



Series 20 and 40 Gas Chlorinators

The Most Durable Chlorinators on the Market

- **Durability:** Hydro Gas Chlorination equipment is machined from solid blocks of material and designed with heavy wall thicknesses to prevent cracking and warping.
- **Fewer Parts:** Hydro Gas Chlorinators have fewer parts and are designed to be easier to repair.
- **Highest Quality Materials:** To compliment our durable design, Hydro equipment includes only the highest quality materials.
- Hydro Instruments Gas Chlorination equipment is built to last longer.



Principle of Operation

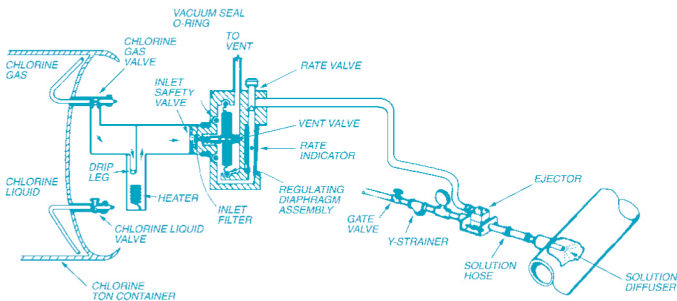
For a particular ejector back pressure, a minimum water supply is required at the ejector inlet to create vacuum at a level strong enough to operate the chlorinator. This vacuum originates in the throat of the ejector's Venturi nozzle and after opening the ejector check valve, extends into the body of the chlorinator. There it causes the regulating diaphragm to open the inlet safety valve, initiating gas flow. Upstream gas under pressure passes into the drip leg where the initial liquid is collected. A heater attached to the drip leg evaporates the liquid that is in the eduction tube of the gas valve on startup of a new ton container. This heater remains on constantly, permitting only gas to flow to the vacuum regulator. As it flows across the inlet safety valve assembly, it is filtered and reduced to a vacuum.

The gas then enters a chamber where the vacuum level is maintained by a spring-opposed, sealed regulating diaphragm. It is then drawn through the chlorine flow meter, across the rate control valve and on to the ejector where it dissolves in water. The resultant, highly concentrated solution exits at the ejector outlet and flows to the desired point of application.

All Vacuum System

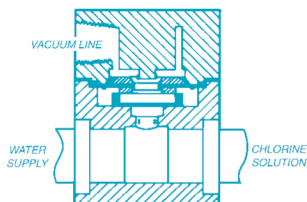
At the Inlet Safety Valve, the pressurized gas is reduced to a vacuum and remains at a vacuum throughout the Hydro equipment. Since the gas flows through the equipment at a vacuum, a breakage in the equipment will lead to air leaking in rather than gas leaking out. The Inlet Safety Valve is normally closed with a Tantalum spring and is only opened when a vacuum exists in the Chlorinator. Therefore any breakage or loss of vacuum will close the inlet safety valve. In the event of leakage of gas through the Inlet Safety Valve, the system is designed to discharge the leaking gas through a vent tube. This tube should be installed such that it carries the gas to a safe area and does not become blocked.

Specifications



Chlorinator Model 20 and Model 40

A vacuum operated regulator capable of feed rates in excess of 50 kg/hr (2,650 PPD). Loss of vacuum for any reason will close the Inlet Safety Valve. No feed rate control is available on the regulator. Feed rate control is accomplished with a remote meter.



Ejector EJ-20 and EJ-40

The venturi nozzle in the ejector creates the vacuum which draws the gas through the system. A specially designed, normally closed, spring opposed, check valve prevents backflow into the **Hydro** equipment. This check valve will allow the gas to enter the venturi chamber only with the presence of a vacuum.

CHLORINATOR SIZING SHOULD BE ON MAXIMUM POSSIBLE FLOW.

The following equation guides the sizing:

Imperial Units:

(GPM) Flow x 0.012 x (PPM) Dosage = (PPD) Feed

Metric Units:

(LPM) Flow x 0.060 x (PPM) Dosage = (gr/hr) Feed

Example:

Max Flow rate = 40,000 Gallons/minute (151,200 Liters/minute)

Max Dosage = 3 PPM

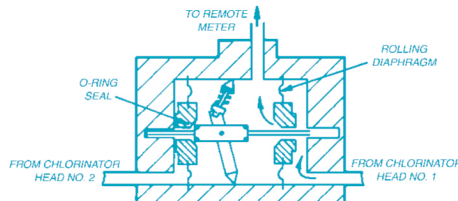
40,000 GPM x 0.012 x 3 PPM = 1,440 PPD

151,200 LPM x 0.06 x 3 PPM = 27,216 g/hr

In this example a Hydro 40 kg/hr (2,000 PPD) Chlorinator would be adequate.

Remote Meter RM-20 and RM-40

Hydro provides Remote Meters with capacities of 20 and 50 kg/hr (1000 PPD and 2,650 PPD). Each has an accuracy within 4% of full scale. Feed rate is manually controlled by adjustment of a solid silver rate valve in a Teflon seat.



Switchover Module SP-20 and SP-40

Multiple chlorine containers, which prolong the time span before depletion, are easily installed and automatically switch over from a depleted container to the unused container. A **Hydro** Chlorinator is installed on each container and only one Automatic Switchover is required to handle the two containers. The **Hydro** Automatic Switchover can be used with either one remote meter or with two or more remote meters. Use of this switchover module is a great time saver and is a great aid in assuring a more constant supply of chlorine. Once installed, the Hydro Automatic Switchover is completely automatic and needs no adjustment or setting.

Hydro Systems	Capacity
Series 20	1000 PPD (20 kg/hr)
Series 40	2000 PPD (40 kg/hr)

CHLORINE WITHDRAWAL RATE from Horizontal Ton Container

Maximum Chlorinator Withdrawal Capacity		Minimum Ambient Temperature	
PPD	gr/hr	°F	°C
500	10,000	40	4
250	5000	16	-9
150	3000	0	-18
100	2000	-6	-21
50	1000	-20	-29

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