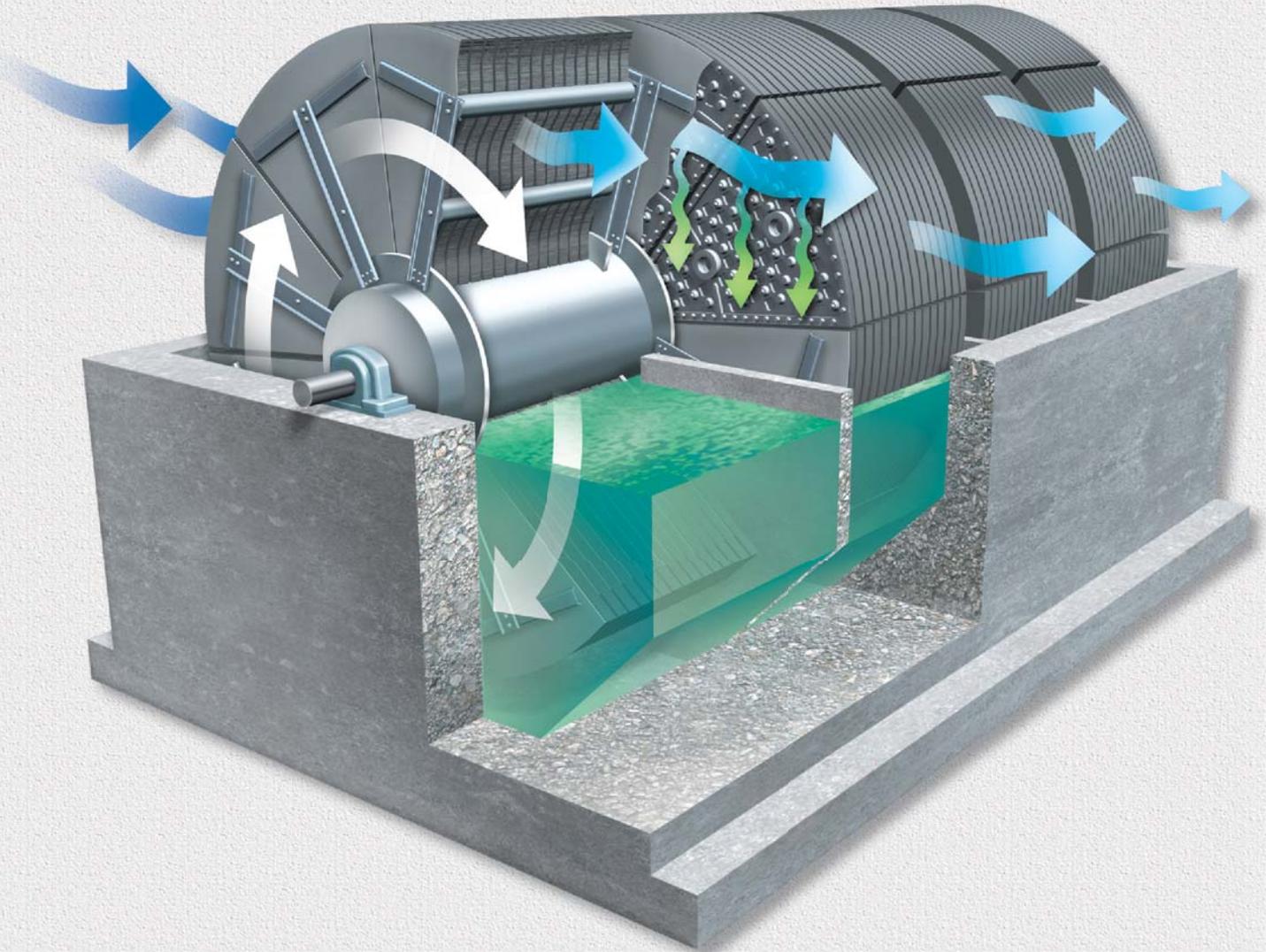


# *EnviroDisc™* *Rotating Biological Contactor*



Division of McNish Corporation



# Typical Applications

Walker Process Equipment Rotating Biological Contactors have a proven track record in a variety of applications. Many sizes are available making them the ideal choice to meet the requirements of most wastewater treatment applications.

## Municipal Applications

The **EnviroDisc RBC** has gained wide acceptance as the principal secondary treatment process for new facilities. They are also used as polishing systems to upgrade existing treatment plants to conform to existing discharge regulations. RBC's are particularly suitable to municipal applications due to the high degree of performance they deliver with relatively low energy requirements. Because of the modular configuration of the equipment, more units can be easily added when additional plant capacity is required.

## Industrial Applications

The reduction of high BOD and COD levels found in wastewater prior to discharge is essential to the efficient and profitable operation of manufacturers in the processing industries. The **EnviroDisc RBC** has been used successfully in food processing plants such as dairies, cheese producers, large bakeries, wineries, distilleries and poultry processing. They have also been used in applications treating wastewater from petroleum refining facilities, and chemical plant effluent.

## Land Development Applications

The **EnviroDisc RBC** process is well suited for use in land development applications such as subdivisions, apartment complexes, nursing homes, mobile home parks and campgrounds. The simplicity of operation and high treatment efficiency of RBC's make them an ideal choice for new installations or for the expansion of existing plants.



## SEDIMENTATION & THICKENING

Circular Collectors & Thickeners  
Bridge Supported  
Pier Supported  
Plow Type, Spiral Flights, MultiDraw,  
SightWell  
UniMix Flocculating Clarifiers  
Spur Gear Drives (Precision Class 6)  
Rectangular Collector Mechanisms  
HeliThickener

## BIOLOGICAL PROCESS

EnviroDisc® RBC — Rotating Biological  
Contactor  
Rotary Distributors

## GRIT REMOVAL

RollingGrit  
GritWasher  
HydroSeparator

## SOLIDS CONTACT CLARIFIERS

MC ClariFlow

## SLUDGE DIGESTION

Covers — Fixed, Floating, GasHolder,  
Combination  
Mixer — Anaerobic Digester  
Axial-Flow Digester Mixer  
GasLifter Digester-Mixer  
HeatX — Heat Exchanger, Boiler,  
Combination Units  
RollAer — For Aerobic Digestion

## SKIMMING

HeliSkim  
RotoDip Skimmer  
Scum Separator  
Scum and Grease Concentration System

## WATER TREATMENT

Solids Contact Clarifier Type MC  
Flocculating Clarifier Type UC  
Paddle Flocculators  
UniMix Flocculators  
InstoMix Flash Mixer

Walker Process Equipment

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# EnviroDisc™ Rotating Biological Contactor (RBC)

Studies by independent consulting engineers conclude that the proven RBC process uses less than half the energy of a suspended growth process for MWWTP carbon reduction.<sup>1</sup>

## Processes

### BOD & COD Reduction

Influent soluble BOD can be easily reduced using the RBC process. Levels of soluble BOD can be lowered to 5mg/l. Processes with properly designed basins and staging can achieve 90% or more COD reduction.

### Nitrification

When the proper influent environmental conditions exist within the wastewater such as alkalinity, temperature, low BOD, and ph, the reduction of ammonia nitrogen can be easily achieved. Ammonia nitrogen values can be reduced to values less than 1.0 mg/l.

### Other Applications

Since the Rotating Biological Contactor process is less susceptible to upset from toxic and hydraulic shock, its applications extend beyond the treatment of typical domestic and industrial wastes. RBC's can be used for air stripping and biological degradation of materials found in wastewater or contaminated groundwater. RBC's have been used successfully to remove acetone, cyanide, ammonia, chlorinated compounds, organic solvents, phenols, as well as many other materials from wastewater.



## Design Features of the Walker EnviroDisc™

### Media

The biomass media bundles are a multitude of thin individual wedge-shaped sheets of high molecular weight polyethylene. The media is vacuum thermoformed with a pattern of truncated pyramids and conical spacers which provide maximum surface and drainage area while contributing to the rigidity of the sheet. The conical spacers allow for a clog free flow path between the sheets of media. This configuration creates an open media system which allows for excellent contact of wastewater and oxygen with the biomass. The media bundles are fully removable from their supporting members without having to raise or remove the entire shaft assembly.



### Shaft Bearing

The main shaft uses heavy duty, self aligning, pillow-block roller bearings. They are designed for high humidity, slow speed operation with an L-10 life of over twenty years of operating loads and speeds. The drive end of the shaft is equipped with an expansion type bearing to allow for expansion and contraction of the shaft while the free end has a non-expansion type bearing. The bearings are equipped with spring-loaded bearing lip seals which are designed to maintain contact with the shaft if misalignment should occur.



<sup>1</sup> [http://www.walker-process.com/pdf/RBC\\_discussion\\_points.pdf](http://www.walker-process.com/pdf/RBC_discussion_points.pdf)

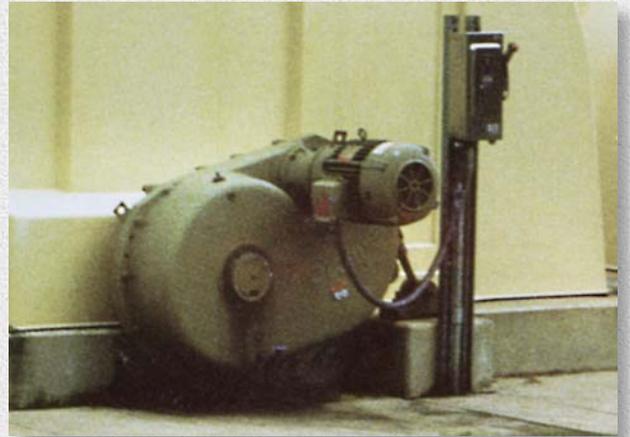
## Media Support Structure & Shaft

The media support structure consists of dual support tubes which are mounted to the radial structure. The radial structure is attached directly to mounting rings which are welded to the main shaft of the RBC. Dual 6" diameter support tubes pass through the media with operational loading being distributed throughout the plastic media at acceptable levels rather than being concentrated. For added strength the media has a support tube reinforcing collar molded in it.

The shaft is a fabricated carbon steel cylinder which is coated with coal tar epoxy for corrosion resistance.

## Drive System

The drive unit for the **Walker EnviroDisc** is designed for reliable and energy efficient operation. The drive system is mounted directly on the stub end of the shaft for ease of installation and maintenance. The drive system incorporates a belt and sheave arrangement to create a softer start which eliminates hard torque problems from a motor directly coupled to the reducer. A weather-proof belt and sheave casing is provided for safety. The reducer is also weather-proof and corrosion resistant and designed for operation in high humidity areas.



## Optional Equipment

### Fiberglass Enclosures

The fiberglass enclosures are custom designed for use with RBC assemblies and feature modular interlocking construction for ease of assembly in the field. Because of their design interlocking sections allow for partial ventilation of the RBC shafts. Access doors and inspection ports are included with the enclosures. The enclosures can also be provided with insulation for use in colder climates.



### Bearing Load Cells

Two types of bearing load cells are available for weighing the RBC shaft while it is operating. Either type monitors the growth of the biomass forming on the shaft assembly. The upper left illustration shows the hydraulic cell type. It is fitted with a quick disconnect for use with a portable hydraulic pump and gauge system for periodic inspection. The lower right illustration shows an electronic load cell system for automatic and continuous monitoring of biomass weight.

