

# TumbleOx<sup>TM</sup> Bioreactor

## Attached Growth Biological Treatment for BOD and Ammonia Removal

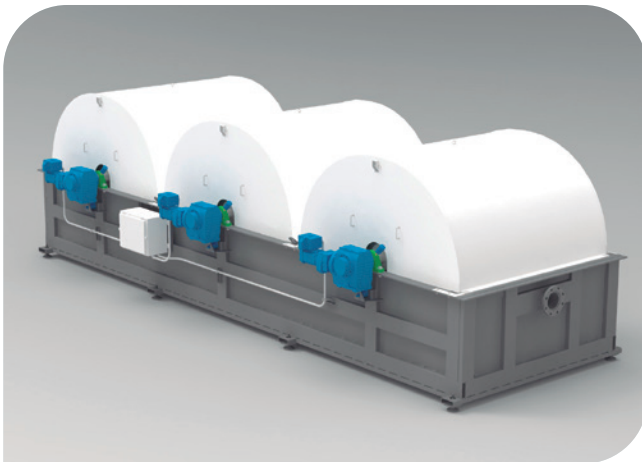
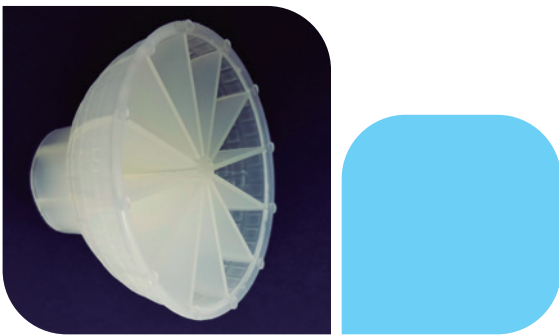
The Parkson TumbleOx<sup>TM</sup> Bioreactor consists of a treatment tank(s) containing a series of slowly rotating drums. Each drum is partially filled with loose media which freely tumbles inside the five-foot diameter drum as it rotates. A thin biofilm grows on the media and provides biological treatment. The unique media design maximizes surface area for biological growth and also aerates the wastewater as the drum turns, providing dissolved oxygen for the micro-organisms. The system components include the rotating drum, plastic media, and the bearings and simple drive mechanism to slowly rotate the drum. No supplemental aeration system is required.

### **TumbleOx<sup>TM</sup> Bioreactors are ideal for:**

- Effluent polishing
- Industrial pre-treatment
- Small industrial and municipal biological treatment
- Enhanced nitrification of lagoon effluent
- BOD and ammonia removal in sludge dewatering return flows
- Applications where simple, non-activated sludge treatment is preferred

## TumbleOx™ Features and Benefits:

- Vigorous movement of the media within a rotating drum completely wets all media surface while providing excellent mixing and contact of wastewater with the biofilm.
- Exceptional biofilm thickness control eliminates any possibility of plugging or fouling of the media bed while maximizing treatment efficiency.
- The media shape continually lifts and discharges the liquid through the media bed, providing consistent transfer of atmospheric oxygen to the wastewater. This results in high residual dissolved oxygen levels throughout the reactor without supplemental aeration. No separate aeration system is required – NO blowers, NO diffusers, NO aeration piping, NO aeration controls, NO blower energy.
- High residual dissolved oxygen maximizes treatment efficiency, resulting in high quality effluent with excellent nitrification capability. Dissolved oxygen levels typically maintained above 3.0 mg/L.
- More active biomass per ft<sup>3</sup> of reactor volume than a suspended growth process, resulting in more treatment per unit volume.
- Less sludge produced versus conventional suspended growth processes.
- Low operation and maintenance costs. Each drum powered by a 1.0 HP drive unit. Maintenance requirements are limited to scheduled bearing lubrications.
- Available as single drum units installed in owner supplied tanks or as factory-built packages. Packaged designs are shipped with media drums factory installed in coated carbon steel tanks. Packaged designs are simple to install with one influent flow connection, one effluent connection and one field electrical connection.
- Tank covers and splash guards available as add-ons.



## TumbleOx™ Components

All components are designed to provide years of reliable performance. The rotating drums are constructed of corrosion resistant FRP with stainless steel mounting shafts. Mounting bearings are provided with automatic lubrication canisters to reduce routine maintenance requirements. The shaft-mounted gearmotor includes an integral variable frequency drive so drum rotational speed can be field adjusted. No instrumentation or PLC based controls are required.



Fort Lauderdale  
Chicago  
Kansas City  
Denver

1.888.PARKSON  
[technology@parkson.com](mailto:technology@parkson.com)  
[www.parkson.com](http://www.parkson.com)

