

Case Study

City of Kearney, MO



Brushless Screening Cleans Up Treatment Trouble for Kearney, Missouri

Kearney, Missouri, is home to about 10,000 people across a 12-square-mile region northeast of Kansas City, MO. The wastewater treatment plant handles an average flow of 750,000 gallons per day and has a maximum capacity of 1.9 million GPD.

Operations improved after the plant upgraded its sequencing batch reactors to a biological nutrient removal system. However, the old course bar screen in the headworks was allowing too much grit and solids to pass through, causing downstream failures and affecting the performance of the UV treatment system. Chief Wastewater Plant Operator Mike Fort pinpointed the problem: “We were having a lot of rag carryover, and disposable wipes were going through the existing screen and getting caught in the equipment. It was a nightmare.”

An upgrade to the plant’s headworks was already scheduled, providing an ideal opportunity to explore new screening technologies and other improvements. The city’s engineering firm suggested looking into headworks screens from JWC Environmental, which offered a perforated fine screen without a brush.

Capitalizing on the benefits of brushless

Already familiar with JWC’s Muffin Monster grinders, Fort traveled to Barstow, Florida, to see a Finescreen Monster in action at another wastewater treatment plant. Using a continuous band of ultra-high molecular weight (UMHW) perforated panels, the Finescreen Monster captures solids

Problem

Excess maintenance and inadequate screen performance in the headworks were causing downstream equipment failures

Solution

Brushless Finescreen Monster and Monster Wash Press Compactor

and lifts them out of the channel. While Barstow’s screen had brushes — a potential source of maintenance and downtime — Fort was convinced that the brushless variant of the Finescreen Monster would be the right solution for Kearney.

A Brushless Finescreen Monster with 6-mm screen openings was installed. To clean the screening panels and prevent blinding and added head loss, the Brushless Finescreen Monster uses a high-pressure water spray from a plumbed-in booster pump that operates at 104 psi. “We absolutely love the brushless feature,” explained Fort. “We don’t have to adjust brushes. Besides the monthly maintenance of greasing the bearings and changing the oil in the gearbox, we haven’t had to do much since we put it into service. It’s been a really good piece of equipment.”



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Reducing manual processes

With the old bar screen, the plant had to discharge debris off the screen’s backside into a 55-gallon barrel, which was then manually emptied. During the headworks upgrade, Kearney installed a Monster Wash Press Compactor to help streamline this process.

In the new setup, the washer compactor washes and compacts the screenings, then pushes the discharge into a dumpster that is emptied twice a week. Organics are washed back into the system to facilitate the treatment process.

Surviving the ultimate test

The project was completed, and then something happened that no one saw coming: the COVID pandemic. Like all other wastewater treatment plants worldwide, Kearney experienced a peak lasting nearly a year. People took steps to keep themselves and their families safe, washing and flushing more often and using more wipes. The Brushless Finescreen Monster and Monster Wash Press handled the challenge without issue.

“We really love the Finescreen Monster,” stated Fort. “During the pandemic and to this day, we’re not getting the carry through like we were with the other screen. We also do not have grit backed up in front of it. The grit flows through just fine.”

Saving time and money

Because of the rags and other debris passing through the old bar screen, Fort and his team spent significant time performing maintenance on the back end. “We were having to focus more on cleaning telescopic valves. Rags would get stuck in a pump, and we’d have to shut off the pump and call a contractor to pull the pump and remove the clog. We don’t have these issues anymore, and that’s definitely saving us money.”

The time saved on maintenance has freed the operations team to do other things. “In the summertime, we’re able to do our own mowing around the plant and lift stations,” stated Fort. “We also have more time throughout the day that enables us to be more proactive and prevent emergencies.”

Fort sums up the value of the Finescreen Monster in concise, yet powerful terms: “It’s simple, it’s operator-friendly, and it’s been a lifesaver for us.”



JWC Environmental (JWC), a Sulzer Brand, is a world leader in solids reduction, removal systems and product destruction for municipal and industrial applications. JWC Monster Industrial shredders and grinders are uniquely designed to cut through the toughest solids and bring them down to size. Monster Industrial products are working every day, protecting equipment and destroying debris. They are found in applications like

recycling, waste-to-energy, commercial facility sewage, food and beverage processing, agriculture, and oil and gas. Founded in 1973, the company has built and shipped more than 40,000 Monster grinders, shredders and screens to customers worldwide. More information on JWC Environmental is available at www.jwce.com

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