Chemical Injection Technologies

Product/Specification Bulletin

SUPERIOR™ Ammoniator Series NHM-1
Direct Cylinder Mounted - All Vacuum

GENERAL DESCRIPTION

The SUPERIOR™ Series NHM-1 Ammoniator is a state-of-the-art, vacuum-operated, solution feed type which mounts directly on a Ammonia cylinder valve. The chlorinator is mounted onto the Ammonia cylinder valve using a very heavy-duty, positive yoke clamp connection. A Ammonia gas flow meter indicates the amount of Ammonia being fed. Ammonia flow rate is manually adjusted and the design permits easy addition of a number of automatic flow rate control devices. A high efficiency, water operated ejector produces the vacuum necessary to operate the system. The ejector assembly contains a back-flow check valve system to prevent pressurized water from entering the chlorinator. A spring-opposed diaphragm vacuum regulator controls the Ammonia gas flow rate and also acts as the safety shut-off valve.

FEATURES

The SUPERIOR™ Series NHM-1 represents the most modern design technology coupled with the very best materials available to create an outstanding, user friendly piece of equipment. It is designed with user safety as a primary concern.

1. A new ultra-thick, fluoroplastic yoke coating gives SUPERIOR™ corrosion resistance, won't crack, peel or chip. Ammonia will not diffuse through it to cause coating bubbling and peeling.

2. All molded parts are fiber-glass reinforced ABS plastic, designed for SUPERIOR™ strength, warp-resistance and Ammonia resistance.

3. The rate valve "Seat" is pure fluoroplastic and will not swell, stick or become brittle with age or exposure to liquid Ammonia.

4. All external bolts and nuts are Titanium for complete corrosion resistance..a SUPERIOR™ exclusive. There are no stainless steel or monel nuts and bolts to corrode and freeze up in the presence of moist Ammonia gas.

5. Extra heavy-duty outlet threads on the ejector diffuser prevents accidental breakage from over-tightening or "bumping" of the ejector assembly.

6. The "Universal" ejector diffuser allows use of high pressure solution hose, direct ejector mounting in mains, or in-line piping with rigid solution pipe.

7. Easier to service and perform routine maintenance, with standard size wrench lugs provided on all screwed-together ejector parts. No more pipe wrenches to accidentally tear and scrape plastic surfaces.

8. All vacuum fitting holes are heavily reinforced to prevent the possibility of cracking from over-tightening fittings.

9. "Dual-pressure" check valve is standard on all SUPERIOR™ Ammoniators. Proven high back-pressure unitized check valve design protects against sudden surges up to 300 PSIG while a spring-loaded diaphragm check provides positive shutoff even when there is no back-pressure to force the seat closed.

10. PVDF vacuum tubing fittings are standard..another SUPERIOR™ exclusive. "User friendly" design makes it easy to attach tubing, and to tighten or loosen ferrule nuts without tools.

11. Fewer parts, combined with superior materials and a superior design gives you a SUPERIOR™ Ammoniator.

FLOW METER CAPACITIES

Variable area flow metering tubes are available with dual English/Metric scale maximum capacities of 0.8, 1.5, 4, 10, 25, 50 and 100 pounds per 24 hours of Ammonia gas, as well as 15, 30, 75, 200, 500, 1000 and 2000 grams per hour, respectively. All metering tubes are interchangeable and may be changed in the field without special tools.

MODULAR DESIGN

SUPERIOR™ Ammoniators have been designed to give maximum flexibility in system installation. The vacuum regulator and metering tube panel are close coupled and mounted onto the Ammonia cylinder valve as a single assembly. The ejector can be located wherever plumbing and/or hydraulic conditions make it most desirable. Modular design also makes it easy and inexpensive to expand or upgrade the system. The metering tube panel may be detached from the vacuum regulator at any time, in just a few minutes, if future requirements or safety dictate a remote metering application, or multiple point chlorination is desired

MATERIALS OF CONSTRUCTION

One of SUPERIOR's™' major competitive advantages is the use of the finest, strongest and most durable materials available. Extensive use of Fluoroplastics and fiberglass reinforced thermo-plastics allow SUPERIOR™ Ammoniators to withstand attack by Ammonia in any form and to give the longest operational life. Many parts are guaranteed for the life of the equipment against Ammonia damage.

SYSTEM OPERATION

The vacuum regulator is securely clamped onto the Ammonia cylinder valve. Water under pressure flows through the ejector at high velocity which causes a strong vacuum to be created. This opens the check valves in the ejector assembly and transmits a vacuum signal through the meter tube/rate valve panel back to the vacuum regulator. When the vacuum reaches a pre-set level, the diaphragm in the regulator moves to open the Ammonia inlet safety valve, permitting gas to flow from the Ammonia cylinder. The spring-opposed diaphragm and inlet valve regulate the vacuum at this point.

Ammonia gas passes through the flow meter panel and rate control valve to the ejector. The gas mixes with the ejector water and is discharged through the diffuser into the water being treated.

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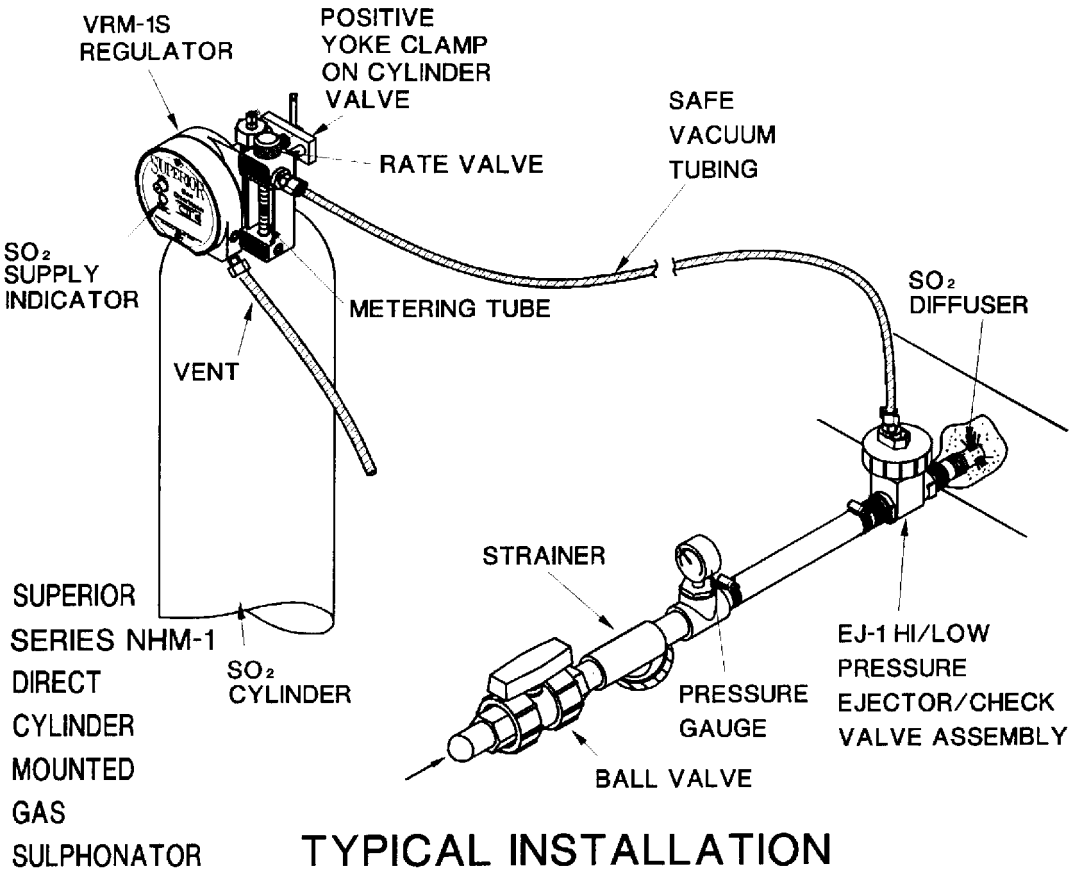

TYPICAL INSTALLATION

SPECIFICATIONS

The chlorinator shall be SUPERIOR™ MODEL NHM-1 manufactured by Chemical Injection Technologies, Inc., Ft. Pierce, Florida, and shall have a maximum capacity of_____pounds per day (gr/hr)of Ammonia feed and shall be equipped with a Ammonia flow meter of _____ pounds per day (gr/hr).

The chlorinator shall consist of a close-coupled vacuum regulator/flow meter, and ejector/check valve. Each of these assemblies shall be capable of being individually located wherever safety and/or operator convenience dictates. The vacuum regulator/flow meter assembly shall be capable of being separated into independant vacuum regulator and metering panel assemblies at any time for remote metering or multiple point applications.

The vacuum regulator/flow meter shall mount directly on the cylinder valve by means of a positive yoke type clamp having an integral tightening screw with slide bar handle. No wrenches or other tools shall be required to mount or dismount the vacuum regulator from the cylinder. The cylinder valve/chlorinator inlet adaptor shall be constructed of corrosion-proof fluoroplastic material which shall be inert to the effects of wet, dry or liquid Ammonia. The inlet safety shut-off/vacuum regulating valve shall be of capsulated design, easily removable as a unit from the outlet side of the yoke. A fluoroplastic filter shall be installed in the vacuum regulator inlet and shall be capable of removing impurities greater than 25 microns. A pressure relief valve shall be incorporated into the vacuum regulator to prevent pressure from building up in the system. All external screws and nuts shall be made of Titanium to prevent corrosion.

The vacuum regulator/flow meter bodies shall be constructed of fiberglass reinforced thermoplastic material and shall incorporate a flow rate control valve made of fluoroplastic material which is inert to the corrosive effects of Ammonia. The rate valve metering tip shall be constructed of pure silver. Design shall provide for full closing of the rate valve without engaging the control surfaces, to prevent damage.

Vacuum shall be created by a fixed-throat venturi/ejector system connected directly to the Ammonia solution diffuser. A dual high-pressure/low-pressure check valve system shall prevent water from entering the gas system. The ejector assembly shall be capable of withstanding water pressure up to 300 PSIG (20.7 Bars). A universal-type Ammonia solution diffuser shall be provided which shall allow close-coupling of the ejector to a water main, use of flexible solution hose or rigid solution pipe without the use of special adaptors.

STANDARD ACCESSORIES
25 ft. - 3/8" Vent & vacuum tubing
10 - Lead cylinder connection gaskets
1 - Cylinder Wrench
1 - Vent insect screen

OPTIONAL ACCESSORIES AVAILABLE

Inlet Water Assembly	**Gas Masks**
Wall manifold kits	**Gas Detectors**
Booster pumps	**Scales**
Residual Analyzers	**Gauges**
Automatic Controls	**Chlorine Comparators**
Ton Container Adaptors	**Others Available**

OTHER SUPERIOR™ SYSTEMS AVAILABLE

AUTOMATIC SWITCHOVER AmmoniatorS
MULTIPLE-POINT AmmoniatorS
GAS SULFONATORS (DECHLORINATOR)
GAS CHLORINATORS
AUTOMATIC FLOW PROPORTIONING
AUTOMATIC RESIDUAL CONTROL

Chemical Injection Technologies, Inc.
4796 S. US 1, Ft. Pierce, FL, 34982, USA
(772) 461-0666 Fax: (772) 460-1847
E-Mail: chlorine@gate.net
www.chlorinators.com