

# Demonstration on Energy-saving Wastewater Treatment System Using Highly Efficient Solid-liquid Separation Technology and Dual Dissolved Oxygen Control Technology

Implementer: The consortium of Maezawa Industries, Inc.,  
ISHIGAKI COMPANY, LTD., JS and Saitama Prefecture

Retrofit of CAS with energy-saving nutrients removal achieved without expansion

## High performance solid-liquid separator

Remove solids matter with good settleability

Remove fine solids matter with poor settleability

Preliminary settling tank

High-rate fiber filtration tank

Upper carrier receiver

Floating fiber carrier

Washing air tube

## Reactor

Control the quantity of circulation water generated by a water flow generator

Control aeration volume

Return sludge

Blower

Stirrer

DO meter #2

DO meter #1

Water flow generator

Diffuser (membrane)

Water flow generator

Anaerobic tank

Raceway reactor

■ : Aerobic zone ■ : Anoxic zone

## Technology Overview

- High performance solid-liquid separator installed in the primary settling tank
  - Significant SS removal
  - Reduction of aeration volume and retention time for a reactor
- Dual DO control of a raceway reactor
  - High nitrogen removal by forming stable aerobic and anoxic zones

**No additional reactor is required at retrofit into nutrients removal**

## Achievements

- Treatment performance: satisfy the prescribed effluent water quality:  
BOD: **15mg/L** or less, T-N: **10mg/L** or less, T-P: 3mg/L or less
- Compared to retrofitting into nutrients removal (A<sub>2</sub>O process),
  - Reduce construction costs by **18%**,
  - Reduce O&M costs by **16%**,
  - Reduce energy consumption by **40%**