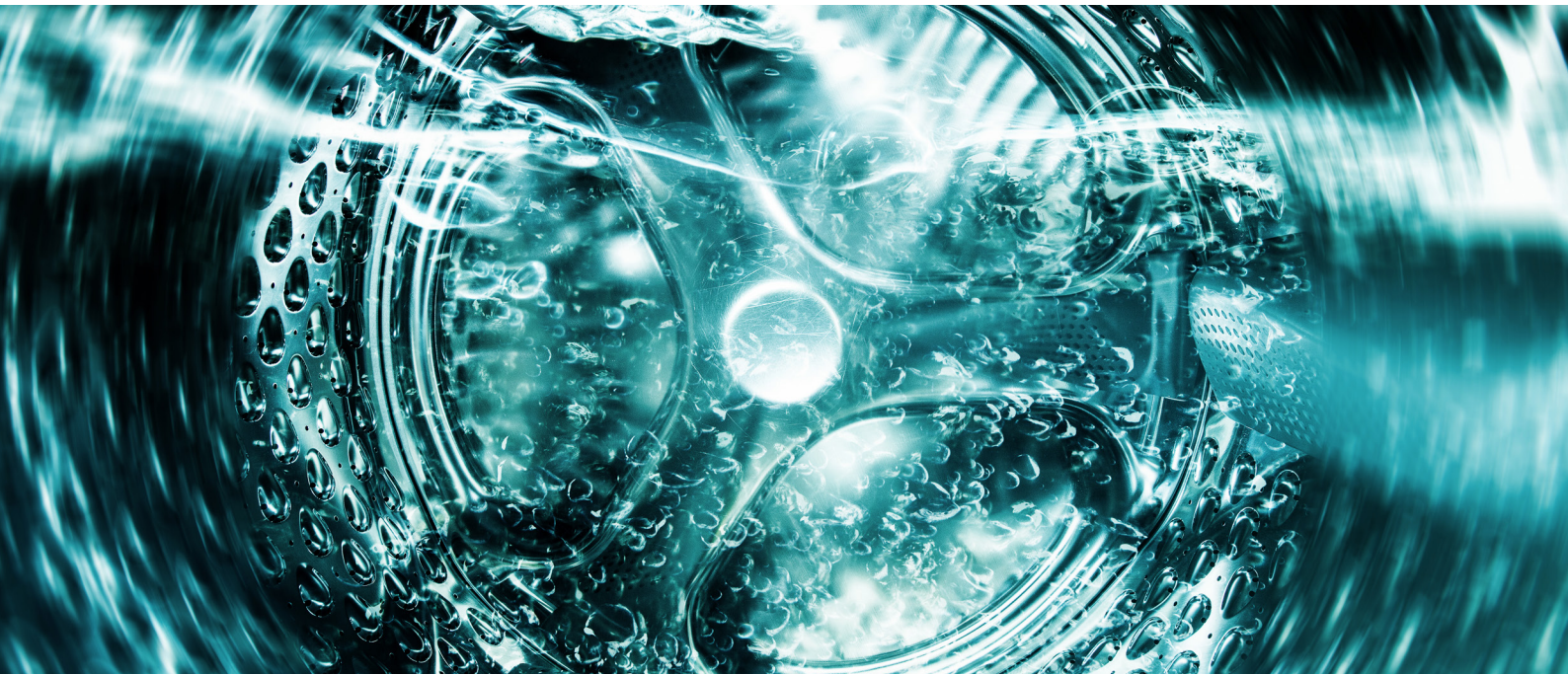


EvoClean

frequently asked questions



frequently asked questions

1. What is the EvoClean Venturi Laundry Dispensing System? How does it work?

EvoClean is Hydro's latest innovative dispenser for laundry operations, designed to enhance the accuracy of chemical delivery while reducing costly system maintenance. It is offered in a low-flow (18 oz./min. or 550 mL/min.) and high-flow (51 oz./min. or 1500 mL/min.) configuration. The product utilizes a series of venturi pumps, which operate by forcing pressurized water through a restriction to produce a repeatable and controlled vacuum.

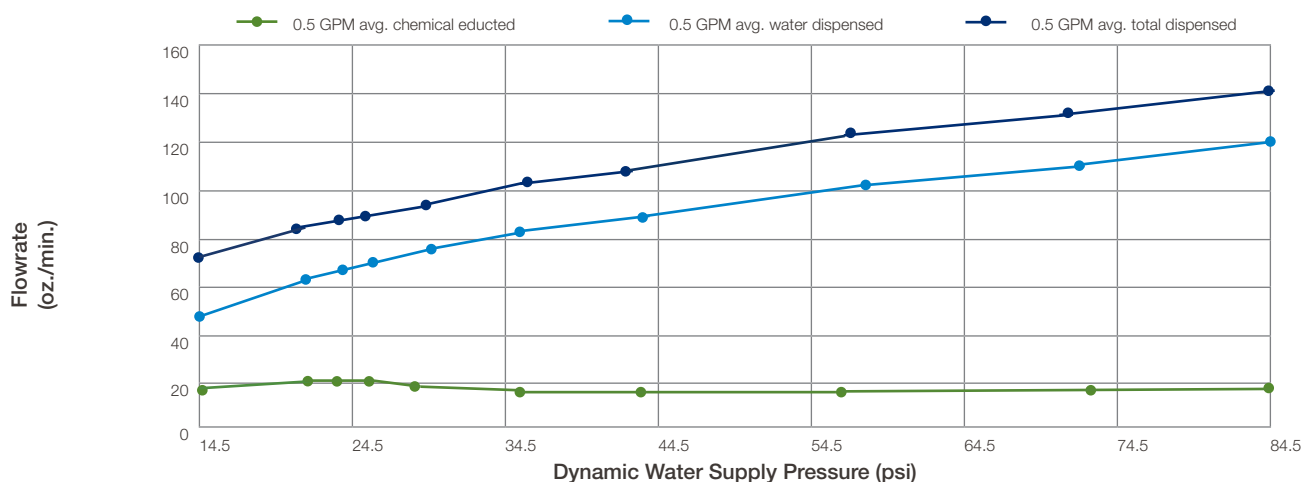


2. How does the water pressure affect the flow rate of the EvoClean?

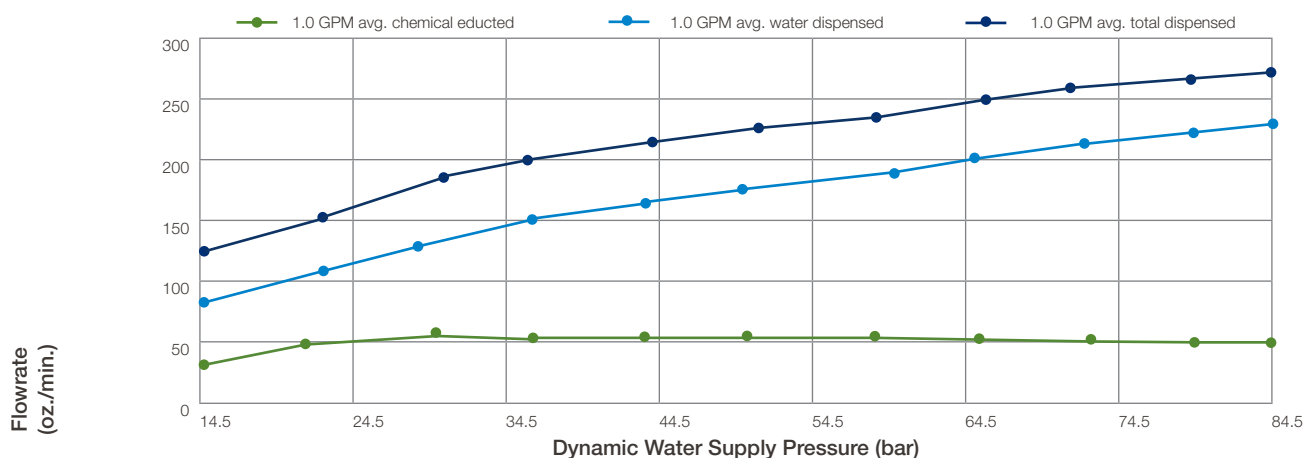
Per the below charts, when the water pressure is above the minimum level (26 psi or 1.8 bar for low-flow and 30 psi or 2.1 bar for high-flow), the vacuum/suction is consistent. Although the water flow will vary with pressure, the flow rate of the product does not change. Therefore, the dispense rate is very repeatable, regardless of the water pressure.

In some installations with multiple dispensers that tap into the same water supply, situations could arise where all dispensers are running at the same time, causing inadequate pressure. This is no different than scenarios that occasionally arise with flush manifolds. For such installations, a booster tank could be used to ensure there is adequate water pressure.

Flow Rate vs. Water Pressure for Low-Flow Educator



Flow Rate vs. Water Pressure for High-Flow Educator



frequently asked questions

3. Does EvoClean use more water than a traditional peristaltic or diaphragm laundry pump with a flush manifold?

In most cases, no. It actually uses less water as explained below. In addition, the washing machine will likely be filling with water while dosing occurs. In this case, the overall water usage is a function of the washer programming.

The EvoClean is currently offered in a low-flow or high-flow configuration with eductors sized to nominally deliver 0.5 gallons per minute (1.9 LPM) and 1.0 gallons per minute (3.8 LPM) respectively. This means that water delivered through the EvoClean dispenser is regulated versus flowing “wide-open” as it does in a flush manifold. Additionally, due to the configuration of the EvoClean, there is no need for a pre-flush period prior to dispensing.

Consider the example comparing water usage between an EvoClean and a traditional four-product laundry dispenser configured with a two-second pre-flush, flush while dispensing and post-flush of 20 seconds. In this example, the EvoClean actually uses 66% less water than the alternative solution.

	Traditional Pump and Flush Manifold	EvoClean - Low Flow System
Product Flow Rate of Dispenser*	18 oz./min. (532 mL/min.)	18 oz./min. (550 mL/min.)
Pre-Flush Time	2 sec.	NA
Post-Flush Time	20 sec.	20 sec.
Inlet Water Pressure	40 psi (2.75 bar)	40 psi (2.75 bar)
Flow Rate of Water	2.0 GPM (7.6 LPM)	0.69 GPM (2.6 LPM)
Detergent (6 oz) Dispense Time	20 sec.	20 sec.
Alkali (7 oz) Dispense Time	23 sec.	23 sec.
Sour (5 oz) Dispense Time	17 sec.	18 sec.
Softener (6 oz) Dispense Time	20 sec.	20 sec.
Total Cycle Dispense Time	168 sec.	161 sec.
Water Usage While Dispensing	5.6 gal. (21.2 L)	1.9 gal. (7.2 L)

*Note: For simplicity, all chemicals are assumed to flow at published reference flow rates. In reality, each chemical flow rate will vary, depending on a variety of factors including ambient conditions and product viscosity.

**Note: This value is taken from the vacuum profile graph with an inlet water pressure of 40 psi.

4. When does Hydro Systems recommend using the low-flow version of the Evoclean rather than the high-flow version?

This depends on the specific chemical concentrations, formulas and dispense amounts. However, a general rule of thumb is to use the low-flow eductor for any machine up to 110 lb. (50 kg). Larger machines should use the high-flow eductor.

Generally speaking, it is not recommended to connect multiple EvoClean systems as the dispensing solution for tunnel washers. Reporting from multiple EvoClean systems is very difficult to coordinate for a single tunnel, and delivery time may not be fast enough to maximize the contact time inside the tunnel. Instead, Hydro recommends the Dositec product offering for tunnel washers.

5. How does viscous chemical work with the Venturi tip within the dispenser?

There is no tip and very little restriction in the eductor. The dilution rate (water to chemical ratio) is not controlled like a normal bucket/bottle filling Venturi dispenser—the constant flow rate of product means it can be controlled by the time the water valve is open. The calibration of the unit adjusts for different chemical outputs that are encountered with chemicals of different viscosities.

frequently asked questions

6. Are the materials of construction compatible with my chemistry?

As part of the sales process, it is always recommended to perform chemical soak testing and/or field trial a small number of units with new customers. This is because it is impossible to validate all chemicals during the initial design process and each chemical manufacturer has different formulations that can change periodically.

With that said, the EvoClean manifold is constructed of polypropylene and the seals that contact the chemical in the manifold are AFLAS. The check valves are standard in the industry and are composed of either PVC or polypropylene. The ball in the check valve is made of PTFE and the spring is hastelloy. Finally, the seal in the check valve is available in EPDM or AFLAS.

Also with regards to chemical compatibility, it is important to properly utilize the flush settings so that the manifold and delivery hoses are properly flushed between dispenses. Doing so prevents concentrated chemicals from lingering and hastening chemical attack.

7. How does the power consumption of the EvoClean compare to that of a traditional peristaltic or diaphragm laundry pump?

The solenoids in the EvoClean consume considerably less power than AC or DC powered peristaltic or diaphragm laundry pumps. Although the power consumed is small in relative terms to a washer extractor, the savings can add up over the life of the dispenser. An illustrative example is provided below, in which the EvoClean uses 87% less electricity than the comparable peristaltic pump and 95% less than a comparable diaphragm pump. This results in significant savings over the life of the unit.

	Traditional Peristaltic Pump*	Traditional Diaphragm Pump*	EvoClean- Low Flow System
Number of Products	6 products	6 products	6 products
Pump Runtime per Product	2 min.	2 min.	2 min.
Current Consumption While Running	150 W	216 W	10 W
Loads per Day	15 loads	15 loads	15 loads
Price per KWH	\$0.12	\$0.12	\$0.12
Operating time	5 years	5 years	5 years
Daily KWH used	0.45 kWh	0.65 kWh	0.03 kWh
KWH used over Life	821.3 kWh	1182.6 kWh	54.8 kWh
Electrical Consumption Cost over Life	\$98.56	\$141.91	\$6.57

*Note: The peristaltic system in this example uses an AC motor with an 18 oz./min. flow rate. The example diaphragm pump uses AC current with a 50 oz./min. flow rate.

8. What keeps chemicals from being sucked up the wrong venturi and going back into the fresh water line or into the wrong chemical supply drum (i.e. backflow)?

Many laundries require protection of the main water supply against solid, liquid and vapor contamination for health and safety reasons. In most cases, this means installing a zone backflow prevention device prior to the water inlet to ensure a clean potable water source. Because of the differences in each laundry's plumbing, the EvoClean is similar to a flush manifold in that a backflow prevention device is typically installed on site by the end user.

With regards to mixing chemicals in the supply drums, each chemical inlet tube is fitted with an industry standard non-return valve to prevent this from happening. Additionally, product will not be dispensed if water flow stops or reverses direction.

frequently asked questions

9. How accurate is the EvoClean when compared to a traditional peristaltic or diaphragm laundry dispenser?

After its initial calibration, EvoClean will accurately and consistently deliver chemical over its entire installed life (in many cases within 1-2 mL) without the need for recalibrations. Because the unit does not use squeeze tubes or diaphragms that wear over time, it is also inherently a very low-maintenance system.

Accuracy of traditional dispensers can vary greatly depending on a number of variables, including the medium pumped and the squeeze tube used. On average, a Hydro dispenser with Hydro squeeze tubes can be serviced (tubes changed and recalibrated) once every six months. For some competitive units, we have seen degradation in delivery accuracy of 10%-20% in a period of weeks causing unpredictable maintenance, chemical delivery and laundry results.

10. What happens if water is turned off to the EvoClean?

Without water, the unit simply cannot dose, which prevents unwanted safety and performance issues that can arise with inadequate water flow. Although Hydro flush manifolds use a flow switch to achieve a similar effect, not all flush manifolds do.

11. How far will the EvoClean pump deliver chemicals?

There are many variables that can impact the delivery distance, notably the viscosity of the product being delivered, back pressure (caused by vertical climb), and water pressure. In making decisions, one should note the maximum flush time configurable in the controller. Generally, speaking a setting of 1 second of flush time for every 1 ft./0.3 meters is a good rule of thumb. Also, the EvoClean is designed to deliver into washers that are at atmospheric pressure. Back pressures that exceed 20% of the inlet pressure can cause the unit to operate inefficiently.

With all this said, Hydro has installation examples with a 35 m (about 115 ft.) run to the washer that dispense predictably and are providing great results.

12. What, if any, wear parts are there available for EvoClean? How often should they be changed?

Under normal conditions, the only parts that are likely to need maintenance are the check valves. These should be replaced annually. If there is aggressive chemistry present, every six months may be more appropriate. In areas with hard water, it may be necessary to replace or clean the eductors if the water is not softened.



Hydro Systems
3798 Round Bottom Rd.
Cincinnati, OH 45244

Phone 513.271.8800
Toll Free 800.543.7184
Fax 513.271.0160
Web hydrosystemsco.com