

Project description: WWTP Oberschleißheim

Change into Plug Flow Technology with full floor aeration by RMU AG

Initial situation:

The wastewater treatment plant Oberschleißheim with aerobic sludge stabilisation was originally built for 30,000 PE, but the actual load is just 15,000 PE. To reduce the tank volume and for energetic optimization of the mechanical engineering some actions have been taken.



Figure 1: Aerial view of WWTP Oberschleißheim

Measures:

WWTP Oberschleißheim is a two-line plant. Half of the aeration tank volume was decommissioned and the process technology was changed from upstream denitrification with continuous aerated nitrification into intermittent, alternated aeration without mixers.

The denitrification tanks were closed down, influent and effluent structures were adapted to a plug flow system and the high efficient full floor covering aeration system with 44 MESSNER Aeration Panels in each tank was installed. Both aeration tanks are aerated intermittently, alternately. This is controlled by MESSNER[®] ICS depending on the actual load situation, which is characterised by oxygen, ammonium and nitrate concentrations. Using the principle of sliding pressure control, Aerzener Delta Hybrid blowers supply the required air amount according to the pressure value. The activated sludge mixing is realised by RMU Air Pulsing, so that mixers are no longer required. Periodic air impulses of the aeration system mix the activated sludge during unaerated denitrification phases.

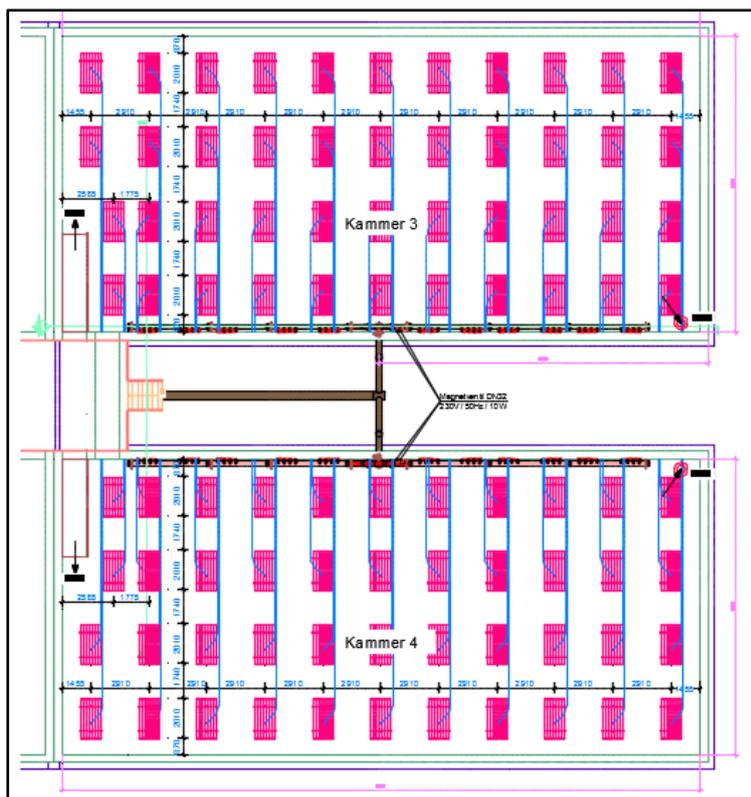


Figure 2: Installation of the MESSNER Aeration Panels

Result:

Success on top of operation safety and stable effluent values is clearly visible shortly after energetic optimisation. During the first few months after installation of the MESSNER Aeration Panels, renewal of the blowers and optimisation of the process engineering with MESSNER® ICS in autumn 2017, the monthly energy consumption of the biological stage has been permanently reduced to 16,500 kWh/month. Before optimization measures were taken the energy consumption was 41,300 kWh/month. In conclusion energy savings of about 60% have been achieved.

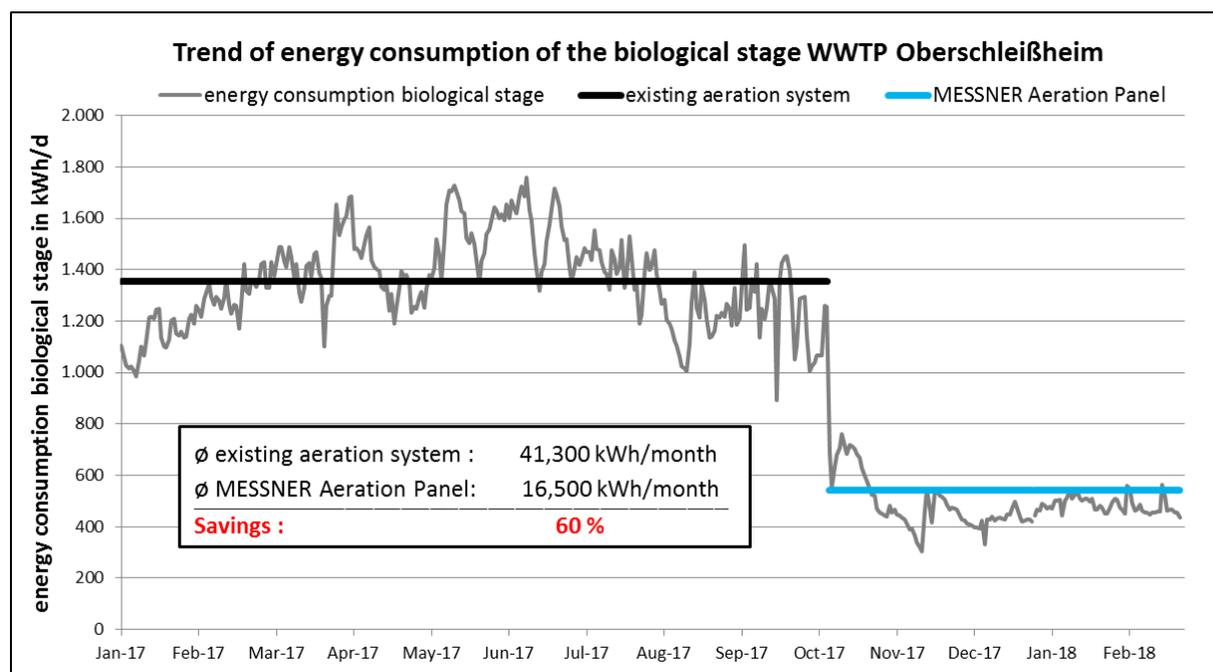


Figure 3: Energy consumption of the biological stage before and after energetic optimisation with MESSNER Aeration Panel