



# Power and efficiency with Zenit Oxytube tubular air diffusers

water solutions

WASTEWATER TREATMENT PLANT FOR THE NIP CONSORTIUM

## Situation

The "Consortio per il Nucleo di Industrializzazione della Provincia di Pordenone (NIP)" was established to promote the area's economic development by encouraging new industrial ventures. As well as development, it also handles services, taking charge of wastewater collection and treatment in specific treatment stations.

Thanks to the work of the NIP, the Meduno (Pordenone, Italy) industrial estate is enjoying strong growth. However, the increase in the number of industrial businesses presence implies a rise in the quantities of process wastewater and sewage produced, which must be treated prior to discharge into the area's watercourses. The need therefore arose to upgrade the capacity of the wastewater biological oxidation and nitrification phase.

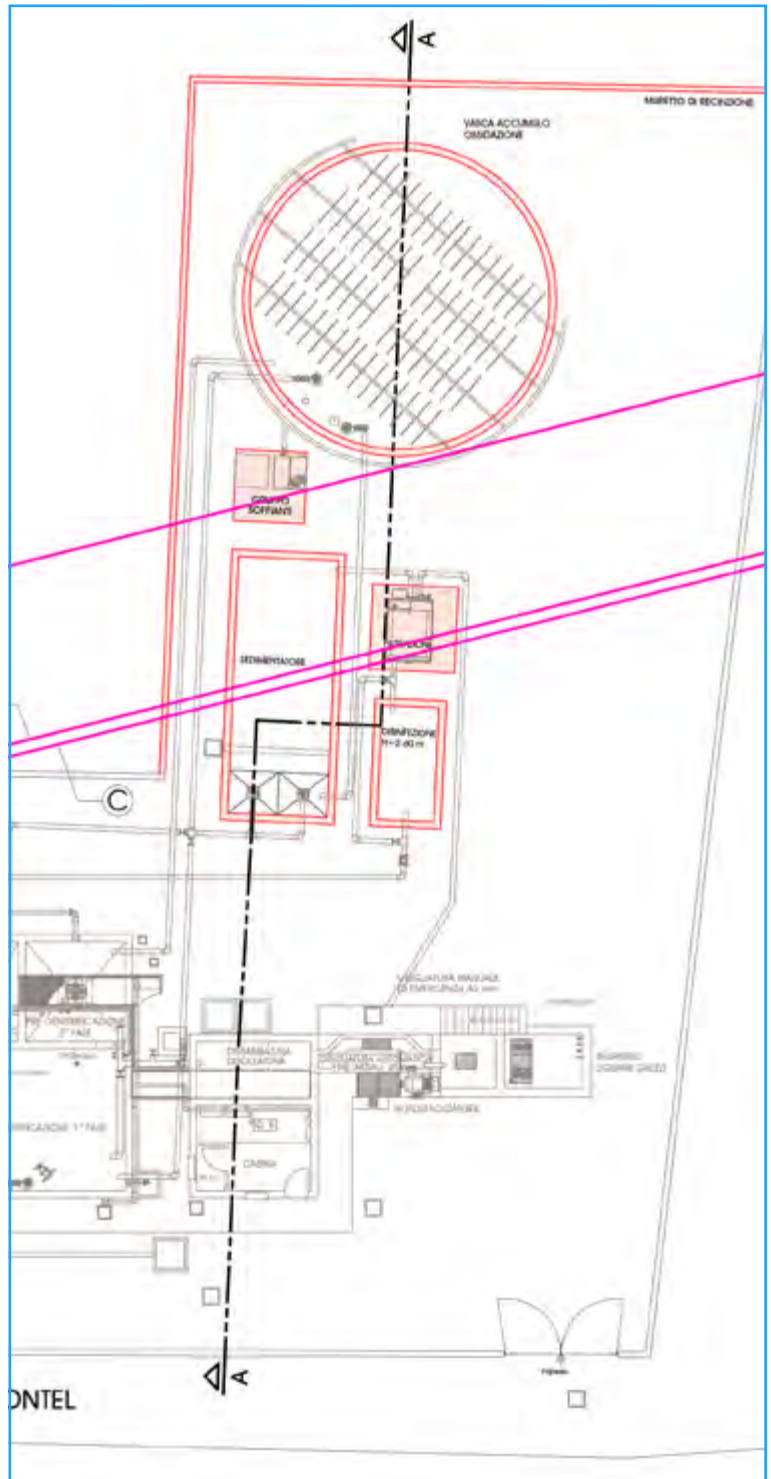
To guarantee full support for the companies on the industrial estate, the oxidation process had to be guaranteed 24 hours a day, 365 days a year, and a solution therefore had to be found which would minimise maintenance and thus system stoppages. NIP views reliability as second in importance only to the optimisation of energy use. Since in wastewater oxidation and nitrification processes this treatment section generally accounts for about half the water line operating costs of any system, the design of a high-efficiency, high-performance system is always an exciting engineering challenge.

Moreover, an overhead power line passed through the area above the installation tank: the chosen technical and design solutions therefore had to bear this in mind, to allow the necessary maintenance work to be conducted at a safe distance from the high voltage line, in accordance with the relevant legislation and safety regulations.

## Solution

NIP always operates in accordance with two key principles: reliability and energy efficiency. The Meduno industrial estate wastewater treatment plant project leaders therefore chose the reliable, efficient solutions offered by the Zenit Group.

After weighing up the system's characteristics and context, the Zenit Group engineers decided, with the customer's approval, that the best solution for meeting the NIP's needs would be an extractable aeration system, consisting of stainless steel pipelines laid on the bottom of the tank and Zenit Oxytube tubular diffusers with tubular microperforated elastomer membrane in EPDM with low plasticiser content and fine-bubble hole size. This type of microperforated elastomer membrane diffuser is particularly suitable for extractable aeration systems with high efficiency and oxygen transfer combined with low energy use.





water solutions

# Power and efficiency with Zenit Oxytube tubular air diffusers

WASTEWATER TREATMENT PLANT FOR THE NIP CONSORTIUM

The all-stainless steel air distribution system was designed to be simply rested on the bottom of the tank and connected to the main air intake pipe by means of flanged mounting pipes: this means the pipelines can easily be extracted even with the tank full and in operation. Maintenance can therefore be performed without having to stop the system and drain the tank, avoiding lengthy, expensive procedures.

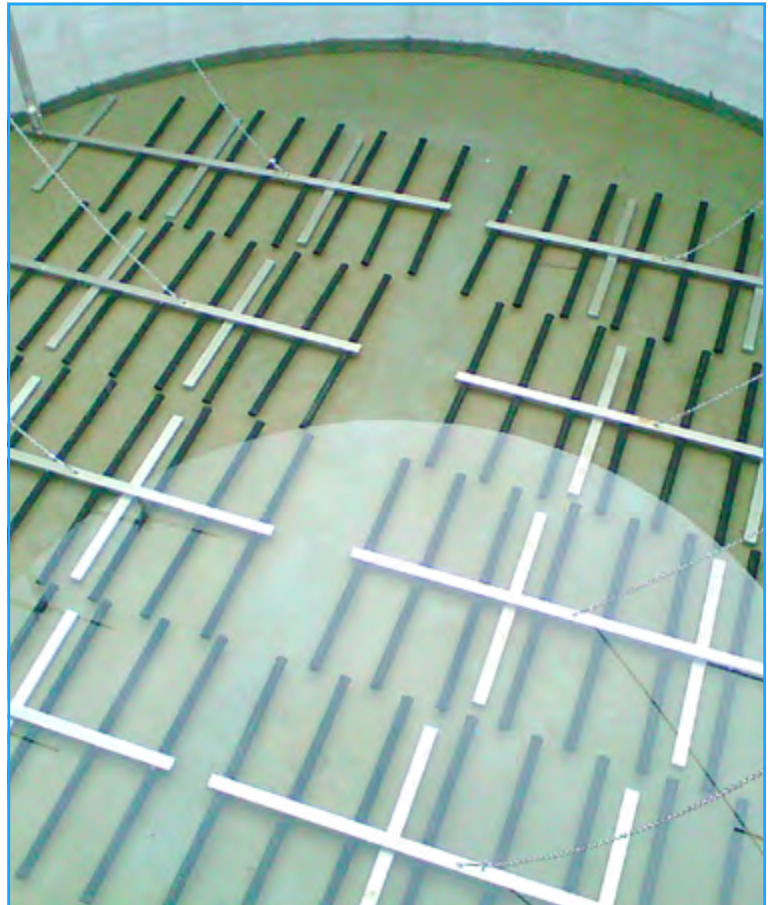
This solution met all the customer's requirements in terms of reliability, energy efficiency and trouble-free maintenance. But what about the overhead power line passing over the tank?

To allow the newly installed Zenit aeration system to be extracted without interfering with the high voltage line, and in compliance with safety distances, our engineers subdivided the mounting pipe into three sections of suitable length. This allowed the pipelines to be maintained and dismantled in complete safety by simply connecting and disconnecting the steel pipe systems mechanically via a custom-built system of lifting brackets and anchor bolts, all in perfect safety and the correct distance from the high voltage line.

## Benefits

On completion of the works, the plant comprised a modern aeration system incorporating Zenit Oxytube tubular air diffusers with oxygen transfer efficiency values in line with the best technologies available on the market. The entire system was configured to be extractable, allowing continuous operation over time with no need to stop the plant for maintenance.

Today, wastewater mixing and oxygenation are optimal, energy costs are low and maintenance is performed without emptying the tank and at a safe distance from the electrical power line. All the Consortium's requirements have been met, to the great satisfaction of the operator and our engineers



<b>Customer</b>	Consortium for the Industrialization Unit of the Province of Pordenone				
<b>Company Profile</b>	Industrial plant manager				
<b>Location</b>	Meduno (PD)	<b>Country</b>	Italy	<b>Area</b>	Europe
<b>Application</b>	Industrial wastewater treatment				
<b>Installed Products</b>	OXY Tube Air diffusers				
<b>Date</b>	July, 2017				