REGAL GAS AMMONIATOR

The REGAL Model 310 ammoniator is a vacuum-operated solution feed type, designed for mounting directly on an ammonia cylinder valve. The ammonia flow rate is manually adjusted. The ammoniator mounts on the cylinder valve by means of a positive, heavy duty yoke clamp. A highly efficient water operated, vacuum-producing ejector is close coupled with the ammonia solution diffuser. The assembly contains a back flow check valve. Ammonia gas flow rate is regulated by a spring opposed diaphragm regulator which is also the safety shut-off valve.

FEATURES

The REGAL Model 310 incorporates the very best available materials with the latest technology in design and construction, to reduce maintenance, simplify construction and improve operation.

APPLICATION

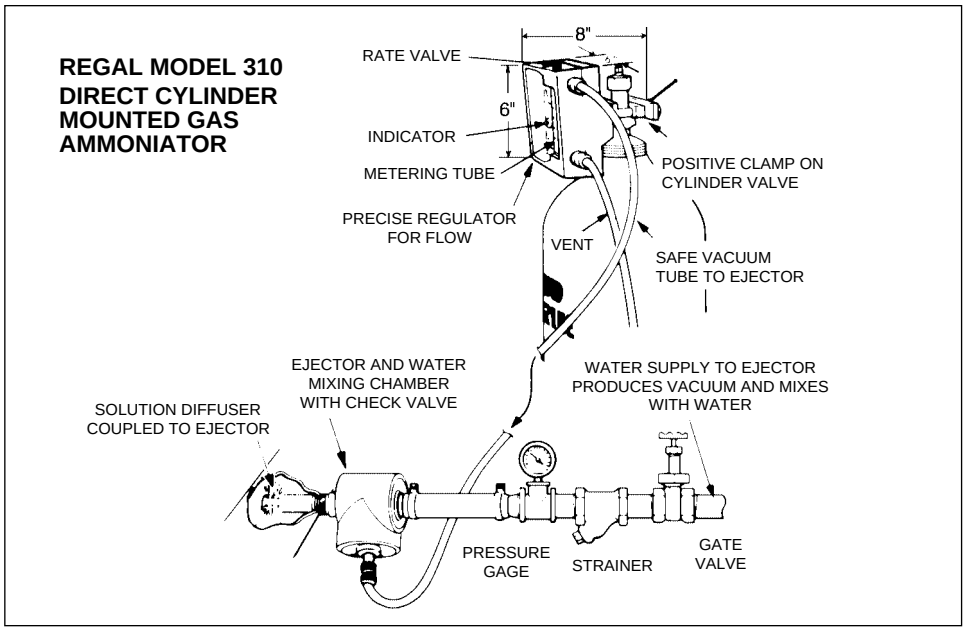
The Model 310 is designed to handle the vast majority of water treatment requirements.

CAPACITIES

Variable area flow metering tubes are available with maximum capacities of 4, 10, 25, 50 and 100 pounds per 24 hrs. of ammonia gas. Metric scales are available with maximum capacities of 75, 200, 500, 1000 and 2000 grams per hr.

FLOW RATE ADJUSTMENT

Manually adjustable by means of a flow rate control valve located at the top of the flow meter. Flow rate is then regulated by a special spring-opposed diaphragm operated valve. The system is automatic. It will go off and on as the ejector water is turned off and on and will always return to the pre-set flow rate.



EJECTOR REQUIREMENTS

The standard ejector is designed to withstand static back pressures in excess of 200 psig (14.1 kg/cm^2). However, due to possibilities of water line "torque" in high pressure on-off systems, as well as special booster pump considerations, it is recommended that a factory representative, or Chlorinators Incorporated be consulted regarding installation details in systems over 100 psig (7 kg/cm^2).

Generally, the amount of water required to operate the ejector depends upon the ammonia flow rate. The higher the ammonia flow rate, the greater the water flow needed.

OPERATION

The ammoniator is clamped on the ammonia cylinder valve. The ejector assembly is normally attached to the solution diffuser at the point of injection (it may be wall mounted, but this is not recommended). A vacuum line connects these two units.

Water, under pressure, is forced through the ejector nozzle which creates a strong vacuum in the ejector body. This pulls gas into the ejector through a special back-flow check valve and then into the nozzle outlet. The gas mixes with the ejector water and is discharged through the diffuser into the water being treated.

The ejector vacuum is transmitted back to the ammoniator through the vacuum line; then through the rate valve and the flow meter and to the back of the diaphragm. With sufficient vacuum, the diaphragm moves backward, opening the spring loaded inlet regulating valve to allow ammonia to enter from the cylinder.

The ammonia passes through the flow rate indicating meter, flow rate adjusting valve and to the ejector.

SPECIFICATIONS

The ammoniator shall be a vacuum operated, solution feed type, for mounting directly on an ammonia gas cylinder valve. It shall be REGAL Model 310 manufactured by Chlorinators Incorporated, Stuart, Florida and shall have a maximum capacity of 100 lbs./24 hrs. (2000 gms/hr).

The ammoniator shall mount on the cylinder valve by means of a positive yoke type clamp having an integral tightening screw with slide-bar handle.

All regulating, metering, flow adjusting and safety functions shall be incorporated in the cylinder mounted unit.

The inlet safety shut-off/vacuum regulating valve shall be of capsulated construction, easily removable as a unit from the outlet side of the yoke for ease of inspection, cleaning or maintenance.

Vacuum shall be created by an ejector assembly connected directly to the ammonia solution diffuser. The assembly shall consist of a single piece venturi-recovery throat to prevent mis-alignment; also, a back flow check valve to prevent water from entering the gas system. The check valve shall be of positive, tight shut-off, unitized design not requiring springs or diaphragms for tight closing.

SERVICE

Most service problems can be handled by the user, with no special tools. If that is not possible, or desirable, the ammoniator and ejector assembly can be shipped to the factory for overhaul and retest to like new condition for a reasonable single service charge. If the unit cannot be taken out of service, we will send an “exchange” unit.

The REGAL Model 316 Automatic Switchover Gas Ammoniator is a totally vacuum-operated system which is designed to automatically switch the ammonia feed from an empty cylinder to a full cylinder. It is also designed to provide system-backup. Should a problem develop with either vacuum regulator, ammoniation can be continued. The ammoniators are of the vacuum-operated solution-feed type, designed for mounting directly on an ammonia cylinder valve. The switchovers are self-actuating, eliminating the need for a separate switchover mechanism. A separate gas flow meter and rate control valve panel may be located wherever it is most convenient for the operator and connected between the vacuum regulator junction at the pressure relief (vent) valve, and the ejector, by means of safe vacuum tubing. The ejector assembly contains a back flow check valve. Ammonia gas flow rate is regulated by a spring-opposed diaphragm regulator which is also the automatic safety shut-off valve. Should vacuum be interrupted for any reason anywhere in the system the safety shut-off/inlet valve immediately closes, shutting off the ammonia supply from the cylinder. A pressure relief valve designed to "vent" the system also provides a central interconnection point for the vacuum tubing.

OTHER IMPORTANT FEATURES

- System Back-up — Each cylinder's ammoniator has its own vacuum regulating diaphragm and safety/inlet valve insuring that ammoniation can be continued if service should be required on either chlorinator.
- Corrosion-resistant, Factory-adjusted Detent Mechanism — Detent does not require any field adjustment assuring that cylinder switchover will occur at the proper time, and that all available gas in supply cylinder will be used.
- In-Use/Stand-by Indication — Prominent indicator on face quickly tells which is the stand-by cylinder and which cylinder is in use. Optional flowmeter panels are available for applications where the feed rate must be known at the ammoniator and the flow meter/rate valve panel cannot be seen.

CAPACITIES

Variable area flow metering tubes are available with maximum capacities of 4, 10, 25, 50 and 100 pounds per 24 hrs. of ammonia gas. Metric scales are available with maximum capacities of 75, 200, 500, 1000 and 2000 grams per hr.

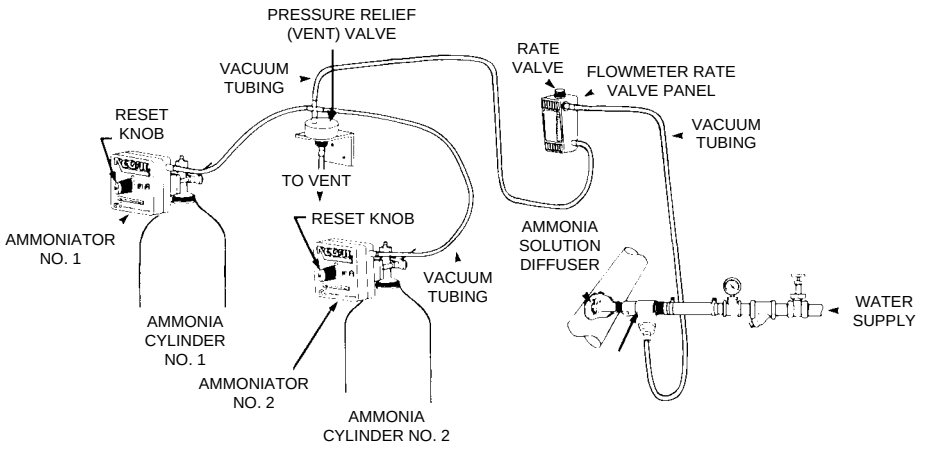
FLOW RATE ADJUSTMENT

Manually adjustable by means of a flow rate control valve located at the top of the flow meter/rate valve panel.

MATERIALS OF CONSTRUCTION

All materials used in REGAL gas ammoniators have been carefully chosen for their excellent corrosion-resistant, ultra-violet-resistant properties plus their ability to withstand stresses far greater than will be encountered in actual use.

REGAL MODEL 316
VACUUM OPERATED, AUTOMATIC SWITCHOVER GAS AMMONIATOR



OPERATION

The ammoniators are clamped onto the ammonia cylinder valves. The ejector assembly is normally attached to the solution diffuser at the point of injection. A vacuum line is connected from each cylinder unit to the wall-mounted, pressure-relief (vent) valve, and a single vacuum line connects the outlet of the valve to a wall-mounted, flow-meter/rate valve panel. The ejector is connected to the rate valve panel with a single vacuum line.

Water, under pressure, is forced through the ejector nozzle which creates a strong vacuum in the ejector body. This pulls gas into the ejector through a special back-flow check valve and then into the nozzle outlet. The gas mixes with the ejector water and is discharged through the diffuser into the water being treated. The ejector vacuum is transmitted through the vacuum line to the rate valve and the flow meter; then through the connector on the pressure-relief (vent) valve and on to the back of the operating ammoniator diaphragm. With sufficient vacuum, the diaphragm moves backward, opening the spring-loaded inlet regulating valve to allow ammonia to enter from the cylinder. The ammonia passes through the ammoniator, the pressure-relief (vent) valve connector and the flow rate indicating meter/flow rate adjusting valve to the ejector.

When the operating cylinder starts to run out, the vacuum starts to build up in the system causing the diaphragm of the ammoniator on "stand-by" to be drawn back, overcoming a detent mechanism and opening the safety/inlet valve. This allows ammonia gas to be withdrawn from the "stand-by" cylinder to satisfy the increased system vacuum and the vacuum falls back to the operating level.

The original supply cylinder also continues to feed until it is empty, virtually assuring that there will be no interruption of ammoniation and that full use will be made of all available ammonia. This also reduces the possibility and risk of returning cylinders with some remaining gas to the supplier.

SPECIFICATIONS

The ammoniator system shall be a vacuum-operated, solution-feed type and shall automatically switch the ammonia supply from an empty cylinder to a full cylinder. It shall be REGAL Model 316 manufactured by Chlorinators Incorporated, Stuart, Florida, and shall have a maximum capacity of 100 lbs./ 24 hrs. (2000 gms/hr).

The Model 316 Vacuum-Operated Automatic Switchover Chlorinator shall consist of the following components: Two (2) automatic switchover vacuum regulators for mounting directly on ammonia gas cylinder valves, one (1) pressure-relief (vent) valve, one (1) ammonia gas flow meter panel with rate valve, & one (1) ejector/check valve assembly.

The vacuum regulators shall mount directly onto the cylinder valve by means of a positive yoke type clamp having an integral tightening screw with slide bar handle. The main vacuum-regulating diaphragm of each ammoniator shall have a minimum operating area of 13 sq. inches in order to achieve required accuracy and repeatability of the set ammonia flow rate. All metallic bolts shall mate with metallic threaded nuts or inserts. Plastic mating threads for metallic bolts shall not be acceptable.

Each ammoniator vacuum regulator shall have its own diaphragm, safety-shutoff/inlet valve and switchover detent mechanism, thereby, allowing ammoniation to continue should it become necessary to remove either vacuum regulator from service for cleaning or servicing. Switchover detent mechanism shall be made of corrosion-resistant materials and shall not require any field adjustment.

SEE CONTENTS GUIDE 310 OR 316 FOR STANDARD ACCESSORIES AND SHIPPING WEIGHTS.