

FUCHS OxyStar Aerators - Selected Applications

Storage and pre-treatment of contaminated surface-runoff



One of Europe's busiest airports collects surface water from the airfield and runways to ensure adequate treatment and prevent environmental pollution. At low temperatures in the winter time, airplanes, runways and working areas require application of de-icing agents such as to provide safe flight operations. Flows and loads of the contaminated runoff highly fluctuate, depending on air temperature, rain and snowfall. They are too high for simultaneous treatment, hence stored in a huge lagoon and then pumped to a nearby WWTP at constant flow rate.

The lagoon provides a total storage volume of 200,000 m³. It typically fills up to maximum level between December and February. Drainage to the WWTP takes several months. In this period, the stored liquids require aeration and mixing in order to prevent odours and also achieve partial removal of the organic pollutants.

Initially constructed around coarse-bubble air diffusers, the lagoon looks like a starfish with 3 arms. However, the poor mixing capacity of the diffused aeration system in combination with the lagoon's shape didn't achieve satisfying performance.

Based on a careful analysis of all data, 10 units float-mounted 15 kW FUCHS OxyStar Aerators were installed in 2010. After operation had proven very successful, another lagoon was built in 2013 according to the same concept. The new lagoon adds 100,000 m³ to the total storage volume. Its oval shape fits into the surrounding landscape. 9 units 11 kW FUCHS OxyStar Aerators provide aeration and mixing.



Picture: Bing Maps

Basic data

Old Lagoon

Storage capacity 200,000 m³

Lagoon dimensions

Max water depth	4.5 m
NW end to middle of lagoon	240 m
NE end to middle of lagoon	240 m
SE end to middle of lagoon	150 m

Aerators

FUCHS OxyStar Aerators

Quantity	10
Nominal power	15 kW
Mixing power	0.75 W/m ³

New Lagoon

Storage capacity 100,000 m³

Lagoon dimensions

Max water depth	5 m
NW end to middle of lagoon	210 m
NE end to middle of lagoon	140 m
SE end to middle of lagoon	

Aerators

FUCHS OxyStar Aerators

Quantity	9
Nominal power	11 kW
Mixing power	1 W/m ³

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