



Improved operation and quality – reduced operating costs

Achievements

Up to **25 percent energy reduction** for aeration.

Up to **75 percent energy reduction** for grit chamber aeration

Up to **75 percent reduction in energy** for internal pumping

Up to **100 percent reduction of chemicals**

Opflex focuses on operational savings. The savings are achieved through prioritization of the best biological performance during all load situations without compromising a good effluent quality.

Advantages of the Opflex

Lower operating costs: Opflex helps reduce energy consumption and the need for chemicals in the denitrification and phosphorus precipitation process.

Reduced chemical sludge production: The sludge production will be dramatically reduced when the advanced online control is installed at a wastewater treatment plant, and the environment will benefit from this.

Flexibility: High flexibility in the process – continuous adjustment of the control in relation to the load variations over time. The general overview of operations will be improved and provide the operators with better information and knowledge.





Case: Damhusåen WWTP, Denmark

The Damhusåen plant in Denmark has a capacity of 350,000 PE. Previously, the plant could not comply with the effluent standards on concentration of total nitrogen in the effluent, and the operational reliability was difficult to achieve.

In 2012, STAR Opflex was installed and within the first 12 months the plant reduced its energy costs for biological treatment by 16 percent and reduced its use of chemicals by 33 percent. Compliance with effluent standards on total nitrogen in the effluent was also achieved after the total nitrogen in the effluent was reduced by 30 percent. The good results were obtained despite the fact that the former operation was based on a PLC online control. On the basis of these good results and the experience from other plants in Copenhagen, the STAR Opflex was extended in 2013 with the PRACT - Forecast to improve the performance during rain events.

Achievements

- 16 percent reduction of energy costs
- 33 percent reduction of chemicals

Case: SK Utility A/S

SK Utility was established in 2008 by merging 4 municipal utility companies. Since 2003, STAR Opflex has been in operation at the main wastewater treatment plant in Slagelse, Denmark and successfully reduced effluent concentrations of Total-N by 20 percent, which resulted in a much more stable effluent profile for BOD, Total-N and Total-P. Subsequently, the plant has been upgraded to 115.000 PE.

SK Utility has extended the STAR Utility Solution™ by WWM-Control satellites at 5 wastewater treatment plants with capacities ranging from 2,000 to 35,000 PE. All plants have experienced reductions in Total-N, Total-P from 5 to 25 percent along with savings in energy consumption. Now focus is on the Radar - Forecast in order to improve its start-up of stormwater control and handling of stormwater situations in the catchment areas.

Achievements:

- 20 percent reduction in effluent concentration of Total N
- 5-25 percent reduction in effluent concentration of Total P
- Energy savings

**For further information,
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