



Blue-White®

Multi-Diaphragm Pump Resists Vapor Lock, Loss of Prime & Leaks

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Chemical metering pumps are an important component in any water treatment system, and there are many types of pump technologies available, including the diaphragm pump. The use of diaphragm pumps is common in water treatment applications, and like all pump types, the diaphragm pump has its benefits and its drawbacks.

A diaphragm pump uses a flexible membrane, diaphragm, connected to a shaft which creates a separation between compressed air and the fluid being pumped. A motor connected to a cam creates a vacuum for suction, while the outward motion creates a discharge.

The diaphragm pump design is energy-efficient and over time, it generally costs less to operate than other pump types. They are commonly the pump of choice in high pressure installations, and with the proper material configuration, they can handle a wide range of liquids, although they work best with clear, stable chemicals.

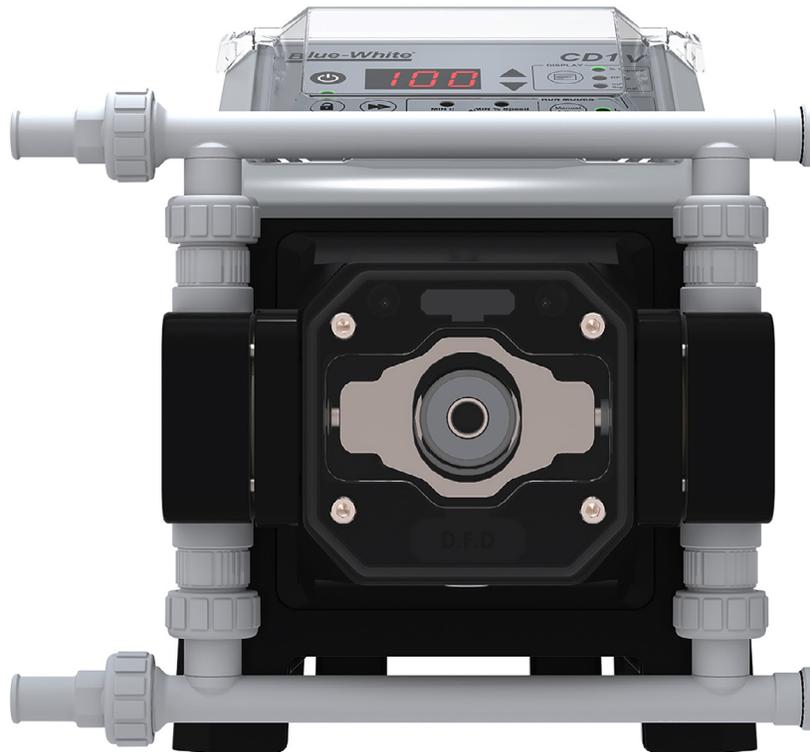
There are, however, some limitations when using diaphragm pumps. Operators must regularly clean and maintain the valves, and this can result in increased costs due to downtime and replacement parts. Liquids containing a high level of solids can clog the pump, leading to additional downtime.

Another challenge with diaphragm pumps can be that, although they operate well at high speeds, they can experience water hammer, which could damage both the pump and downstream infrastructure. It may be possible to resolve water hammer problems by performing a stroke adjustment to reduce piston movement. However, the reduced stroke may also leave the

pump underpowered and could contribute to vapor locking because the diaphragm is no longer being pushed into the entire cavity, allowing air to compress and inhibiting flow.

A Diaphragm Pump that Delivers Solutions to Common Challenges

The CHEM-FEED CD1 Multi-Diaphragm Chemical Feed Pump was designed and engineered to meet and overcome these challenges.



The CD1's exclusive dual diaphragm hyper drive technology operates so that, as the shaft pulls one diaphragm to create suction, it is simultaneously pushing the other diaphragm into the discharge phase. This near continuous pumping action creates smooth fluid flow, very similar to a peristaltic pump, and it virtually eliminates the problems of vapor lock, loss of prime and water hammer.

The latest enhancement to the CD1 metering pump is a built-in Automatic Degassing Valve System – ADV. This exclusive technology is now

standard on all CD1 pumps, and ADV eliminates vapor lock risks, ensuring uninterrupted chemical injection. With ADV there's never a need for external degassing components.

All CD1 pumps are also outfitted with Blue-White's Exclusive DiaFlex® diaphragms, made in house for optimum quality control and designed to last the life of the pump, eliminating the need to stock expensive rebuild kits.

Additional attributes of the CD1 chemical dosing pump include an energy efficient variable speed motor which operates on DC power. It assists the pump in achieving a wide span adjustment

ratio and contributes to the excellent accuracy achieved by CD1. SCADA Inputs/Outputs include: 4-20mA. (CD1V only)

CHEM-FEED® CD1 Helps Resolve Issues for a Water Chiller Company

A regional utility company owns and operates a plant that sells chilled water to several facilities. The plant was using a single diaphragm pump to dose bleach and condenser water scale inhibitor to treat scale and corrosion.

The diaphragm pumps in use were having reliability issues due to the harsh chemical being dosed, including diaphragm failure, loss of prime, and chemical leaks.

The utility company determined that the only way to resolve all of the problems being experienced was to change the pumps in use. The pump chosen to replace those pumps were Blue-White®'s CD1 multi-diaphragm metering pumps.

Once the regional utility company started using the CD1 multi-diaphragm pumps, they noticed a dramatic decrease in several of the issues previously experienced, such as leaks, difficulty priming, loss of prime and repairs.

The company's Reliability Manager states that after switching to the Blue-White pumps he would describe the CD1 pumps as more "robust" than those used in the past. There has been a dramatic decrease in several issues previously experienced, such as repairs, priming, and leaks. Less repairs and rebuilds means less safety risks for operators from chemical exposure and costs are reduced.

The company has determined to make the switch to CHEM-FEED CD1 as their standard chemical feed pump.