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Four RoDisc® Micro-Strainers for the Protection of Lake Taihu in China



RoDisc® Micro-Strainers in the HUBER factory shortly before they were shipped to China

China's rapid growth of industrial and agricultural production, migration and rapid population growth in urban areas endanger her rivers and lakes. Almost 70 % of rivers and lakes are now heavily polluted.

Discharge of wastewater, containing nutrients in form of nitrogen and phosphorus compounds, into surface waters leads to excessive growth of algae particularly in lakes. Enrichment of water bodies with plant nutrients is also called over-fertilization or eutrophication. Algae increase the water's turbidity so that only a layer beneath the water surface receives enough light for photosynthesis and generation of free oxygen by the algae. Algae in lower levels die because of their lack of sufficient light. Their biological decomposition and degradation is an oxygen consuming process. This leads to anaerobic conditions in lower levels and even to toxicity due to generation of hydro-sulphur. Affected water bodies lose their capacity for biological self-purification.

Pests of blue-green algae can even endanger the supply of the population with drinking water. Last June algae proliferated in lake Taihu to such an extent that the drinking water supply of the nearby City of Wuxi in Jiangsu province had to be interrupted. Five million people had to be supplied with bottled drinking water.

In order to reverse this disastrous development and prevent further pollution of lake Taihu, the provincial administration has decided to upgrade the wastewater treatment plants Wuxi Huishan and Chengbei which discharge their effluent into Lake Taihu. HUBER received a contract for the supply of four RoDisc® micro-strainer units, each with 20 discs installed around its rotating shaft, for the treatment plant Chengbei. Two RoDisc® units, each with 14 discs, will be supplied to the other plant Wuxi Huishan. To permit future capacity increases, these units can be retrofitted with another 6 discs to reach its maximum number of 20 discs. The micro-strainers RoDisc® serve for the removal of fine suspended solids (mainly in form of small biomass flocs) from the secondary clarifiers' effluent. This biomass contains some nitrogen and phosphorus nutrients. In addition, dissolved phosphate will be chemically precipitated and the

formed solids will also be removed from the effluent in the clarifiers and RoDisc® micro-strainers. The disks of the RoDisc® units are covered with wire mesh made of stainless steel wires, whereby the mesh size is 10 microns (0.01 mm). Almost all suspended solids remaining in the clarifiers' effluent are retained on this very fine mesh. Considerably less oxygen consuming substances and nutrients are discharged into the lake, and algae growth is thus far reduced. The RoDisc® micro-strainers have a total capacity to polish approximately 100,000 m³ of effluent per day.

An important advantage of our RoDisc® filters is their low head loss of around 100 mm WC. This allows gravity water flow and avoiding the need for additional pumping. RoDisc® filters provide a large filter surface and hydraulic capacity within a small volume, because the discs are stacked on the central shaft. These features make it easy to integrate RoDisc® filters into existing wastewater treatment plants. The wire mesh of stainless steel guarantees high strength and long life.

By Stefan Reber, Product Manager Business Unit Mechanical Treatment

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