Chemical Injection Technologies

Product/Specification Bulletin

SUPERIOR™ Gas Chlorinator Series CLP-1
Direct Cylinder Mounted - Pressure Feed Type

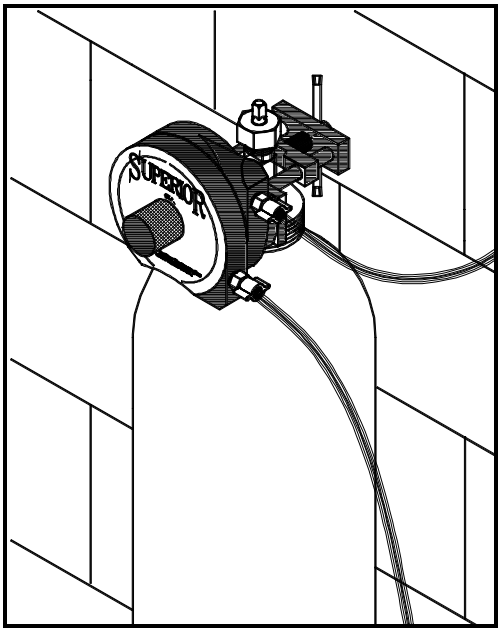
GENERAL DESCRIPTION

The SUPERIOR™ Model CLP-1 pressure feed gas chlorinator is designed specifically for use where there is no electric power available to operate a booster pump, or no pressurized water supply offering a sufficient pressure differential for a vacuum operated, solution feed chlorinator. The SUPERIOR™ Model CLP-1 clamps directly onto the chlorine cylinder valve with a positive yoke-type connection and is operated by the chlorine cylinder gas pressure to feed chlorine gas directly into water. The Model CLP-1 is manually controlled to feed chlorine gas directly into the water at a constant, greatly reduced pressure through plastic tubing which connects the chlorinator to a check valve/diffuser assembly located at the point of chlorine injection.

NOTE: Pressure feed type gas chlorinators are only recommended in installations where there is no electric power or sufficient water pressure differential available which would enable the use of a vacuum-solution feed chlorinator. All-vacuum systems are obviously safer than pressure feed systems and should be used whenever possible.

FEATURES

The SUPERIOR™ Series CLP-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. Chlorine 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 chlorine resistance.

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

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 chlorine gas.

5. 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.

6. All tube fitting holes are heavily reinforced to prevent the possibility of cracking from over-tightening.

7. PVDF 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.

8. LOW PRESSURE SAFETY - The SUPERIOR™ Model CLP-1 mounts directly onto the chlorine cylinder valve with an extremely strong yoke-type connector. Pressure is immediately reduced to 20 psig (1.46 kg/cm^2). This leaves no high pressure lines in which the gas could reliquify with sudden temperature drops.

9. ACCURATE - Model CLP-1 maintains the set chlorine feed rate regardless of fluctuations in chlorine cylinder pressure, or in pressure at the point of application up to 10 psig (.7 kg/cm^2).

10. EASILY INSTALLED - The Model CLP-1 can be fully installed and operational in a matter of minutes, in most cases. Changing cylinders is safe and easy since the chlorinator is simply moved from one cylinder to the next. No mounting or special housing is required.

APPLICATION

The SUPERIOR™ Model CLP-1 is designed to disinfect remote reservoirs, gravity type sewage systems, stream fed water supplies as well as other water and wastewater systems where water pressure and/or electricity do not exist. These pressure feed type gas chlorinators are also excellent for standby emergency use in water and sewage treatment plants.

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, 6, 15, 40, 75 and 100 pounds per 24 hours of chlorine gas, as well as 120, 280, 750, 1400, and 2000 grams per hour, respectively. All metering tubes are interchangeable and may be changed in the field without special tools

Due to the fact that chlorine gas pressure in the cylinder varies with changes in ambient temperatures, the maximum continuous chlorine feed rate will depend upon the lowest temperatures which may be encountered. The following chart shows anticipated continuous chlorine feed rates at various temperatures. If lower temperatures are anticipated, installation of the chlorine cylinder and Model CLP-1 chlorinator in an insulated housing will provide reasonably stable temperatures resulting in continuous chlorinator operation.

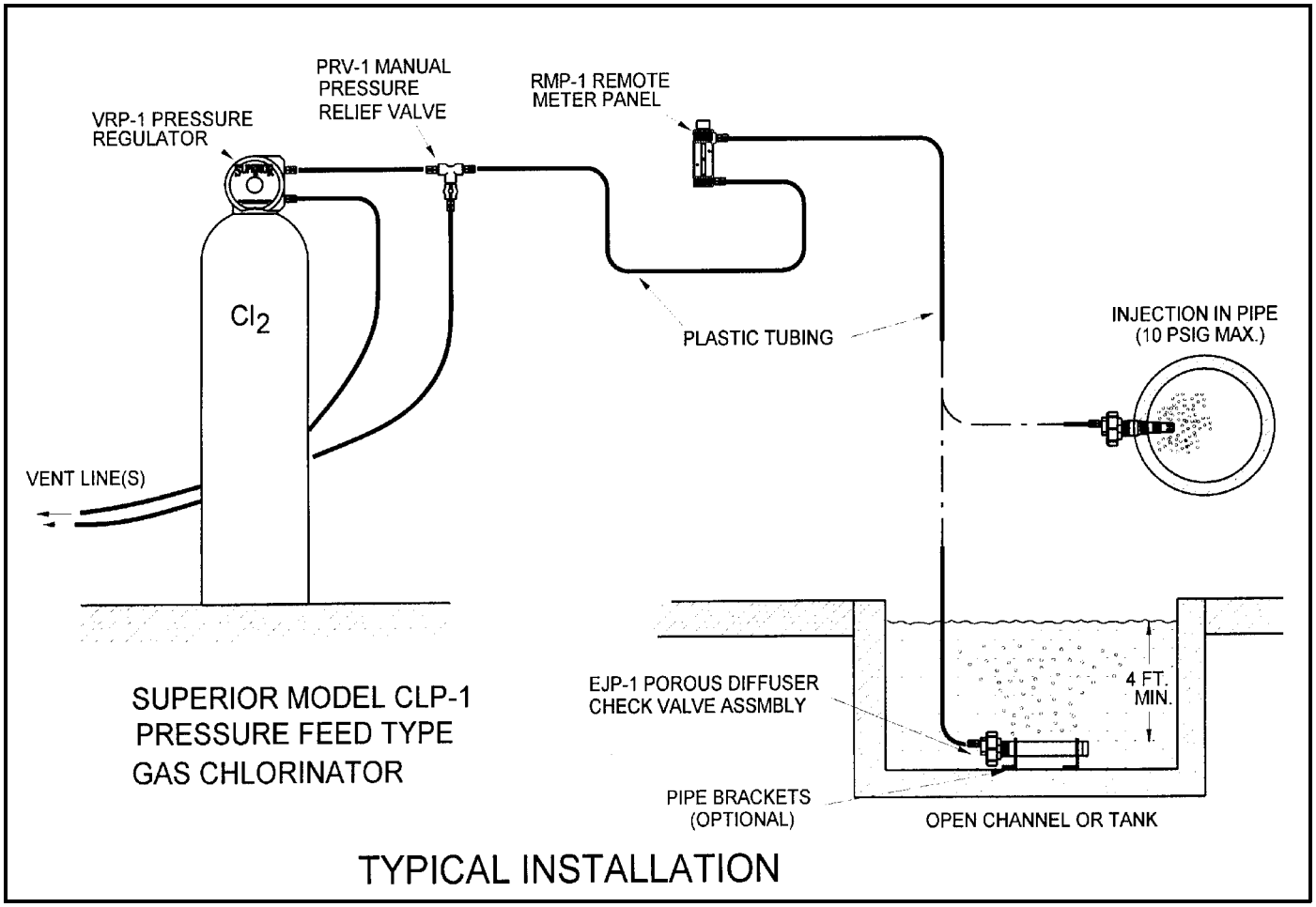
Chlorine Gas Flow Meters		Minimum Ambient Temperatures for Continuous Feed Rates	
PPD	Gr/Hr	^{0}F	^{0}C
6	120	23	-5.0
15	280	26	-3.0
40	750	36	2.0
75	1400	56	13.3
100	2000	75	24.0

MATERIALS OF CONSTRUCTION

All materials used in SUPERIOR™ Gas Chlorinators have been carefully chosen for their superior corrosion-resistant properties and their ability to withstand stresses far greater than will be encountered in actual use. Materials are completely corrosion resistant for wet or dry chlorine gas, chlorine solution, water or the acids of chlorine.

OPERATION

The chlorinator is clamped onto the chlorine cylinder valve. The check valve/diffuser assembly is located at the point of chlorine injection. High strength plastic tubing connects these two units with the metering panel. Chlorine gas cylinder pressure (75 to 90 psig - 5.3 to 6.3 kg/cm2 at room temperature) enters through the inlet valve. This pressure is reduced and controlled to 20 psig (1.4 kg/cm2) the gas then flows through the chlorine flowmeter where the position of the ball in the tube indicates the flow rate. The gas passes through a manually controlled rate valve. The chlorine gas then leaves the chlorinator and passes through a plastic tube to the check valve/diffuser assembly where the pressure of the gas opens the check valve. Gas then enters the water through either a highly porous, "bubbler" type diffuser in clear well or open channel applications, or through a plastic diffuser with finely drilled holes for low-pressure pipe-line injection.



SPECIFICATIONS

The chlorinator shall be SUPERIOR™ MODEL CLP-1 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 a pressure regulator, flow meter/rate valve panel, manual pressure relief valve, and diffuser/check valve assembly. Each of these assemblies shall be capable of being individually located wherever safety and/or operator convenience dictates.

The pressure regulator 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 pressure 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 chlorine. The inlet safety shut-off/pressure 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 pressure regulator inlet and shall be capable of removing impurities greater than 25 microns. An excess pressure relief valve shall be incorporated into the vacuum regulator to prevent pressure from building up in the system beyond the control setting. A manual pressure relief valve shall be located in the chlorine gas line between the pressure regulator and the metering tube panel. All external screws and nuts shall be made of Titanium to prevent corrosion.

The flow meter/rate control valve panel assembly shall be separate from the pressure regulator and check valve/diffuser assemblies and 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 pure silver. Design shall provide for full closing of the rate valve without engaging the control surfaces, to prevent damage.

The check valve/diffuser assembly shall prevent water from entering the gas system. The diffuser shall be constructed of a micro-fine porous ceramic material and will permit dispersion of fine gas bubles into the water being treated. The diffuser shall be of the _____type (open channel, or pipeline).

STANDARD ACCESSORIES

50 ft. - 3/8" Vent & vacuum tubing
10 - Lead cylinder connection gaskets
2 - 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 (For Vacuum Operation)

AUTOMATIC SWITCHOVER GAS CHLORINATORS
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

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