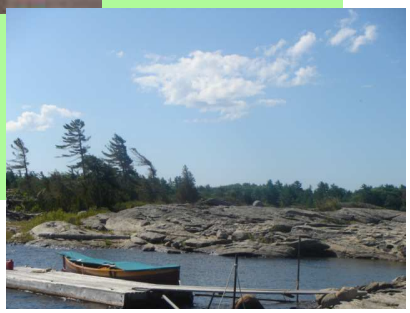
NR-RBC

Rotating Biological Contactors (RBC)

NR-RBC – Wasbaseemoong First Nation. *Ontario, Canada*
Design Flow: 2150m^3 per day



Napier-Reid's NR-RBC system is designed to provide a simple and low operating cost solution for secondary or tertiary wastewater treatment applications.

Since 1950
NAPIER-REID
Water & Wastewater Treatment

RBC Process

NR-RBC – Magnetawan First Nation. *Ontario, Canada*
Design Flow 160m³ per day

NR-RBC – OPG Darlington. *Ontario, Canada*
Design Flow 160m³ per day

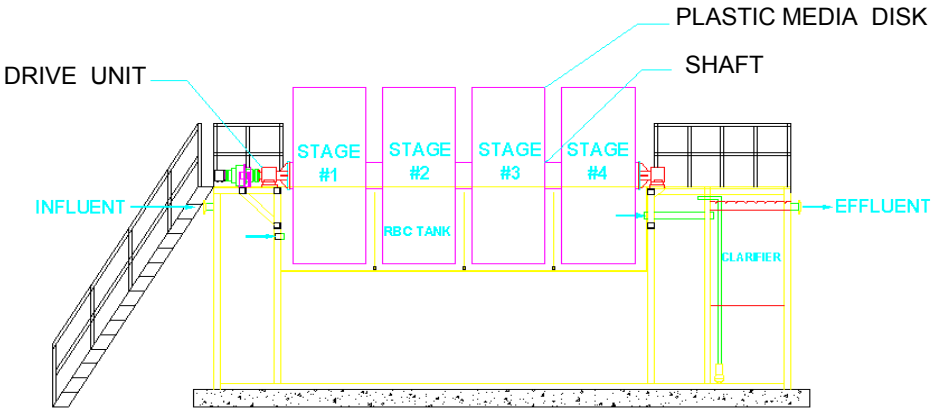
NR-RBC – Wauzhushk Kenora. *Ontario, Canada*
Design Flow 190m³ per day

NAPIER – REID's RBC constitutes an extremely efficient secondary biological wastewater treatment system which utilizes aerobic fixed film technology. RBC systems were first introduced in Europe in 1960. Nowadays, thousands of RBC systems have been installed in North America and around the world.

A typical RBC unit consists of circular plastic disks mounted on a horizontal shaft. Corrugated plastic is commonly used in order to increase the effective area. Around 40% of disk surface area is submerged in a tank that contains the wastewater. Regularly driven by a mechanical device, the shaft and disk assembly rotate slowly at about 1-2 rpm.

Under these conditions, bacteria is extracted from the wastewater and is aerated during the rotation and exposed to the organic material in the wastewater. As the film starts to grow, excess biomass will be removed by shearing forces from the disk rotation, this process is called sloughing. The rotating action of the disks also helps in keeping the solids in suspension.

RBC units can be arranged in various stages in order to meet the flow and organic load requirements. These can be designed to provide secondary or advanced levels of treatment. For small plants RBC shafts are oriented parallel to the direction of flow. Large plants often require several stages, therefore, flow is directed perpendicular to the shaft in order to form a process train.



NR-RBC
Simplified Diagram of a four stage parallel flow RBC Unit.

RBC Major Components

ELECTRIC MOTOR

- ☑ TEFC design.
- ☑ Robust in design and built with high quality components.
- ☑ Housing of high quality cast iron.
- ☑ Oversized bearing for severe duty application and long bearing life.
- ☑ All bearing are self aligning antifriction type, ball or roller bearings with minimum L-10 life of 100,000 hours.
- ☑ Drywell feature provided if required.
- ☑ Noise level is within 80 dBA at full operating load.

GEAR REDUCER

- ☑ High efficiency, planetary reducers built and rated in accordance with current international gear manufacturing standards.
- ☑ Powerful Compact Unit designed for high torque density and high overhung and axial load.
- ☑ Synthetic-oil lubrication system for years of smooth, optimal and quiet operation
- ☑ Housing of ductile cast iron.

SHAFT

- ☑ Oustanding structural design. Capable of withstanding, with a safety factor of at least two, the worst case scenario of having disk full of biomass and tank completely empty.
- ☑ Structurally designed for minimal deflection
- ☑ Designed for low stress level for long-term fatigue service.
- ☑ Optimum hollow socket with a shrink disk design reduces weight and cost of material and retains overall stiffness.
- ☑ Welding integrity with a minimun safety factor of 5.0

PLASTIC MEDIA

- ☑ Made of high density polyethilene for effective biomass production
- ☑ Corrugated design, increases the effective surface area.
- ☑ Optional ultraviolet protection provided by the incorporation of a carbon black stabilizer
- ☑ Sheet thickness of at least 0.030” in order to provide maximum structural integrity
- ☑ Mounted with galvanized steel pipes fixed at three points for effective mechanical support

Advantage of
Napier-Reid's RBC

- Large active surface area for good biomass production.
- Capable of handling a wide range of flow.
- Sloughed biomass presents good settling characteristics for easy separation
- Low operating cost: low power consumption, no chemicals need to be added to the process and does not require a highly qualified operator
- Excellent process control and low sludge production

RBC – Partial List of Installations

OWNER	CONSULTING ENGINEER	LOCATION	CAPACITY	QTY
First Spirit Lake, F.N.	Keewatinaski	North Spirit Lake, ON	75 m^3/day	01
Popular Hills, F.N.	R.J. Burnside	Popular Hills, ON	218 m^3/day	01
Pelican Falls, F.N.	R.G.Robinson	Pelican Falls, ON	67 m^3/day	01
Wikwemikong, F.N.	F.N. Engineering	Wikwemikong, ON	2150 m^3/day	01
Wasbaseemoong, F.N.	F.N. Engineering	White Dog, ON	2150 m^3/day	02
Waushuzhk Onigum	F.N. Engineering	Ontario	210 m^3/day	01
Amherstburg, ON	Stantec	Amherstburg, ON	250 m^3/day	02
Kingbridge Center	Aldworth Engineering Inc.	Kingbridge, ON	80m^3/day	01

About Napier - Reid

Over 50 years of excellence in water & wastewater treatment

Napier-Reid is located in the greater Toronto area in the Province of Ontario, Canada. We supply engineering services and process equipment for water and wastewater treatment.

We have the technology, resources and experience to design, manufacture and implement innovative water and wastewater treatment solutions worldwide. We have completed over 3000 projects since our inception in 1950. This stands as a testament of our ongoing commitment of providing the highest quality service, products and after sales support in the industry. Our capabilities include engineering, manufacturing, installation and field support. We have in-house personnel for complete mechanical, electrical and instrumentation process and control system design. As a manufacturer, our designs focus on cost-effective solutions, simplicity of installation and ease of maintenance.

Napier-Reid has developed an excellent team with many of years of experience. We have a well-deserved reputation for innovation, service and integrity. A significant portion of Napier-Reid's revenue comes from export to areas such as the Caribbean, Central America, South America, Middle East, Eastern Europe, Africa, and Asia. Some of these projects are financed by Canadian government or International financing institutes. As a Canadian manufacturer, we are eligible for Canadian governmental funding and EDC export credit. We have the capability to handle a large range of projects, from engineering, equipment supply, installation, start-up, to turnkey projects. Let Napier-Reid be your solution for water and wastewater treatment.

Since 1950
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