

## **Municipal MBR – a chance to get high quality service water from different applications – experience with rotating MBR Systems**

### **MBR – Service-Water-Production – germ-free-effluent – low energy costs**

Submerged Membrane Bioreactor Systems convince clients all around the world with their outstanding effluent quality (outflow is free of all bacteria and germs) and the space saving design. One of the latest developments in the MBR market is a technique with rotating flat-sheet-ultrafiltration-membranes - an unique design to overcome the disadvantage of the MBR applications - the power consumption. This system – called VRM – consists of trapezoidal membrane plates which are arranged around a hollow shaft. Within this hollow shaft the membrane scouring system is located. The scouring air demand and the introduction depth of the air are significantly reduced.

The VRM technology has meanwhile been implemented in several municipal and industrial wastewater treatment plants. In addition, a number of pilot projects (e.g. in slaughterhouses, breweries, meat processing industries, paper industries) are successful piloted and helped to identify the system design bases, which is very important as only pilot testing permits to prove the system's suitability and identify the process parameters.

Recently two mid-sized MBR's (one with 20.000 p.e. one with 23.000 p. e.) have been commissioned. Both plants (one in Spain, one in Germany) deliver perfect treated wastewater and provide service-water for different applications, whereas the main purpose in this applications is protecting the receiving water. Other plants (especially in South-East-Asia, in Mexico, or in the Middle-East-Region) are realised only for the purpose to get water for irrigation of parks, golf courses etc. In this case the MBR combine the ability to treat waste water and create high-quality service-water for different applications.

Especially in South-Africa there is an growing market for MBR-applications, due to the arid and semi-arid climatic conditions and the high demand for water. During the conference some installation examples with the specific design and operation data should be introduced.

Torsten Hackner

Hackner Consulting