

## Landia submersible mixers in operation at the Bremen-Seehausen wastewater treatment facility



Treatment of 50 million cubic meters of wastewater per year - find more information on their website [www.hansewasser.de](http://www.hansewasser.de).

Landia has a total of 26 submersible mixers operating at this plant.

10 mixers in the denitrification (BNR = biological nutrient removal) process, 6 of them in the denitrification tanks, 4 of them in effluent channels leading to these tanks for mixing of recirculated activated sludge and raw sewage.

14 mixers in effluent channels leading to 3 different treatment chains (so-called trains) of aeration tanks, enhancing the flow in these channels and avoiding sedimentation.

All of the above mixers were installed in 1996 with today more than 70,000 hours of operation, i.e. operating almost continuously, 24 hours a day, for almost 9 years!

The efficiency of the biological treatment process and the quality of the treated effluent depends entirely on the reliability of these mixers. The biological process will work properly only in a well homogenised effluent where bio-solids are suspended evenly in the entire tank volume and only in tanks/channels without any organic matter settling on the tank bottom.

Landia mixers are customised to the high requirements of this strenuous environment with a reliable, easy-to-maintain sealing system at low service and parts cost.

The process requirements are a soft treatment of the effluent with thorough mixing efficiency giving as little surface movement as possible in order to avoid surface air oxygen to be mixed into the anaerobic environment of the effluent. At the same time, looking at 24 hours of operation, mixer efficiency is very important with regard to energy savings.

Landia mixers have a large propeller surface area in order to ensure a soft treatment. Moreover, they are equipped with gears allowing reduction of propeller speed to 150 rpm's ensuring both soft effluent treatment with little surface turbulence and optimal overall mixer efficiency.

Due to the successful application of the Landia mixers at this plant, the client installed two more mixers in August 2003 in the contact tank for the new aeration plant as replacement of another manufacturer's mixers which failed. In the same application 4 other mixers will be replaced in the near future.