

# Ladox Process

Channel Aeration System



**WESTECH**<sup>®</sup>

# Ladox Process



The Ladox Process exceeds all requirements of modern aeration systems. Ideal operational circumstances are created for the diffusers. These conditions allow for higher oxygen transfer, lower propulsion energy, and result in higher overall efficiency.

## Why Choose Ladox?

The Ladox channel aeration system is an advancement to the oxidation ditch process. It utilizes the combination of high efficiency aeration and the unmatched Ladox mixer. The system was developed based on the well known principle of an oxidation ditch in which both aeration and propulsion of the mixed liquor can be independently controlled.

The Ladox mixers are positioned in the bends of the oxidation ditch rather than in the channel.

Additionally, the unique design of the Ladox mixer generates ideal operational circumstances for optimal diffuser performance. This design results in proven higher oxygen transfer, lower propulsion energy, and higher overall efficiency.

## How it Works

The Ladox Process not only works for Biochemical Oxygen Demand (BOD) removal and nitrification, but also allows for denitrification without the need for adjacent basins, recycle pumps, or bypass channels.

This system can control the Dissolved Oxygen (DO) concentration in a pre-determined location, creating an anoxic zone within the system. Additionally, biological phosphorous removal can be achieved by adding pre- anaerobic zones.

## Features and Benefits

- **No aerosol or noise issues**
- **Increased mixing efficiency**
- **Flow profile in accordance with the plug flow model**
- **Eliminates velocity gradients**
- **Retrofit into existing oxidation ditches**
- **Low cost construction**
- **Fewer mixers required**



# The Next Step in Oxidation Ditch Technology

## Propulsion

One or more low speed vertical Landox rotors located in the bends of the ditch produce the required mixing. The Landox rotor consists of a vertically mounted drum to which 16 blades are mounted radially. The rotors are manufactured of coated mild steel or stainless steel. The rotor is suspended from a bearing assembly developed specifically for the Landox.

Installed in the bends of the oxidation ditch, Landox rotors will eliminate dead zones typical to that part of the ditch. Competitors' "banana blade" type flow boosters, installed in the straight portions of the channel, have been shown to cause dead zones just after the bend, which leads to the settling of solid particles and sludge.

With other types of mixers, the direction of rotation is perpendicular to the direction of flow. This configuration causes velocity gradients. These velocity gradients result in a decreased oxygen transfer efficiency and the formation of dead zones or short circuiting.



Fine bubble diffusers installed on the bottom of the channel provide the aeration. When other types of mixers are used, the local diffuser density (quantity per sq. ft.) may need to be higher due to both the position of the mixer and the required mixer clearance. An elevated diffuser density leads to decreased oxygen transfer efficiency, a problem solved with the Landox.

The Landox Process has been proven effective with many types of aeration devices. This system is proven efficient and reliable when combined with slow speed surface aerators, fine bubble disc diffusers, panel diffusers, and sock-type diffusers.



**WESTECH**® Tel: 801.265.1000  
westech-inc.com  
Salt Lake City, Utah, USA

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