Accurate Dosing, Room to Grow

MODULAR METERING PUMP SYSTEMS ARE DESIGNED TO HELP TREATMENT PLANT OPERATORS EASILY UPGRADE AND REDUCE CHEMICAL CONSUMPTION

By Ted J. Rulseh

Effective control of water treatment depends in part on the chemical feed pumps. Reliable pumps deliver consistently accurate doses of chemistry to achieve the process objectives, whether meeting an effluent permit or complying with strict drinking water purity standards.

Now SEEPEX offers a chemical metering system designed to support accurate and complete process control while minimizing chemical consumption. BRAVO metering systems are plug-and-play pre-engineered combinations of progressive cavity pumps delivered with all related components and controls.

The systems are designed as integrated modular and scalable solution for disinfection, pH control, flocculation, corrosion inhibition, contaminant elimination, and other applications in municipal, as well as industrial settings.

Being modular, the systems can accommodate today’s flows and be easily field upgraded or expanded as process needs change. Gordon Fenton, director of engineering, research, and product development, talked about the technology in an interview with Treatment Plant Operator.

**TPO: What was the rationale for developing this technology?**

**Fenton:** The primary driver was to enable users to reduce chemical consumption. Customers need reliable industrial pumps that are not subject to flow variation from pulsating flows or varying feed point pressures. Consistent and nearly pulsation-free feed from progressive cavity pumps enables tight process control and minimizes chemical usage. Customers can often offset the cost of the new pumps through savings on chemicals within months or weeks. They see return on investment in reduced overtime, better water quality and less risk of compliance penalties.

**TPO: What was the specific impetus for pre-engineered, modular systems?**

**Fenton:** To maximize efficiencies, customers had to replace anywhere from a few pumps to hundreds of pumps, and they lacked the in-house personnel to complete the conversions in a reasonable time. However, they said that if we could provide a pre-engineered system to replace their current system, the labor required for plant integration could be reduced by almost 70 percent, and they could realize a return in much less time. Our designers gathered design requirements for flexible, modular systems that would minimize the mechanical, electrical, and plumbing changes required for quick replacement.

**TPO: What are the basic advantages of these pre-engineered, modular systems?**

**Fenton:** The modular platform can be expanded or contracted to meet customers’ requirements related to functionality, plant integration and space limitations. Pre-engineered modularity and flexibility is the key to providing customer-driven solutions without custom designs, which can take six to 12 weeks to design and manufacture. We can provide pre-engineered solutions in less than six weeks and at a lower cost.

**TPO: What are the components included in these modular systems?**

**Fenton:** It’s a skid-mounted system platform that includes the intelligent metering pumps, true-union valves, piping and vent lines. Customers can include optional features such as pressure relief valves, calibration columns, pressure gauges and various complexities of control panels. Standardization of all parts means that replacements, including piping, can be shipped the same day if required.

**TPO: How exactly does this technology deliver on its designed advantages?**

**Fenton:** The pump is the key to the system. It has multiple benefits
including predictable and laminar flow, along with low shear that prevents damage to flocculants. Higher shear metering pumps may reduce chemical potency, leading to increased chemical usage. Progressive cavity metering pumps have only one moving part and only two wearing parts. There are no valves that can clog or fail, and the pump will not vapor lock. The pumps can handle an extremely wide range of flow rates and viscosities with very low flow variability based on pressure changes. Flow is almost pulsation-free, and that provides a very consistent chemical feed rate that permits tight process control.

**tpo: What kinds of control options are available to users?**

**Fenton:** Users can integrate their own control system directly with the intelligent metering pump. We also offer a very simple control panel where users can operate the pumps locally or have them controlled remotely from the plant control room by way of a selector switch. The final option is our SEEPEX Touch multiloop controller, which can control up to four process loops. It has a 6-inch color touch screen. It’s inexpensive and provides great future flexibility without needing special software or cables. So, we can go from very simple to much more complex control integration, depending on the customer’s process requirements.

**tpo: How does the pump’s design contribute to reliability and safety?**

**Fenton:** It’s designed with predictable wear characteristics and to limit the risk of catastrophic failures. Typically, over time, the flow rate for a given speed remains constant until the pump enters roughly the last 25 percent of its life. At that point, the speed will need to increase slightly in order to maintain the same flow. That’s a signal to schedule maintenance long before the pump stops working. If the pump does eventually fail, the chemical is contained within the pump, so there is no risk of a spill and the safety issues that go with it.

**tpo: How specifically does pre-engineering help users with installation or with replacement of existing systems?**

**Fenton:** By supplying the pump within the system, we can eliminate installation issues created by poorly designed piping plans, which can keep customers from having successful applications and processes. BRAVO systems eliminate many installation variables that can cause reliability problems throughout the equipment’s life. We can also deliver systems faster than most customers could schedule multiple contractors required for individual pump installation. This reduces the overall cost of ownership and the time to realize return on investment.

**tpo: How widely is this product in use and in what locations or applications?**

**Fenton:** BRAVO chemical metering systems were introduced at WEFTEC last October as a major refinement of our ALPHA chemical feed systems. The skids are very similar in design but more modular and adaptable and easier to maintain. New systems are being shipped weekly with large installations in the Carolinas, Florida, Texas, California and Ohio. We’ve added inventory, increased training, and hired more assembly and service people to ensure that customer expectations are met.

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GORDON FENTON

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