

Water conservation is not a fad; it is a necessity. And ENPRESS, a manufacturer of high-performance water treatment composite pressure vessels, knows that in order to prepare for the future of the water industry, innovation must take place.

By Michael Mormino

As a result, ENPRESS has developed the Vortech bottom-plate technology—an advanced water conditioning and filtration solution for the water treatment industry. This vessel technology has generated high interest in the industry, and its dramatic cost-saving and environmental benefits have been validated by professionals and leading experts in the field.

“For years our industry lacked innovation, and unfortunately we tolerated the same old distributor system design,” said original equipment manufacturer (OEM) Richard Mest of Master Water Conditioning, Pottstown, Pa. “Not necessarily due to lack of effort, but rather due to the lack of size in typical tank openings. Our end-user demands higher flow rates, less pressure loss, improved treatment capacity, product flexibility

and water conservation. Simply put, our users demand smart technology.”

Meeting the Smart Need

The Vortech distributor system creates even water distribution in both service and regeneration flow paths because it covers the lower circumference of the tank. According to Mest, there is better utilization of media surface area and depth, which extends the contaminant removal capacity of the media and subsequently requires less regeneration.

“The Vortech doesn’t stop there—just wait until regeneration,” Mest said. With the Vortech’s underbelly design, the backwash water path is directed to create a change in velocity and trajectory, resulting in a vortex and shearing of the media as the water flows upward.

Mest is just one of many advocates who has experienced and benefited from the Vortech technology.

“The results are fantastic, especially from the action standpoint,” said Issa Al-Kharusy of KDF Fluid Treatment, Inc. “Compared to standard basket distributors, in which fluidization tends to be nonuniform and concentrated around the basket, the Vortech bed is completely fluidized at much lower flow rates, and there is uniformity of fluidization when you check the entire cross section of the bed.”

“Vortech technology is so much of an improvement that we are recommending a 50% reduction in required backwash rates with our media,” Al-Kharusy continued.

Willard Lamb of Water Conditioning Service, Hudson, Mich., has experienced similar results with the Vortech. “We were installing a 2-cu-ft softener of



The Vortech technology reduces environmental impact by conserving water, creating less backwash and increasing resin capacity.

Sybron C249. There was opportunity to reduce the size of the backwash flow controller, especially with all the data ENPRESS provided on the improvements in the lift and action of the filtration and softening media.”

Standard systems use a 3.5-gpm backwash flow controller, according to Lamb, so for safety precautions they started at 3 gpm. After four minutes, the media was being lifted out of the tank. They reloaded the Vortech vessel and switched to a 2-gpm version, and the resin stayed in the tank after a 12-minute cycle.

“That’s a savings of 36 gal of water in one backwash cycle,” Lamb said. “All due to the Vortech’s rapid-rinse regeneration cycle.”

The high flow, lift and mix swirling action of the Vortech not only conserves water but, according to field reports, requires less salt, creates 30% less backwash and has an increased resin capacity of 10 to 15% compared with the standard basket and gravel distribution systems.

“We used to employ composite vessels with the standard basket distributor,” said OEM Dawn Rineer, Lancaster Water Treatment, Lancaster, Pa. “But after using the Vortech, our results showed a 13.5% increase in softening

The distribution system that has water professionals talking



the next generation of

Water Conservation

capacity. If you extrapolate these numbers, assuming a system regenerates one time per week for water with 20 grains of hardness, which means 1,360 gal (Cone) versus 1,545 gal (Vortech) of water is treated. This equates to a water savings of 185 gal with Vortech versus Cone, or 9,620 more gal treated annually, based on system efficiency.”

“If the system uses 15 lb of salt per regeneration and the Vortech system regenerates 7.35 times less per year through softening efficiency,” Rineer continued, “that is a savings of 110 lb of salt per year per household.”

In addition to its elite conditioning capacity and backwash benefits, the Vortech works with all softening and filtration media and has a permanent dip tube-to-distributor attachment that stays in place when reserVICing a valve, eliminating the need for rebedding.

Taking the Extra Step

This innovative bottom-plate distribution system is taken a step further with the introduction of a multiplate technology—the Mid-Vortech. This new technology utilizes the same lift-and-mix swirling action as the Vortech but compartmentalizes several different media in a single vessel.

“This multiplate technology eliminates the need for a second tank,” said OEM Tony Daub of CSI Water Treatment Systems, Ashland, Ohio. “This has allowed me to dramatically reduce system costs for both my customer and myself. I went from a two-tank system to only needing one tank, one valve, less plumbing, less space and less labor time, which leads to easy installation and serviceability, helping me to close more sales.”

Both the Vortech and Mid-Vortech

vessels use the same distribution method. The interior of these vessels employs a liner design made from copolymer polypropylene, a custom formulation that provides superior performance in both hot and cold temperature environments. The vessels’ exterior is reinforced with premium fiberglass from Owens Corning, a leader in building materials and composite solutions. Vessels can be custom cut to dealer specifications, consistent up to 0.18 in., and are available in 9-, 10-, 12- and 13-in. tanks.

The Vortech technology is an example of the type of innovation that is being introduced to the market: a solution that reduces environmental impact and creates cleaner, more efficient water treatment systems.

“Vortech technology provides the industry with a solution to rewrite

the book of water treatment design,” Mest said. “The control valve isn’t the only smart technology—now there’s the Vortech.” *wqp*

About the Author

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