Chemical Injection Technologies

Product/Specification Bulletin

SUPERIOR® Automatic Switchover Gas Chlorinator, Series CL-16 Direct Cylinder Mounted - All Vacuum

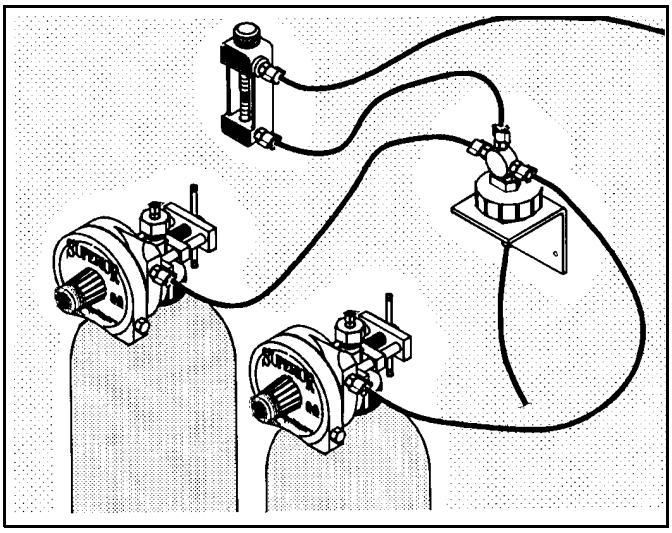
GENERAL DESCRIPTION

The SUPERIOR® Series CL-16 Automatic Switchover Gas Chlorinator is a state-of-the-art, totally vacuum-operated system designed to automatically switch chlorine feed from an empty cylinder to a full cylinder. The Series CL-16 allows round-the-clock chlorination without being concerned about running out of chlorine when the system is unattended. Series CL-16 chlorinators are of the vacuum-operated solution feed type designed to mount directly on chlorine cylinder valves. Two vacuum regulators, each containing an integral and independent latching mechanism, are mounted directly onto two chlorine cylinder valves. A chlorine gas flow meter panel indicates the amount of chlorine being fed and may be located wherever it is safest and most convenient.

Chlorine 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 chlorine gas flow rate and also acts as the safety shut-off valve.



FEATURES

The SUPERIOR® Series CL-16 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.

2. All molded parts are fiber-glass reinforced ABS plastic, designed for superior strength, warp-resistance and chlorine resistance.

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

4. All external bolts and nuts are Titanium for complete corrosion resistance..a SUPERIOR® exclusive.

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

6. Easier to service and perform routine maintenance, with standard size wrench lugs provided on all screwed-together ejector parts.

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

8. "Dual-pressure" check valve is standard on all SUPERIOR® gas Chlorinators. 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.

9. Built-in switchover "detent" mechanism in each regulator requires no field adjustment, and allows operator to easily designate the standby and operating cylinders.

10. All SUPERIOR® gas chlorinators carry a 3-year limited warranty, in addition to a lifetime warranty on 4 vital parts: main diaphragm, springs, inlet adaptor and body bolts.

11. Fewer parts, combined with superior materials and a superior design gives you a superior gas chlorinator.

FLOW METER CAPACITIES

SUPERIOR's modular design concept allows the chlorine gas indicating meter and flow rate control valve to be located wherever it is most convenient for the operator, and also in the safest location. 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 chlorine 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.

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® Gas Chlorinators to withstand attack by chlorine in any form and to give the longer operational life. Many parts are *guaranteed for the life of the equipment* against chlorine damage.

SYSTEM OPERATION

The automatic switchover vacuum regulators are securely clamped onto the chlorine cylinder valves. Vacuum tubing connects each regulator to the wall mounted pressure relief/vent valve which also serves as an interconnecting point for the vacuum tubing. A single piece of vacuum tubing connects the pressure relief valve to the wall mounted remote meter tube/rate valve panel. The ejector is connected to the remote meter panel with a single piece of vacuum tubing.

Water under pressure flows through the ejector at high velocity causing a strong vacuum to be created. This opens the check valves in the ejector assembly and transmits a vacuum signal through the remote meter tube/rate valve panel, back to the vacuum regulators. When the vacuum reaches a pre-set level, the diaphragm in the regulator moves, opening the chlorine inlet safety valve, and permits gas to flow from the chlorine cylinder. The spring-opposed diaphragm and inlet valve regulate the vacuum at this point.

Chlorine gas passes through the regulator, pressure relief valve connector, remote 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.

When the chlorine supply is depleted in one source, vacuum starts to increase in the system. This causes the diaphragm in the "stand-by" regulator to be pulled back, overcoming the detent mechanism and opening the inlet/safety valve. Chlorine gas is then withdrawn from the "stand-by" cylinder to satisfy the increased system vacuum and the vacuum returns to the operating level. The empty cylinder is replaced at the operator's convenience, and the regulator then placed on "stand-by".

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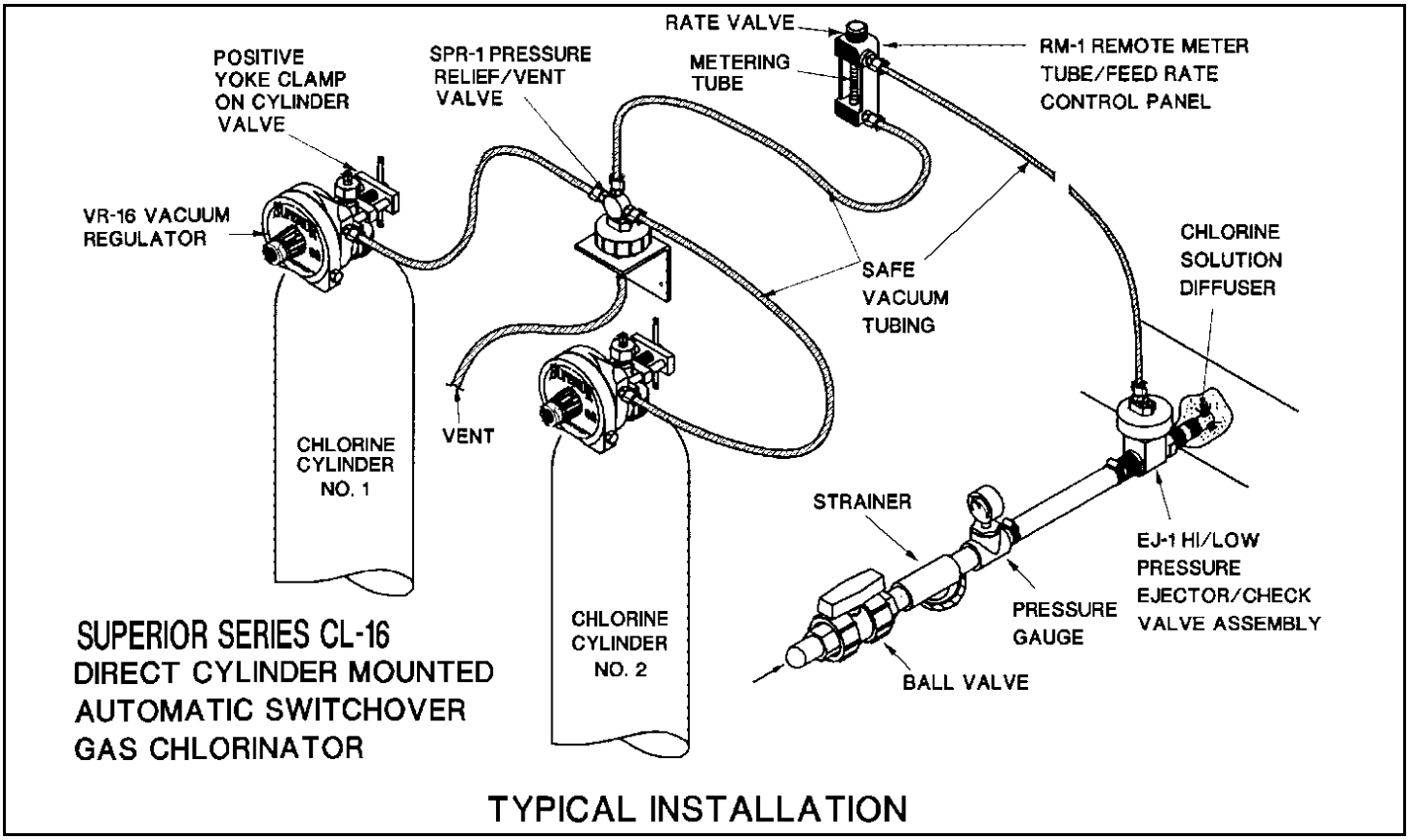

TYPICAL INSTALLATION

SPECIFICATIONS

The chlorinator shall be SUPERIOR® MODEL CL-16 manufactured by Chemical Injection Technologies, Inc., Ft. Pierce, Florida, and shall have a maximum capacity of _____ pounds per day (gr/hr)of chlorine feed and shall be equipped with a chlorine flow meter of _____ pounds per day (gr/hr).

The chlorinator shall be of modular design consisting of two (2) automatic switchover vacuum regulators, one (1) pressure relief/vent valve, one (1) flow meter/rate valve panel, and one (1) ejector/check valve. Each of these assemblies shall be capable of being individually located wherever safety and/or operator convenience dictates.

The vacuum regulators shall mount directly on the chlorine cylinder valves 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 chlorine valve. The chlorine valve/chlorinator inlet adaptor shall be constructed of corrosion-proof fluoroplastic material which shall be inert to the effects of wet, dry or liquid chlorine. 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. All external screws and nuts shall be made of Titanium to prevent corrosion.

Each automatic switchover vacuum regulator shall contain it's own built-in diaphragm detent mechanism, which shall be made entirely of non-metallic corrosion resistant materials. The detent mechanism shall be factory pre-set and shall not require any field adjustment. The reset knob shall be designed to automatically "ratchet" into free turning mode after the regulator has been reset, allowing no further forward pressure to be applied to the detent mechanism shaft without regard to further turning of the knob.

The flow meter/rate control valve panel shall be capable of mounting wherever it is safest and most convenient for operating personnel. The panel 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 chlorine. The rate valve metering tip shall be constructed of fine, hard-drawn 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 chlorine 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 chlorine 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

50 ft. - Vent & vacuum tubing
20 - Lead cylinder connection gaskets
1 - Cylinder Wrench
2 - Vent insect screens

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

MULTIPLE-POINT GAS CHLORINATORS
200 POUNDS PER DAY (5 KG/HR)
500 POUNDS PER DAY (10 KG/HR)
GAS SULFONATORS (DECHLORINATOR)
AMMONIATORS
AUTOMATIC FLOW PROPORTIONING
AUTOMATIC RESIDUAL CONTROL

Chemical Injection Technologies, Inc.
835 Edwards Rd., Ft. Pierce, FL, 34982, USA
(772) 461-0666 Fax: (772) 460-1847
E-Mail: superior@chlorinators.com
www.chlorinators.com