STM-Aerotor™

Advanced Biological Process

ISO 9001 CERTIFIED
WesTech
Quality System

WesTech®

STM-Aerotor™

Integrated Fixed Film and Activated Sludge

The STM-Aerotor™ biological nutrient removal system uses integrated fixed film and activated sludge technology as part of a process that provides biological nutrient removal for municipal and industrial wastewater treatment.

Activated Sludge

The STM-Aerotor™ captures atmospheric air with each rotation, draws it down into the mixed liquor, and slowly releases the compressed air as coarse bubble aeration. The amount of aeration can be controlled using a variable speed drive to speed up or slow down the rotor, based on the actual oxygen demand.

The aeration of the system is achieved without the use of blowers, aeration piping, or diffusers. During the rotation, additional cascade aeration elevates the dissolved oxygen in the upper layer of the basin. The slow rotation of the STM-Aerotor™, intense air release, and the addition of a peripheral mixing paddle combine to ensure a thoroughly mixed system.

Fixed Film

In addition to ensuring effective aeration, the STM-Aerotor™ also provides a large surface area for fixed film growth. The interior and exterior of the special polypropylene discs provide the perfect environment for a variety of attached growth organisms. The fixed film component increases the "effective" sludge age and improves the sludge settling characteristics. The fixed film will react quickly to an increased food source, or shock load, to eliminate discharge violations during peak or diurnal fluctuations.

Biological Nutrient Removal

The unique STM-Aerotor™ design allows the process tank to develop both anoxic and/or anaerobic zones within the same basin. The process control system can typically achieve total nitrogen below 10mg/L and total phosphorous below 2 mg/L. For enhanced biological nutrient removal, the STM-Aerotor™ system can be combined with additional biological selector zones in separate basins to achieve total nitrogen below 3 mg/L and total phosphorus below 1 mg/L.

Drive Chain

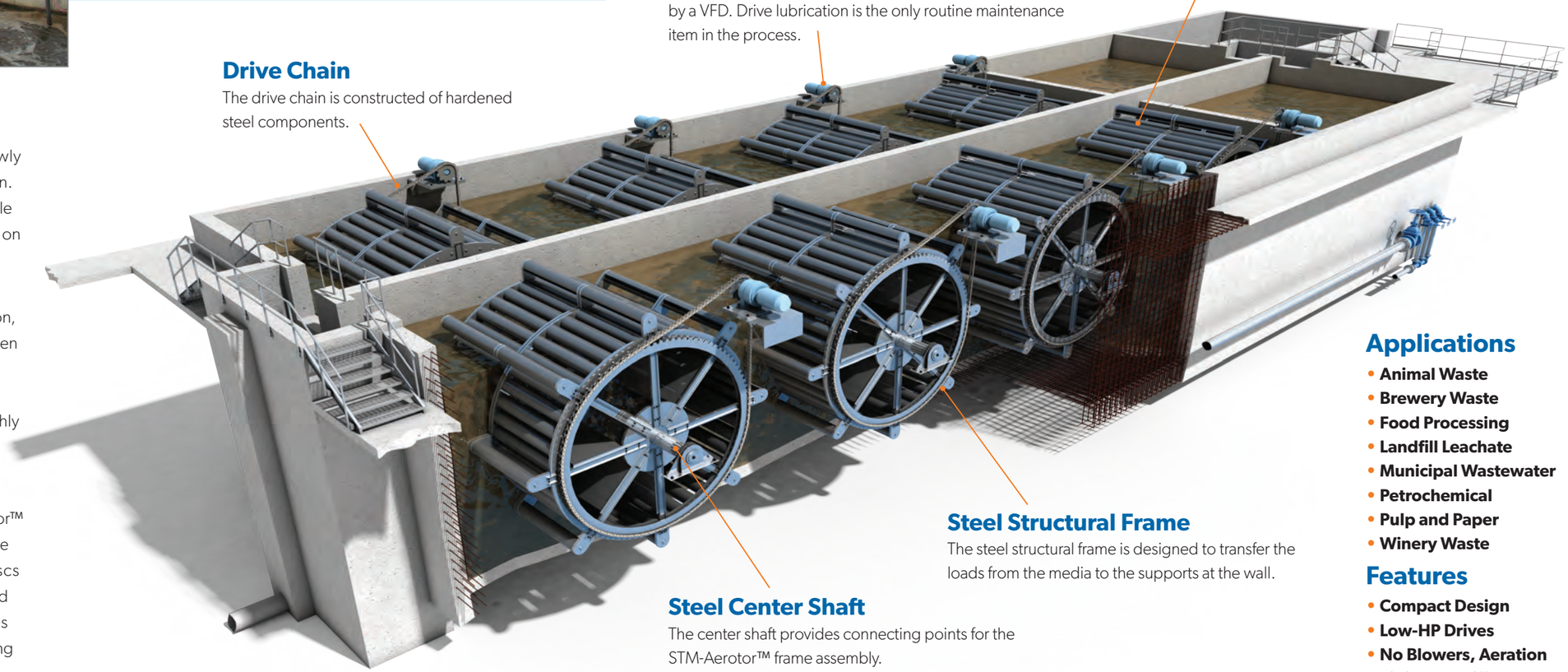
The drive chain is constructed of hardened steel components.

Low-HP Drive Unit

The simple drive unit is easily accessible and is controlled by a VFD. Drive lubrication is the only routine maintenance item in the process.

Media

The special STM-Aerotor™ media discs maximize the surface area for the fixed film, while optimizing the captured air volume and release depth for efficient aeration.



Steel Structural Frame

The steel structural frame is designed to transfer the loads from the media to the supports at the wall.

Steel Center Shaft

The center shaft provides connecting points for the STM-Aerotor™ frame assembly.

Mixing Paddle

To allow the system to be deep enough to develop zones that are oxygen limited, a mixing paddle is added to ensure mixing.

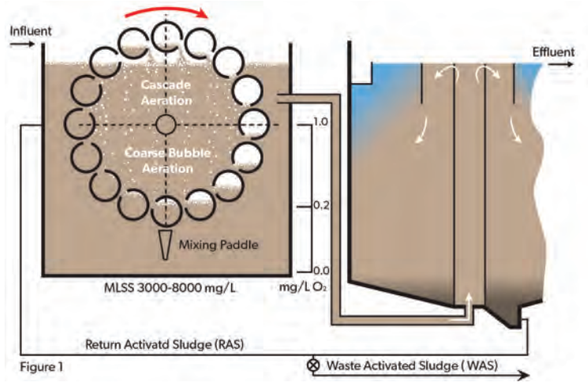


Figure 1

Applications

- **Animal Waste**
- **Brewery Waste**
- **Food Processing**
- **Landfill Leachate**
- **Municipal Wastewater**
- **Petrochemical**
- **Pulp and Paper**
- **Winery Waste**

Features

- **Compact Design**
- **Low-HP Drives**
- **No Blowers, Aeration Piping, or Diffusers**
- **Peripheral Mixing Paddle**
- **Rigid Structural Frame**
- **UV-protected Media**

Benefits

- **Advanced Biological Nutrient Removal**
- **Improved Sludge Quality**
- **Low Capital Cost**
- **Low Energy Usage**
- **Minimized Operator Attention**
- **No Noise or Odor Problems**
- **Simple Construction**
- **Stable Process Performance**

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