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, gas feed system which utilizes a gas regulator mounted directly to a sulfur dioxide cylinder valve by means of a positive heavy duty yoke clamp. The regulator contains an internal spring-opposed diaphragm assembly designed to automatically open (or close) a built-in safety shut-off valve. Once sufficient vacuum is applied to the system, the safety valve opens, thus allowing the sulfur dioxide (SO_2) gas to flow through the system. The vacuum needed to operate the system is created inside the Ejector Assembly by pressure-feeding water into a specially designed nozzle coupled to a diffuser inside the ejector body. As the nozzle creates the vacuum, the gas is mixed with water to form the solution. A back-flow check valve is incorporated into the ejector assembly to reduce the possibility of water entering the system via the vacuum tubing.

The gas feed rate is controlled via a manually adjustable rate valve and metering tube integrated into the vacuum regulator. The gas feed will automatically turn on and off in conjunction with the ejector water supply and the pre-set feed rate will return to the same level whenever the system is running.

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 - 250 PPD (5 kg/hr)

Model 750 - 500 PPD (10 kg/hr)

EJECTOR REQUIREMENTS

The standard ejector is designed to withstand static back pressure up to 200 psig (14.1 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. Generally, the higher the sulfur dioxide flow and higher back pressure, the greater the water flow required.

OPERATION

The sulphonator is clamped on the sulfur dioxide cylinder valve. The ejector assembly is attached to the solution diffuser at the point of injection. A vacuum line provided connects the ejector to the sulphonator.

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

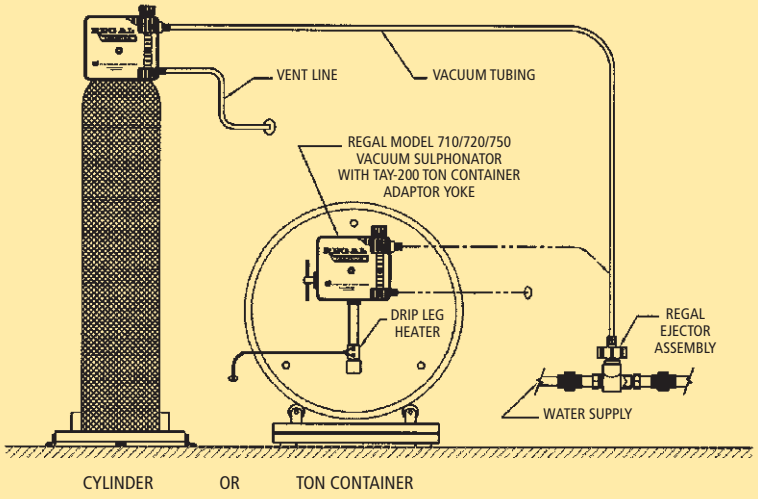
The Sulphonator(s) shall be of the REGAL Model 700 Series manufactured by Chlorinators Incorporated located in Stuart, Florida with capacities ranging from 4 to 500 lbs/24 hours (PPD). It will be a vacuum operated solution feed type and mount directly on the sulfur dioxide cylinder valve by means of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

All metering and flow adjusting shall be incorporated in the sulphonator regulator.

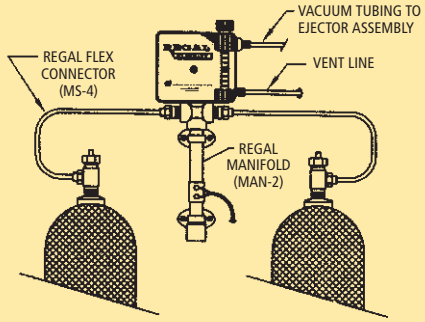
The inlet safety shut-off/vacuum regulating valve shall be of capsulated construction, easily removable as a unit from the outlet side of the yoke for ease of inspection, cleaning or maintenance.

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; and a back flow check valve to prevent water from entering the gas system.

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

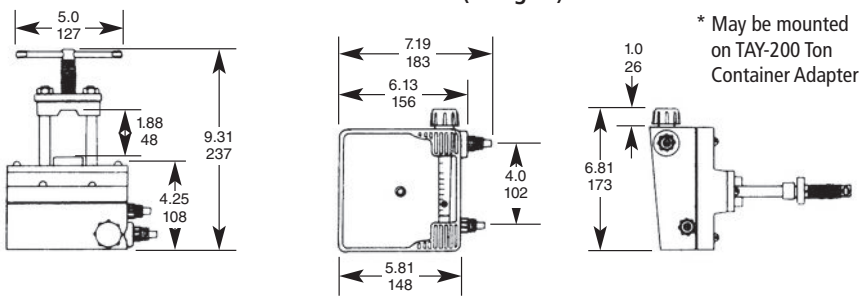


REGAL MODEL 710/720/750
WALL MOUNTED MANIFOLD SYSTEM



VACUUM REGULATOR DIMENSIONS

Vacuum Regulator Cylinder or Manifold Mounted*
UP TO 500 PPD (10 Kg/Hr)



* May be mounted on TAY-200 Ton Container Adapter

CONTENTS GUIDE

1 each Model A-710, A-720 or A-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 Fittings

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

REGAL®
GAS SULPHONATOR

MODEL 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 designed to provide continuous operation by automatically switching the sulfur dioxide gas feed from one cylinder (or ton container) to another. The sulphonator switchover regulators are designed to be direct mounted on a sulfur dioxide cylinder valve by means of a positive, heavy duty yoke clamp. The regulators are also self-actuating which eliminates the need for a separate, remote switchover mechanism. By means of an internal, spring-opposed diaphragm assembly, the regulator(s) automatically opens the built-in safety shut-off valve, allowing the gas to flow through the system. When starting the system up, one cylinder is activated and the second cylinder is placed in "stand-by". Once the first cylinder reaches the empty state, the vacuum increases, forcing the regulator on the second cylinder to automatically open the safety shut-off valve and allow the gas to flow.

The vacuum needed to operate the system is created inside the Ejector Assembly by pressure-feeding water into a specially designed nozzle coupled to a diffuser inside the ejector body. As the nozzle creates the vacuum, the gas is mixed with water to form the solution. A back-flow check valve is incorporated into the ejector assembly to reduce the possibility of water entering the system via the vacuum tubing.

A manually operated, remote control valve and metering tube are used to adjust the gas feed rate. The rate valve is connected with vacuum tubing between the pressure relief valve (vent) junction and the ejector assembly at a location convenient for the operator. The pressure relief valve is designed to allow, if necessary the system to safely "vent" to an outside location.

NOTE: The REGAL Sulphonator switchover system may also be used as "Backup" to provide standard, single cylinder operation should one of the regulators need to be serviced.

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.

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 (5 kg/hr)

Model 756 - 500 PPD (10 kg/hr)

EJECTOR REQUIREMENTS

The standard ejector is designed to withstand static back pressure up to 200 psig (14.1 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 required.

OPERATION

The sulphonators are clamped onto the sulfur dioxide cylinder valves. The ejector assembly is attached to the solution diffuser at the point of injection. A vacuum line is connected from each regulator 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 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

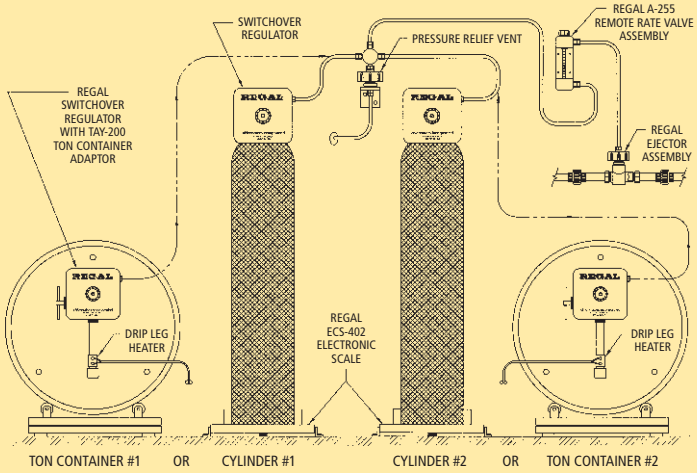
The sulphonation system shall be a vacuum-operated, solution-feed type and shall automatically switch the sulfur dioxide supply from an empty cylinder to a full cylinder. It shall be REGAL Model 700 Series manufactured by Chlorinators Incorporated, Stuart, Florida with capacities ranging from 4 to 500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

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. All metallic bolts shall mate with metallic threaded nuts or inserts. Plastic mating threads for metallic bolts shall not be acceptable.

SPECIFICATIONS (continued)

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.

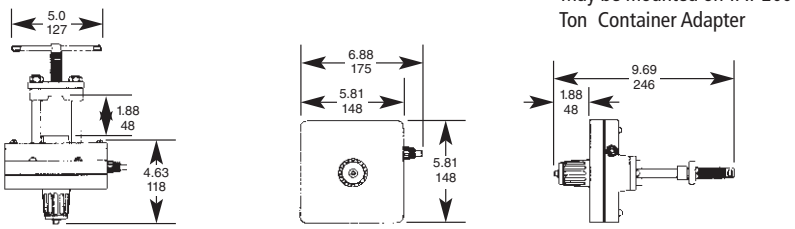
REGAL MODEL 716/726/756
SWITCHOVER GAS SULPHONATORS



VACUUM REGULATOR DIMENSIONS

Automatic Switchover Vacuum Regulator Cylinder or Manifold Mounted*
UP TO 500 PPD (10 Kg/Hr)

* May be mounted on TAY-200 Ton Container Adapter



CONTENTS GUIDE

2 each Model A-716, A-726 or A-756 Switchover Vacuum Regulators with 3/8", 1/2" or 5/8" Vacuum Fittings respectively.

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 Fittings

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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