# MAINTENANCE-FREE CONTINUOUS RUNNING WITH OPTIFIX

Thomas Geisler, Service Director of Sewage Treatment Plants at MIDEWA: “In addition to reliability, straightforward and rapid replacement of wearing parts is particularly important to us as the operator. In both areas, Optifix has impressed us.”

“Enough is enough!” Those words were uttered back in the Winter of 2017 by Thomas Geisler, Service Manager of Sewage Plants at MIDEWA Wasserversorgungsgesellschaft in eastern Germany. MIDEWA water company operates its plant under contract by the Eisleben-Süßer See joint wastewater authority. The plant in nearby Rollsdorf is included as well. The company is prepared to handle 65,000 personal equivalent units. Its catchment area includes 20 to 25 communities with approximately 43,000 residents within a radius of about 30 km. A 16-km long pipeline moves sewage from Eisleben to Rollsdorf with just one pumping station. Average daily throughput is about 6,500 $m^3$ but can be as high as 12,000 $m^3$.

## THE CHALLENGE

### HIGH RATES OF WEAR AND LOW RELIABILITY

Since 2013, the digested sludge pumps failed repeatedly due to wear and on the rotor and stator. The progressing cavity pump feeds the centrifuge, making it part of a mission-critical process. For this reason, any failure is more than just a small annoyance. But it‘s even worse when failures happen over and over and at unexpected times. Even service technicians sent by the previous manufacturer were unable, working on-site, to keep the pumps in disturbance-free operation for extended periods. When original spare parts would not even fit, the pump became completely non-functional and forced the decision to switch to a different manufacturer, even though the pump had not yet been depreciated. According to Marcel Fricke, Plant Engineer: “This pump has to be up and running continuously and with high reliability.”

Even after twelve months of continuous operation, the Allweiler Optifix progressing cavity pump of the AEB1F series from CIRCOR shows no sign of wear, according to the experience of Marcel Fricke, Technician at the sewage plant Rollsdorf.

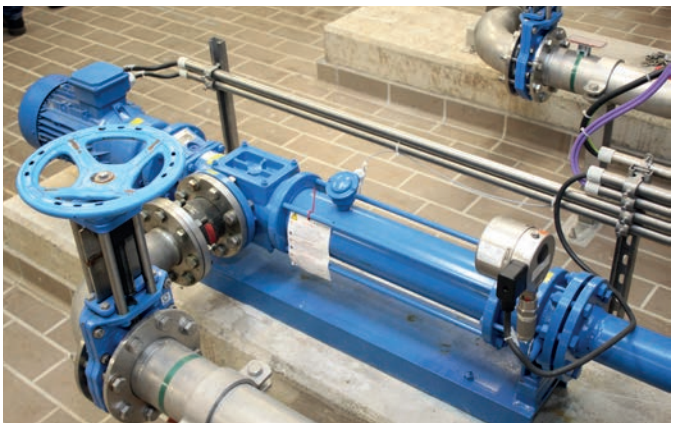
**Good experiences with Allweiler**

Fortunately, MIDEWA had already had positive experiences in other plants with similar pumps from Allweiler, a business unit of CIRCOR International. Even better, the Radolfzell- and Bottrop-based manufacturer offered to install a turnkey Optifix progressing cavity pump at no charge for testing. Klaus Kaiser, Sales Engineer at Allweiler explains it this way: “We delivered an Optifix that fit perfectly in May of 2018. There was no need to modify the plant in any way.” Allweiler provided the necessary removal pieces and adapted the height of the pump to the plant. The Optifix series uses standard parts for the rotor and stator. With uniform dimensions, other Allweiler progressive cavity pumps, such as the Optiflow series, can be upgraded to Optifix without the need to change the pipes.

## THE SOLUTION

### OPTIFIX FROM ALLWEILER

Optifix is the latest refinement to Allweiler progressing cavity pumps that have been used successfully in sewage plants internationally for decades. More than 8,500 progressing cavity pumps are delivered to sewage plants every year. Stators are particularly important and must be carefully matched to the pumped liquid. With twenty elastomer mixtures to choose from, the customer always gets the most economical possible combination for their plant. This includes Alldur, which can remain in service up to five times longer than other stators. The composition of Alldur is adapted to provide maximum resistance to mechanical influences. As a result, wear and tear is extremely low, even when used in continuous operation to pump wastewater that is highly contaminated with solids. The Alldur stator is also highly elastic and exhibits high tensile strength. It has high tear-growth resistance and can be used across a wide temperature range.



The pump moves dry sludge with dry substance content of up to 3%. At a speed of 350 1/min. and discharge pressure of 3.9 bar, capacity increases to 20 m³/h. Dry-running protection (top right in the figure) prevents failures and reduces downtime of the plant.

## THE RESULTS

### TWELVE MONTHS WITHOUT WEAR, SHORTER REPAIR TIMES

Unlike the previous pumps, Optifix operates completely disturbance-free and reliably. In fact, during the nine-month trial period, no wear was detected. Pump capacity remained uniform at a constant frequency and speed. And this was despite the chemically demanding liquid. In addition to "normal" household sewage, approximately 30 percent of the water comes from a large bakery and a producer of fruit juices. This results in a high organic load that must be specially treated with Iron-2 salts before entering the main plant. Even after twelve months of operation, little has changed: Pump capacity of 16 m³/h is precisely on the performance curve without the need to raise speed or frequency.

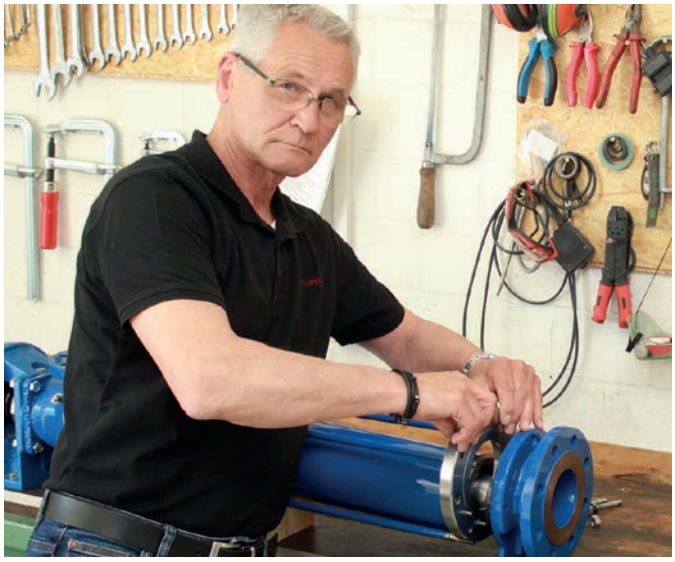
For this reason, the Optifix pump at the MIDEWA plant has not yet been able to show off its latest refinement: When the pump finally needs to be serviced, one person can completely disassemble the pump without removing it from the pipe. Rotor, stator, shaft seals, and joints can be replaced and the pump brought back into service in just 30 to 60 minutes. Allweiler delivers pre-assembled joints, saving time and eliminating tedious work with small parts. Taken together, these refinements reduce average repair time by up to 85 percent and extend the pump's service life by up to 500 percent, according to Allweiler.

"Our goal is to make pumps that you don't have to worry about. We have achieved this with Optifix," according to Mr. Geisler. With Optifix, wearing parts can be easily and quickly replaced in five steps, so there is no need to keep extra people in reserve. In Rollsdorf, private operator MIDEWA repairs the pump themselves. This saves money for the association, but only because repairs are rare and are resolved quickly and easily.

FOR ADDITIONAL INFORMATION VISIT:
circorpt.com/optifix

**Only positive experiences**

After more than one year in continuous operation, Optifix has a flawless record in Rollsdorf and at MIDEWA: "We are very satisfied with the durability and reliability. We are also excited about the incredibly low noise of the pump." Perhaps most telling, the customer has already ordered a second Optifix. Over the long term, Optifix pumps will completely replace other manufacturers' pumps. Allweiler's good service augments the technical qualities of the pump.



Optifix can be disassembled with just a few motions. Shown here, the screws are already removed so that the removal pieces can be removed in the first step.

This figure shows how the stator is pulled off.

In this image, the inspection cover is removed and how the rotor is then removed.

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