

The Hydro Instruments Series LFOV Vacuum Feed Systems for Sodium Hypochlorite (NaOCl) provides reliable automatic delivery into a water stream. This system brings the reliability, low maintenance, and simplicity of a vacuum system to the delivery of Sodium Hypochlorite. Typical concentration strength is 12.5% to 15%.

Principle of Operation

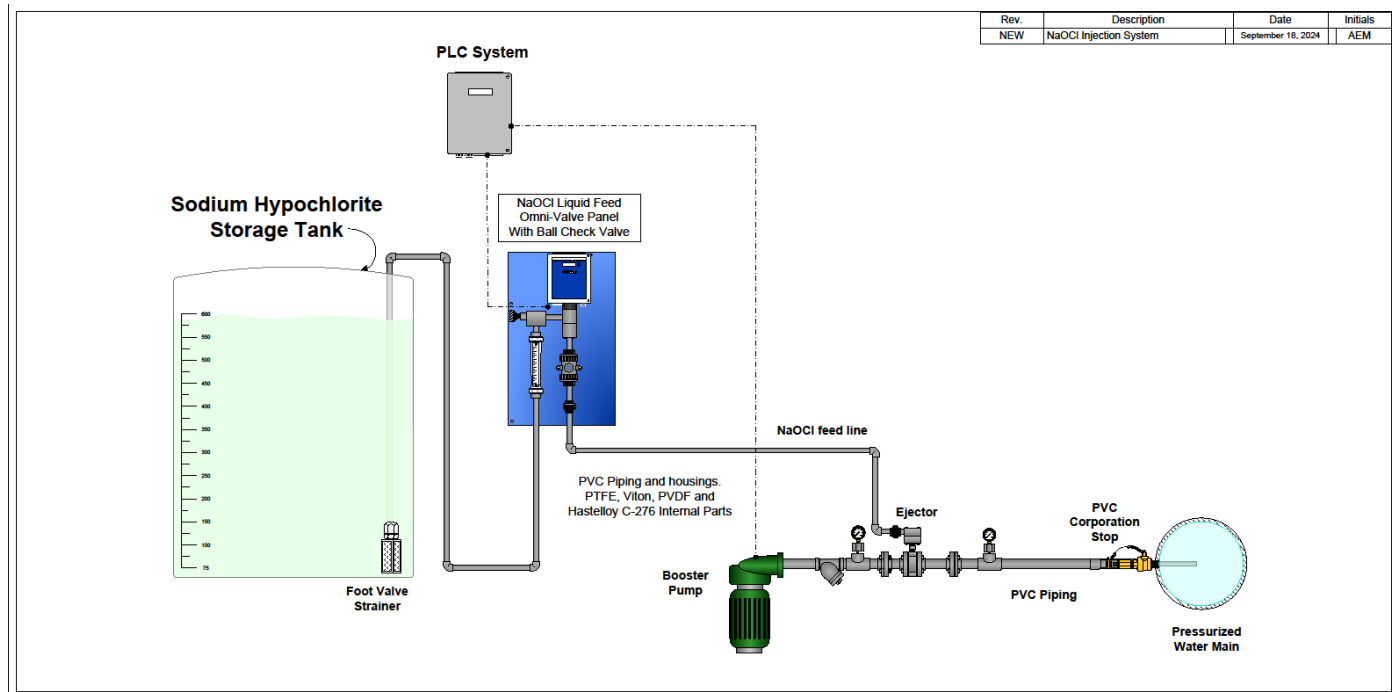
Water flow supplied to a Venturi nozzle in the Hydro Instruments ejector assembly creates a vacuum which draws the Sodium Hypochlorite from the storage tank. Feed rate is controlled with a v-notch and visually monitored with a chemical flow meter tube and controlled with a valve. Multiple check valves serve to prevent backflow of water into the storage drum.

The Omni-Valve includes a self-flushing feature, where it can be set to open fully and remain open for a period of time before returning to its feeding position. This is offered to periodically flush out any solid particles that could accumulate (especially in small feed rate applications).

Reliability & Safety of Vacuum Feed Systems

- Chemical flows under vacuum to avoid pressurized chemical leaks.
- Provides visual indication of actual chemical feed rate
- Simplified piping and reduced number of components/connections for low maintenance.
- Automatic feed rate control and self flushing feature for stable feed rate control

Sodium Hypochlorite vacuum liquid feed system



Sodium Hypochlorite system challenges and options

Sodium Hypochlorite tends to off gas (chlorine gas evaporates out of it into the air) and therefore the disinfectant strength of the solution weakens quickly over a period of days to weeks depending on ambient temperature. The storage tanks and equipment should be kept out of sunlight to minimize this problem and storage tanks should be sized so that the tanks will be emptied within about one week.

Sodium hypochlorite (NaOCl) can cause scaling in water treatment systems due to its high pH, which causes calcium and magnesium in the water to precipitate as carbonate scale. This can lead to pipe blockage or leakage, colored water, and other chemical stability issues. If the total hardness of the process water going through the ejector is less than 50 mg/L, then Sodium Hypochlorite can be feed without considerable scaling problems. However, at higher hardnesses the ejector water will need to be softened or else Hydrochloric Acid can be fed simultaneously into the same ejector to alleviate this potential problem of scaling.

For Sodium Hypochlorite and Hydrochloric Acid, an ejector with separate ports will be used to keep the two chemicals separated prior to entry into the water stream. Storage tank foot valves and secondary ball check valves are helpful to mitigate risk of the water back flooding or mixing of the two chemicals inside the equipment during shut down.

Consult Hydro Instruments for PVC piping, glue materials, sizing and guidance on system design considerations.

Sodium Hypochlorite feed system with HCl feed to avoid scaling.

