The city of Emstek is located in the northern part of Germany. The city has about 12,000 inhabitants. The wastewater treatment plant mainly treats domestic waste.

The wwtp consists of a fine screen, sand trap, two activated sludge basins (with intermittent nitrification and denitrification), biological phosphor elimination and final clarifier.

Because of increased loadings an expansion was required.

As first step of retrofit the activated sludge basin was equipped with diffused air aeration. Nevertheless, stabilisation was no longer achieved in the activated sludge basin. A sludge digester had to be built. After considering various alternatives FUCHS technology for aerobic sludge treatment at elevated temperatures (30° - 50° C) was chosen. It turned out to be a really cost-effective solution.
Technical details

The waste activated sludge is thickened with a disc thickener to ≤ 6 %. The total amount up to 24 m³/d is fed into the digester.

The reactor has a treatment volume of approx. 200 m³ and is made of concrete, covered, and insulated. It is equipped with three FUCHS CENTROX Aerators, a unique machine which provides for proper aeration, mixing and foam control in one machine.

Temperatures of about 50 °C are achieved easily. If necessary they can be limited by a cooling system. Volatile solids degradation rates exceeding 50 % prove the excellent performance. Even more, pathogen reduction takes place to a high degree. Thus sewage sludge is turned into highly valuable biosolids.

After treatment the biosolids are stored in two tanks with a size of 1,600 m³ and 400 m³. The biosolids are applied to farmland, currently even in liquid form. They are esteemed as a first class fertilizer.

The advantages of the FUCHS aerobic digestion at elevated temperatures in short:

- excellent stabilization
- high degree disinfection
- short retention time
- low investment costs
- very good process stability and reliability
- flexible operation
- low maintenance