

Istanbul-Ataköy STP, Turkey

MBR protection with revolutionary double drive system for rotating drum screen components

Situation

It became apparent that the existing Istanbul-Ataköy wastewater treatment plant was no longer sufficient to treat the wastewater loads that were generated. Especially this region is very important for the city of Istanbul and shows a steady increase in population and industry. Therefore, already in the year 2016 the extension of the sewage treatment plant was started. The planning called for the implementation of an advanced MBR process. In January 2020, the plant was handed over to the operator Kuzu Grup.



Project Members

Owner: ISKI—İstanbul Wasser und Abwasser Verwaltung
General Contractor: JV Fisia-Alkatas
Operator: Kuzu Group

Requirements

This second stage is designed for a maximum throughput capacity of 20,000 m³/d for the treatment of municipal and industrial wastewater in a MBR process. A mechanical stage was foreseen to protect the membranes. In order to ensure that particles from a size of 1 mm upwards are separated and to guarantee operational reliability of the downstream process, a two-stage separation process was chosen - whereby the amount of material to be screened was assumed to be no more very high. Furthermore, the requirement was to remove fibres and hairs, which is why screening machines with perforations were chosen. A particular challenge was faced in the planning due to the limited space conditions.

Solution

A two-stage mechanical sieving process was designed to protect the membranes. Condition for the first stage is 2 mm perforation, followed by the second stage with 1mm perforation. Due to operational and economic reasons, the decision was finally made in favour of the inclined rotary drum screen type RSI-DD of our the brand Noggerath®. On the one hand, it is known that numerous similar drum screens are already in use to protect MBR plants; on the other hand, our special version with double drive for separate operation of drum and spiral conveyor offers additional operational safety and optimization possibilities. Due to the limited space availability and the resultant challenge to the design of the channels and the structure, special support was required for the hydraulic dimensioning, the determination of water levels and the design of the control philosophy. Finally, 4 Noggerath® rotary drum screens with a diameter of 1000mm and a sieving perforation of 2mm and as a second stage another 4 Noggerath® rotary drum screens with a diameter of 1200mm and a sieving perforation of 1mm were installed and put into operation by the companies Fisia Italimpianti and Alkatas in 2019. The plant and the machines have already been taken over by the operator Kuzu Group, who are convinced of the quality and reliability of the machines and the further support by the Aqseptence Group.

Technical Data

4 x Noggerath® Inclined Rotary Drum Screens with double drive

Type:	RSI-DD 1000-2 (AISI 316L) Channel Installation
Drum diameter:	1000 mm
Total Length:	~5.2 m
Installation angle:	35°
Perforation:	ø2 mm
Capacity:	115 l/s

4 x Noggerath® Inclined Rotary Drum Screens with double drive

Type:	RSI-DD 1200-1 (AISI 316L) Channel Installation
Drum diameter:	1200 mm
Total Length:	~5.2 m
Installation angle:	35°
Perforation:	ø1 mm
Capacity:	115 l/s

Completely equipped with solenoid valves, baffle plates, horizontal installation beams under the drums, supports with transversal beams.



Photo gallery



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