REGAL® GAS SULPHONATOR

MODELS 710/720/750

SINGLE CYLINDER/ TON CONTAINER GAS SULPHONATOR

The principal use of the REGAL Gas Sulphonator is to de-chlorinate water, wastewater and industrial process water with sulfur dioxide. REGAL Sulphonators are based on the same simple, efficient design that has made REGAL Gas Chlorinators the industry standard. Built with heavy duty corrosion resistant parts, REGAL Sulphonators provide safe, long-lasting service.

The REGAL Sulphonator is a vacuum-operated, solution feed type, designed for mounting directly on a sulfur dioxide cylinder valve by means of a positive heavy duty yoke clamp. The sulfur dioxide flow rate is manually adjusted and is regulated by a spring opposed diaphragm regulator which also contains the safety shut-off valve. Vacuum is provided by a highly efficient water operated ejector which is close coupled with the sulfur dioxide solution diffuser. The ejector assembly contains a back flow check valve.

APPLICATIONS

- Taste and odor control
- Destruction of yeast fungus on grapes
- Bleaching of cloth
- Pulp/paper treatment
- Chrome-plating
- Wastewater reduction
- Cooling tower blowdown using chrome-based corrosion inhibitors
- Food and beverage processing
- Leather tanning
- Petroleum processing
- Ore refining
- Smelting
- Metallurgical operations

FEATURES

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

CAPACITIES

Dual scale metering tubes are provided with the following maximum capacities. Minimum feed rate is 1/20th of maximum.

Model 710 - 4, 10, 25, 50 or 100 PPD (75, 200, 500, 900 or 2000 gms/hr)

Model 720 - 200 PPD (5kg/hr)

Model 750 - 500 PPD (10 kg/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 the potential for "water hammer" in high pressure on-off systems and special booster pump considerations, it is recommended that a factory representative, or Chlorinators Incorporated be consulted regarding installation details on systems over 100 psig (7 kg/cm^2).

The amount of water required to operate the ejector depends upon the sulfur dioxide feed rate, water back pressure and water supply pressure available. Generally, the higher the sulfur dioxide flow and higher back pressure the greater the water flow is needed.

OPERATION

The sulphonator is clamped on the sulfur dioxide 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 sulphonator 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 sulfur dioxide to enter from the cylinder.

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

SPECIFICATIONS

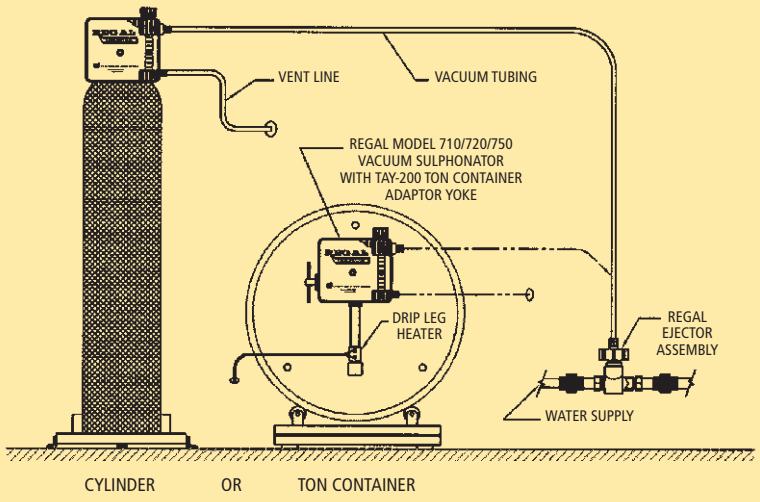
The Sulphonator(s) shall be of the REGAL Model 700 Series manufactured by Chlorinators Incorporated located in Stuart, Florida with capacities ranging from 4 to 500 lbs/24 hours (PPD). It will be a vacuum operated solution feed type and mount directly on the sulfur dioxide cylinder valve by means of 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.

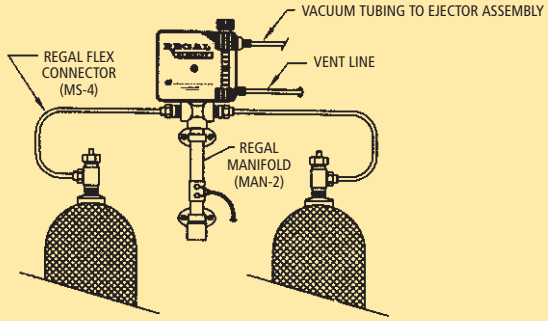
The inlet safety shut-off/vacuum regulating valve shall be of capsulated construction, easily removable as a unit from the outlet side of the yoke for ease of inspection, cleaning or maintenance.

Vacuum shall be created by an ejector assembly connected directly to the sulfur dioxide solution diffuser. The assembly shall consist of a single piece venturi-recovery throat to prevent misalignment; 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.

REGAL MODEL 710/720/750
SINGLE CYLINDER/TON CONTAINER SULPHONATORS



REGAL MODEL 710/720/750
WALL MOUNTED MANIFOLD SYSTEM



CONTENTS GUIDE

1 each Model 710, 720 or 750 Vacuum Regulator with 3/8", 1/2" or 5/8" Vent and Vacuum Fittings respectively

1 each A-920S, 922S or 925S HIGH Pressure Ejector Assembly (or A-921S, A-923S or A-926S Low Pressure Ejector Assembly) including Nozzle, High or Low Pressure Check Valve, Spray Diffuser and appropriately sized Vacuum Fitting

25' VT-1, VT-2 or VT-3 Vent and Vacuum Tubing

10 each G-201 Lead Cylinder Gaskets

1 each Z-296 Rate Valve Tool

1 each Z-297 Vent Line Bug Screen

Approximate Shipping Weight: 8-10 lbs

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REGAL® GAS SULPHONATOR

MODELS 716/726/756

AUTOMATIC SWITCHOVER GAS SULPHONATOR

The principal use of the REGAL Gas Sulphonator is to de-chlorinate water, wastewater and industrial process water with sulfur dioxide. REGAL Sulphonators are based on the same simple, efficient design that has made REGAL Gas Chlorinators the industry standard. Built with heavy duty corrosion resistant parts, REGAL Sulphonators provide safe, long-lasting service.

The REGAL Automatic Switchover Gas Sulphonator is a totally vacuum-operated system which is designed to automatically switch the sulfur dioxide 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, sulphonation can be continued. The sulphonators are of the vacuum-operated solution-feed type, designed for mounting directly on a sulfur dioxide cylinder valve. The switchovers are self-actuating, eliminating the need for a separate switchover module. 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. Sulfur dioxide 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 sulfur dioxide supply from the cylinder. A pressure relief valve designed to "vent" the system also provides a central interconnection point for the vacuum tubing.

APPLICATIONS

- Taste and odor control
- Destruction of yeast fungus on grapes
- Bleaching of cloth

FEATURES

- System Back-up – Each cylinder's sulphonator has its own vacuum regulating diaphragm and safety/inlet valve insuring that sulphonation can be continued if service should be required on either sulphonator.
- 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 sulphonator and the flow meter/rate valve panel cannot be seen.

CAPACITIES

Dual scale metering tubes are provided with the following maximum capacities. Minimum feed rate is 1/20th of maximum.

Model 716 - 4, 10, 25, 50 or 100 PPD (75, 200, 500, 900 or 2000 gms/hr)

Model 726 - 250 PPD (5kg/hr)

Model 756 - 500 PPD (10 kg/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.

OPERATION

The sulphonators are clamped onto the sulfur dioxide 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 connector 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 sulphonator diaphragm. With sufficient vacuum, the diaphragm moves backward, opening the spring-loaded inlet regulating valve to allow sulfur dioxide to enter from the cylinder. The sulfur dioxide passes through the sulphonator, the pressure-relief (vent) valve connector and the flow rate indicating meter/flow rate adjusting valve to the ejector.

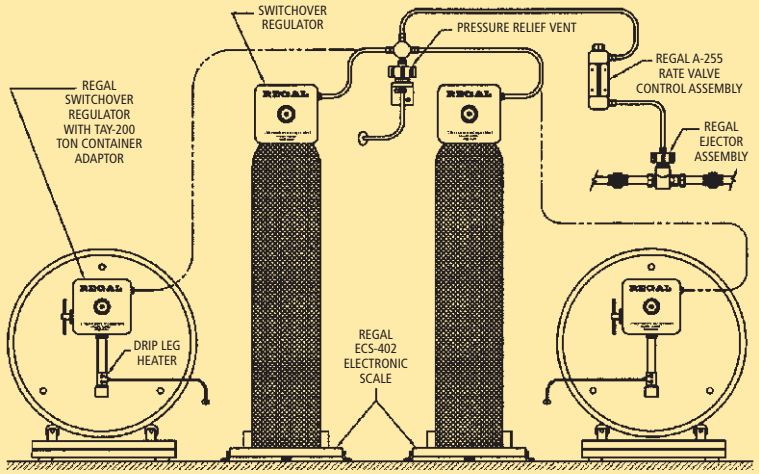
When the operating cylinder starts to run out, the vacuum starts to build up in the system causing the diaphragm of the sulphonator on "stand-by" to be drawn back, overcoming a detent mechanism and opening the safety/inlet valve. This allows sulfur dioxide gas to be withdrawn from the "stand-by" cylinder 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 sulphonation and that full use will be made of all available sulfur dioxide. This also reduces the possibility and risk of returning cylinders with some remaining gas to the supplier.

SPECIFICATIONS

The sulphonation system shall be a vacuum-operated, solution-feed type and shall automatically switch the sulfur dioxide supply from an empty cylinder to a full cylinder. It shall be REGAL Model 700 Series manufactured by Chlorinators Incorporated, Stuart, Florida with capacities ranging from 4 to 500 lbs/24 hours (PPD).

REGAL MODEL 716/726/756
SWITCHOVER GAS SULPHONATORS



SPECIFICATIONS

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 sulphonator shall have a minimum operating area of 13 sq. inches in order to achieve required accuracy and repeatability of the set sulfur dioxide flow rate. All metallic bolts shall mate with metallic threaded nuts or inserts. Plastic mating threads for metallic bolts shall not be acceptable.

Each sulphonator vacuum regulator shall have its own diaphragm, safety-shutoff/inlet valve and switchover detent mechanism, thereby, allowing sulphonation 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.

CONTENTS GUIDE

2 each Model 716, 726 or 756 Switchover Vacuum Regulators with 3/8", 1/2" or 5/8" Vacuum Fittings respectively. Flowmeter and Rate Valve are on Remote Meter Panel.

1 each A-255S, 7500-250 or 7500-500 Remote Meter Panel with appropriately sized Vacuum Fittings (for wall mounting)

1 each A-300SV1, A-300SV2 or A-300SV3 Pressure Relief (VENT) Valve with appropriately sized Vacuum and Vent Fittings and Wall Mounting Bracket

1 each A-920S, 922S or 925S HIGH Pressure Ejector Assembly (or A-921S, A-923S or A-926S Low Pressure Ejector Assembly) including Nozzle, High or Low Pressure Check Valve, Spray Diffuser and appropriately sized Vacuum Fitting

50' VT-1, VT-2 or VT-3 Vent and Vacuum Tubing

10 each G-201 Lead Cylinder Gaskets

1 each Z-296 Rate Valve Tool

1 each Z-297 Vent Line Bug Screen

Approximate Shipping Weight: 17-21 lbs.

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