0-60 PSIG (0-410 kPa gauge) range; attached to regulator body; indicating pressure downstream of regulator to facilitate proper regulator adjustment at commissioning.
- E. Backflow prevention device: One-way device to prevent inadvertent water entry into regulator.
- F. Bypass valve: 1/4-turn ball valve to permit bypassing of regulator, facilitating 30 minute initial-fill per NFPA 13.
- G. Inlet and outlet threads: 1/2 inch NPT female.

5. PIPE AND FITTINGS. Pipe and fittings for connection of supervisory pressure source to device inlet, and device outlet to fire sprinkler valve trim.
 - A. Pipe - Schedule 40 Steel, per ASTM A53 / A53M - Specification for Pipe, Steel, Black, Welded and Seamless.
 - B. Nipples - Steel Pipe Nipples, Threaded End, per ASTM A733 - Specification for Welded and Seamless Carbon Steel Pipe Nipples.
 - C. Fittings - All fittings shall be black. Galvanized fittings shall not be used. Fittings per ANSI B16.3 - Malleable Iron Threaded Fittings, or ANSI B16.4 - Cast Iron Threaded Fittings.
 - D. Couplings - Per ASTM A865 - Specification for Threaded Couplings, Steel, Black, Welded or Seamless, for Use in Steel Pipe Joints.
 - E. Unions. Use unions only as necessary where joining pipe is impossible or impractical without them. Unions per ANSI B16.39 - Malleable Iron Threaded Pipe Unions.
 - F. Threads - Threaded ends per ANSI B2.1 - Basic Standards for Steel Pipe Threads, and ANSI B1.20.1 - Pipe Threads, General Purpose (Inch). All threads shall be NPT.
 - G. Copper tubing or rubber hose shall NOT be used.
6. OPERATION
 - A. The device shall regulate the supervisory pressure automatically, with no manual intervention needed after initial adjustment.
 - B. The device shall permit shutoff of the regulator inlet and outlet with manually-operated ball valves.
 - C. A manually operated ball valve shall permit the regulator to be bypassed.
7. STORAGE AND HANDLING. Deliver all material and equipment properly identified by type, size, manufacturer's name and specification section. All material to be undamaged. Do not store exposed to weather. Store indoors or cover to protect from damage. Protect all material and equipment to prevent damage and entrance of foreign matter. During loading, transporting, and unloading, handle all material and equipment with care to prevent damage. Do not drop. Store all material and equipment to the satisfaction of the Resident Engineer.
8. INSTALLATION
 - A. Location and Arrangement. Contract drawings, plans, schematics, and diagrams indicate general location and arrangement of device(s). Shop drawings shall indicate actual device installation layout. Install device(s) per approved shop drawings.
 - B. Deviations. Installation deviations from approved shop drawings require written approval from the Engineer. During installation, do not deviate from approved shop drawings without written approval from the Engineer.
 - C. Mounting. Mount the device in the piping connected to the supervisory pressure inlet connection on the sprinkler valve trim. Observe manufacturer's instructions for device orientation, and inlet / outlet connections.
 - D. Pipe Ends. Ream ends of pipe to remove burrs. Bevel plain ends of pipe.
 - E. Examination. Examine all pipe and fittings thoroughly before installation. Do not install damaged or defective pipe or fittings.
 - F. Cleaning. Remove scale, slag, dirt, oil, cutting and threading shavings, and debris from inside and outside of pipe after fabrication and before assembly. Use a non-toxic solvent to ensure pipe is clean. Pipe shall be free of solvent and water when installed.
 - G. Adjustment. Adjust the device in accordance with manufacturer's commissioning instructions. Determine proper supervisory pressure from contract drawings.