

# HYDROMATIC® HPE CHOPPER PUMP CASE STUDY

Ask any maintenance supervisor what their most common and most challenging maintenance task is and you are likely to hear horror stories about unclogging pumps from rags and wipes. In fact, according to a New York Times article published in 2015, the city of New York spent more than \$18 million over the course of five years on wipe-related equipment problems.

Ken Berlin, Sr., Leader for the Utilities Maintenance Group, for the city of Barberton, Ohio, just south of Akron, knows that his city is no exception. Barberton has 5MGD with 140 miles of sewer lines, 8 lift stations and 24 submersible pumps serving a community of 30,000, and Berlin's maintenance team is regularly called upon to deal with clogging at 4 of their packaged plants. "At our most problematic location we clear clogs 1-2 times per week," says Berlin. "When a pump clogs it normally trips out an overload, diminishing the stations capacity, and charging lines and manholes to the point that sewage may backup into residents' basements."

The city has conducted communication campaigns near the problem lift stations to try to change residents' behavior and stop the flushing of wipes and rags. "There

was a problem area near a doctor's office and senior care facility. We posted a notice about not flushing wipes and it helped initially. But, after a while, things returned to normal and we started clearing clogs monthly," says Berlin. "To this point, our best solution to prevent clogs has been running weekly inspections and testing of the lift stations- typically on Fridays to make sure there are no issues going into the weekend."

Clearing clogs is not only a challenging task, it also poses health risks for the maintenance crew. Berlin explains, "Hypodermic needles are showing up more frequently in the sewer system, putting the maintenance crew at risk of puncture wounds and hepatitis."

In December of 2016, Berlin approached Brandon Lantz of Pump Systems LLC for possible solutions to the clogging issues at the packaged plants. Lantz has over 20 years of experience in the

industry and with 40% of the more than 100 municipalities he serves expressing concerns with clogging, he's developed a reputation for providing solutions.

"There are typically pros and cons to all clogging solutions," Lantz explains. "Screens or trash baskets do a good job on larger debris, but they don't do anything for wipes, plus they require someone to visit the station regularly to clear them.



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Inline sewage grinders work great, but they are also extremely expensive. For a municipality on a tight budget, the cost involved pretty much eliminates that option. I typically recommend changing to a vortex impeller pump.”

Lantz noted, “Vortex pumps have better solids handling and wear resistance for abrasives, but, they come at a cost with lowered efficiencies, sometimes requiring up to two-thirds more horsepower to do the same job as an enclosed two-vane impeller. That could result in the municipality needing to replace the control panel which could cost as much as the pump itself.”

Simultaneously with Barberton reviewing its options, Pentair’s Sr. Product Manager, Brian Alexander was at the company’s plant in Ashland, just a few miles away, looking for a location to field test the new Hydromatic HPE Submersible Chopper Pump. “Brandon and I spoke on the phone numerous times. When I told him about the benefits of our new Chopper pump, the timing couldn’t have been any better.” The Hydromatic Chopper pump features a 440 stainless steel cutter system hardened to 57-60 HRC with serrated edges so it stays sharper longer. Alexander added that, “unlike many other chopper designs, the Hydromatic cutter can be removed and replaced independently of the impeller, and the cutter plate can be easily adjusted for continued peak performance without having to disassemble the hydraulic end.”

Barberton installed the Chopper pump in early February at a packaged station that serves roughly 200 homes. It’s been running in the

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lead position in a triplex station for more than 3 months. “By now we would have cleared clogs at that station about 12 times. With the Chopper we haven’t had a single clog,” Berlin stated. “We always need two guys to clear a clog. Each incident can take up to 4-8 man hours or roughly \$160-\$320 in labor costs. Over the course of the last 3 months, the Hydromatic Chopper has saved our taxpayers between \$1900 and \$3800 in labor, not including all of the equipment costs.”

Shortly after the city of Barberton installation, Lantz found another test site with the Metropolitan Sewer District of Stark County, Ohio.

Will Fazio, Operations & Maintenance Supervisor explains, “We have 5 locations with single-phase power that are trouble spots. We got tired of yanking out the pumps with dual vane impellers to clear clogs, so we upgraded to vortex impellers. We’ve been testing the Hydromatic Chopper in each of the trouble locations for 30 days at a time, starting with a draw down test

for the first couple of days and then putting the Chopper pump in the lead position for the remainder. So far the Chopper has been doing great, the guys really like it and we haven’t had a single issue.” Fazio added that, “We’ve been testing at the third station for about a week now which normally clogs 1-2 times per week. Not only have we not had a single clog, we also noticed that the 7.5 HP chopper is drawing the same amperage and running about 25% less than the 5HP vortex pump it replaced. Over a week that may not be much, but over the course of a year that reduced operating time could add up to significant energy savings.”

“The other nice thing with the Chopper solution is that it breaks up the material to help prevent downstream clogging unlike traditional solids handling pumps that pass the problem downstream causing clogging in the piping and check valves,” Lantz added.

Berlin concluded, “I’m very happy with the results of the Hydromatic Chopper test. Based on its performance, I think it would be a good solution for my other problem locations.”

