ENGINEERING WATER
INNOVATION SINCE 1950.

NAPIER-REID

BIO-ROTOR®

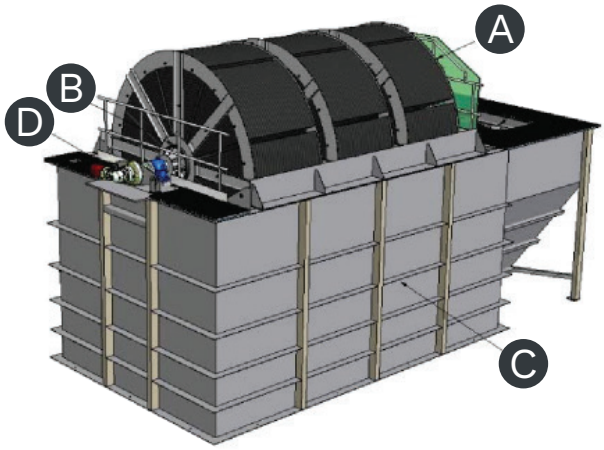
ROTATING BIOLOGICAL CONTACTOR (RBC)

A simple, low-cost solution for secondary wastewater treatment, ideal for:

- Construction and mining camps
- Cities, towns, and subdivisions
- Motels and apartments
- Remote communities
- Retirement communities
- Trailer parks
- Marinas, restaurants, and golf courses
- Government and military facilities

Technology: Bio-Rotor RBC
Location: Hong Kong

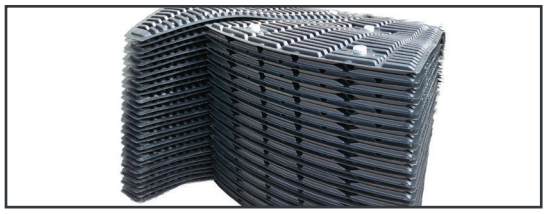
BIO-ROTOR PROCESS



Bio-Rotor is based on fixed-film RBC technology which dates back to the 1960s to reduce BOD, TSS, ammonia and phosphorus.

In a typical Bio-Rotor system, hundreds of thin circular corrugated HDPE sheets A, mounted on a horizontal shaft B, maximize biologically-active surface area and promote growth of fixed-film biomass by alternately exposing it to the air's oxygen and submerging the biomass in the wastewater in the tank C where it metabolizes organic matter to produce the required effluent quality. Continuously driven by a gear motor D, the media rotates slowly at about 2 RPM, with 40% of the media being submerged at all times.

BIO-ROTOR MAJOR COMPONENTS

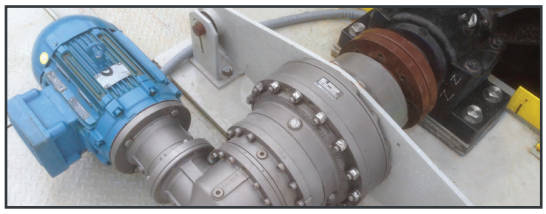


PLASTIC MEDIA

Corrugated HDPE with carbon black UV protection, mounted with steel pipes for strength and support. Design maximizes surface, with flow channels and moulded holes to optimize contact to loading.

SHAFT

Heavy-duty structurally designed for long-term life, and to withstand worst-case scenario of wet biomass, empty tank. Optimum hollow socket with shrink disk saves weight, cost.



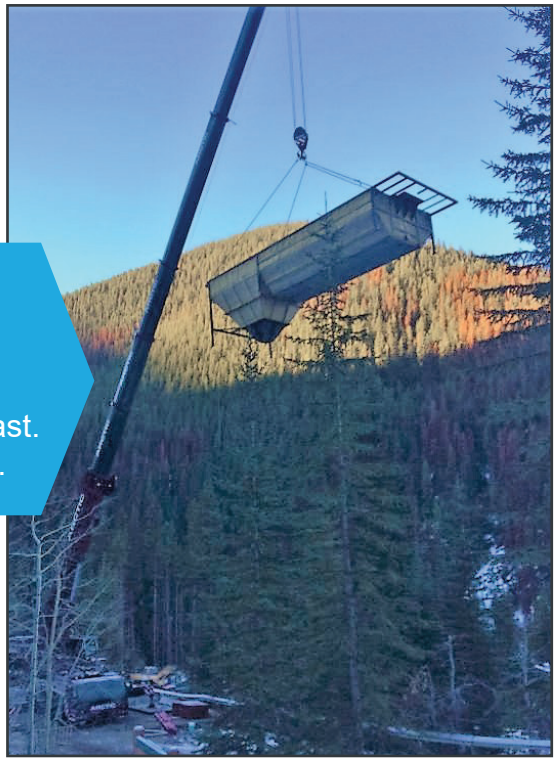
DRIVE UNIT

Robust and explosion-proof with planetary reducers built in. Gear-reducer and shrink disc mounting transmits torque with safety factor. Bio-Rotor mounted on spherical self-aligning roller bearings.

BIO-ROTOR ADVANTAGES

1. PROVEN PROCESS

Bio-Rotor can treat a variety of flows (even over-loading for short periods) without compromising effluent quality. It reduces retention time and system head loss, and produces low sludge.



2. EASY INSTALL & STARTUP

Bio-Rotor is designed to be a complete wastewater treatment plant. Systems are mostly preassembled, piping and wiring hook-ups are minimal, so install is fast. Startup is simple, require limited technical experience.

3. LOW O&M COSTS

Consumes minimal power, requires infrequent supervision as the process is monitored by PLC system. Maintenance is typically just drive/bearing lubrication and periodic excess sludge removal.

4. INOFFENSIVE, UNOBTRUSIVE

Bio-Rotors are quiet, produce minimal odor, can be housed within any structure, and maintain a low profile in any environment. Optional fiberglass covers protect from outside elements, as systems operate year-round.

5. FLEXIBLE & EXPANDABLE

Bio-Rotor systems expand alongside the population being served by adding parallel trains to increase capacity. This is essential for municipalities and developments expecting future growth.

6. ENVIRONMENTALLY FRIENDLY

Bio-Rotor is energy efficient and, in most cases, does not use chemicals that can harm the environment. Effluent is clean and safe enough to discharge directly to surface watercourses or subsurface tile beds.

BIO-ROTOR INSTALLATIONS

LOCATION	ENGINEER	START	FLOW	QTY
Cobre Panama Colon, Panama	SNC-Lavalin	2015-2016	2,070 m³/d	7
Leamington, Ontario	Sco-Terra	2016	67.5 m³/d	1
Hong Kong	Top Gallant Tech.	2018	Replacement	1
Miette Hot Springs, Jasper, Alberta	Associated Engineering	2018	315 m³/d	2
Juigalpa, Nicaragua	LG-Hitachi Water Solutions	2019	11,000 m³/d	10

Technology: Bio-Rotor RBC
Location: Coalburn, Nova Scotia
Design flow: 80,000 GPD / 300 m³/d

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