



HYDRO-KINETIC

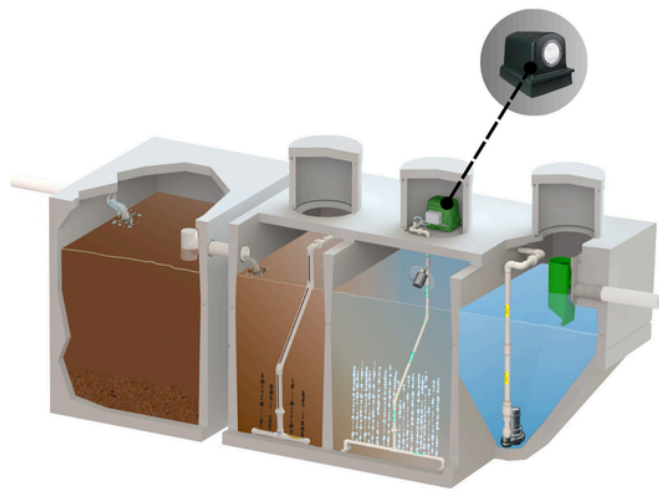
WASTEWATER TREATMENT SYSTEM WITH SERVICE PRO® CONTROL CENTER

INTRODUCTION

The Hydro-Kinetic system is the finest wastewater treatment technology available. It is a sound investment that protects you and the environment. Please take the time to familiarize yourself with the contents of this manual.

Your way to HOW THE SYSTEM WORKS

Developed to serve homes and small businesses outside of city sewers, the Hydro-Kinetic system uses the extended aeration process to treat wastewater and features innovative nitrification-denitrification technology.



Waste water enters the pre-treatment chamber where gravity combines with anaerobic bacterial action to precondition the waste before it flows into the anoxic chamber. Once in the anoxic chamber, facultative anaerobes digest organic matter. Flow then enters the aeration chamber where aerobic bacteria biologically convert the waste into stable substances and oxidize ammonia into nitrite and nitrate. Following aeration, liquids flow to the clarification chamber where gravity settles out biologically active material. A recirculation pump in the clarifier transfers a portion of the wastewater back to the anoxic chamber where nitrogen compounds are converted to harmless nitrogen gas which escapes into the atmosphere. From the clarifier, treated liquids pass through the flow equalization device and into the disposal system. As a result, complete pretreatment, aeration, clarification, and denitrification are assured. The Hydro-Kinetic system reliably protects you, your property and the environment.

FEATURES AND ADVANTAGES

All Hydro-Kinetic tanks are constructed of reinforced precast concrete or high-density polyethylene (HDPE). Internal walls and baffles are cast-in-place or integrally molded to ensure uniformity and strength. Risers and covers are either precast concrete, HDPE or heavy-duty, glass-filled polypropylene. All components that will contact the wastewater are constructed entirely of molded plastic, stainless steel, cast iron or rubber. The Model A100 air pump has been designed specifically for the Hydro-Kinetic system. Delivering a continuous supply of air to ensure proper mixing and oxidation of the organic material, this 100-watt air pump uses 50% to 78% less energy than most major appliances. The recirculation pump operates on a preset run cycle to ensure proper system operation.

The treatment system is supplied with a prewired electrical control center contained in a NEMA rated enclosure. The control center contains a power switch and factory programmed logic to monitor and control the air pump and recirculation pump operation. The local distributor's name, address and telephone number are displayed on the control center cover. All system controls and necessary owner information are conveniently located at your fingertips.

SYSTEM PERFORMANCE

The Hydro-Kinetic Model 600 FEU treatment system is the first and only wastewater treatment technology to complete two consecutive NSF/ANSI Standard 40 and 245 certifications without routine service. The Model 600 without the Hydro-Kinetic Bio-Film Reactor is rated Class I, averaging effluent of 4.0 mg/L CBOD and 7.0 mg/L TSS the first 6-month evaluation. The second 6-month averages are 4.0 mg/L CBOD and 7.0 mg/L for an overall 12-month test average of 4.0 mg/L CBOD and 7.0 mg/L TSS.

In ecologically sensitive areas, the most stringent effluent standards are 10 mg/L CBOD, 10 mg/L TSS and 10 mg/L TN. The Model 600 FEU system with Hydro-Kinetic filter is also rated Class I, averaging 2.0 mg/L CBOD, 2.0 mg/L TSS and 8.7 mg/L TN for the first 6-month evaluation. The second 6-month averages are 1.8 mg/L CBOD, 1.6 mg/L TSS and 7.05 mg/L TN, for an overall 12-month test average of 2.0 mg/L CBOD, 2.0 mg/L TSS and 7.9 mg/L TN.

Non-mechanical flow equalization is provided in the clarifier by the patented flow equalization device. Effluent polishing, ultraviolet disinfection and chemical treatment are available options. All Hydro-Kinetic components work together to ensure complete pretreatment, aeration, clarification, and denitrification.

OPERATIONAL REQUIREMENTS

The hydro-kinetic system is designed to treat only domestic wastewater. Domestic wastewater is defined as the waste generated from a typical residence. This includes flows originating from bathtubs, clothes washers, dishwashers, drinking fountains, water coolers, food grinders, kitchen sinks, lavatories, mop basins, service sinks, shower stalls, and toilets. In order to assure proper system operation, the use of bio-degradable detergents is recommended, the Hydro-Kinetic system has been designed to handle any reasonable amount of bathroom, kitchen or laundry waste. However, some care should be exercised to ensure that non-biodegradable and/or toxic materials are not disposed of via the domestic wastewater plumbing. Do not use the plumbing system for disposal of lint, cooking grease, scouring pads, diapers, sanitary napkins, cotton balls, cotton swabs, cleaning rags, dental floss, strings, cigarette filters, rubber or plastic products, paints and thinners, antifreeze, gasoline, motor oil, drain cleaners or other harsh chemicals. These items could plug portions of the plumbing and/or adversely affect system performance. Never connect roofing down spouts, footer drains, sump pump piping, garage and basement floor drains or water softener backwash to the domestic wastewater plumbing or the treatment system. Water softener backwash will interfere with biological treatment and must be disposed of separately.

ELECTRICAL REQUIREMENTS

Each Hydro-Kinetic system must be wired to a dedicated 115-volt, single-phase circuit at the main electrical service panel. A 15 amp circuit is recommended (10 amp minimum). A pictorial wiring diagram is provided inside the control center enclosure. All electrical work must be performed in accordance with the requirements of the National Electrical Code and all applicable local codes. Electrical connections should be made only by a qualified electrician following proper procedures and using safe tools.

CAUTION: Any time service is required, first shut off the dedicated circuit breaker in the main electrical service panel. Next, shut off the power switch in the Service Pro control center. Failure to do so could result in personal injury or equipment damage.



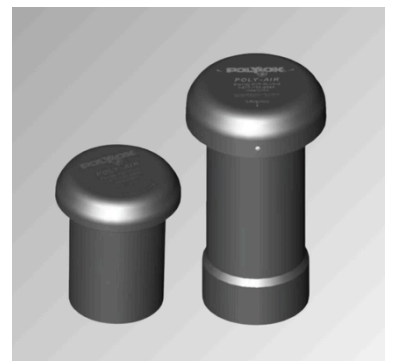
MODEL A100 AIR PUMP

The Model A100 air pump has been specifically designed for use in the Hydro-Kinetic treatment system and includes impact-resistant rubber diaphragms and valves to prolong air pump life. The unique design provides excellent cooling and quiet operation. The Model A100 air pump can be remotely mounted or installed in the access riser above the aeration chamber.

Fresh air enters the air pump through a filter located under the cover of the pump housing. The air is introduced below the liquid surface through a prefabricated diffuser assembly. Only the plastic diffuser assembly and the air piping are submerged. Each Model A100 air pump is a precision engineered electro-mechanical device. Do not remove it from its installed position. Do not attempt any type of repair. Contact your local Hydro-Kinetic distributor if service is needed. Unauthorized tampering or repair of the air pump will void important provisions of the two year limited warranty.

FRESH AIR VENTING SYSTEM

A fresh air vent assembly is remotely vented on your property. The perimeter vent or assembly supplies fresh air to the air pump, which is delivered through the diffuser assembly and into the wastewater. Finished landscaping should be maintained six inches below the top of the vented access cover and graded to drain runoff away from the cover. Do not allow plants, shrubbery, mulch or landscaping of any type to restrict the flow of air to the vent assembly.



RECIRCULATION PUMP

The Model SD103 recirculation pump includes a durable electric motor and corrosion-resistant pump housing. The pump features a 2" discharge connection and is capable of handling up to 3/4" solids. Permanently lubricated ball bearings ensure quiet operation and long life. The recirculation pump is installed in the bottom of the clarification chamber and delivers liquid to the anoxic chamber through a prefabricated mixing bar assembly. Each Model SD103 pump is a precision-engineered electro-mechanical device. Do not remove it from its installed position. Do not attempt any type of repair. Contact your Hydro-Kinetic distributor if service is needed. Unauthorized tampering or repair of the recirculation pump will void important provisions of the two-year limited warranty.

SERVICE PRO® WASP II (Weatherproof Advanced Surge Protection) Control Center

The Service Pro WASP (Weatherproof Advanced Surge Protection) control center delivers a complete management solution for your Hydro-Kinetic wastewater treatment system and components. Solid state construction ensures precise monitoring and advanced surge protection, extending the performance life of the air pump, Recirculation pump and up to three auxiliary inputs. A waterproof gasket encasement for the conformal coated circuit board provides maximum protection of the electronic circuitry. If the Service Pro WASP control center detects an abnormal condition, the display will indicate the specific problem

the system is experiencing. For example, if the aerator is drawing high amps, the display will read "AERATOR HIGH CURRENT." To silence the alarms and attempt to clear the alarm condition, press the "ALARM RESET" button. If the issue has been corrected, the system will turn off the alarms and resume normal operation. If a problem still exists, the audible alarm will be silenced for 48 hours, but the visual alarm will continue to light. In addition, detailed information regarding the specific problem will be displayed on the screen.

SERVICE PRO® MONITORING CENTER

When connected to a telephone line, cellular transmission device, or network cable, the control center will automatically notify the Service Pro monitoring center of any service required to the treatment system or accessory components. The monitoring center automatically records the time and date of any alarm condition, as well as the service performed,



and posts this information to your system's history record accessible at www.servicepromcd.com. All information regarding your system is available to you on the secure, password-protected Service Pro website. Contact your Hydro-Kinetic distributor for your user name and password.

NOTE: If using a telephone line, the control center regularly communicates with the monitoring center via a toll-free number. If the control center is using the line when you attempt to place a call, a high-pitched digital communication signal will be heard. Hang up all telephones sharing the line and wait a few seconds. This will automatically disconnect the control center and make the line available for use.

NON-MECHANICAL FLOW EQUALIZATION

The Hydro-Kinetic system provides non-mechanical flow equalization for the treatment process. Equalization reduces hydraulic surges (e.g., typical shower of 10 minutes duration, bathtub discharge of 5 minutes duration, clothes washer discharge of 2 minutes duration, and dishwasher discharge of 2 minutes duration) throughout the system.

The flow equalization causes wastewater to be held upstream of the final outlet during hydraulic surges, which preserves the treatment integrity and enhances system operation. The actual rate of equalization varies and depends upon specific loading patterns and the duration of each flow surge. At the Standard 40/245 design loading pattern, the system equalizes flow an average of 50%. As a result, hydraulic surges and periods of high flow are automatically reduced on a demand-use, as-needed, basis.

ACCESS RISERS AND COVERS

Concrete access covers are recommended and must be secured after each service visit. A concrete plug should be installed in the access openings of the tank to prevent accidental entry. Access covers should be inspected during service visits and replaced as necessary. If plastic risers and/or covers are utilized, they must be approved for your application and secured as instructed by the manufacturer. Refer to state and local regulations for applicable codes that may apply to your installation.

DANGER: Make sure your service provider does not leave access risers uncovered or partially covered. Failure to properly secure access covers and safety nets could result in bodily injury, illness, or death. Do not allow children to play on or around the treatment system. Riser safety nets are available from Norweco for concrete or plastic risers.

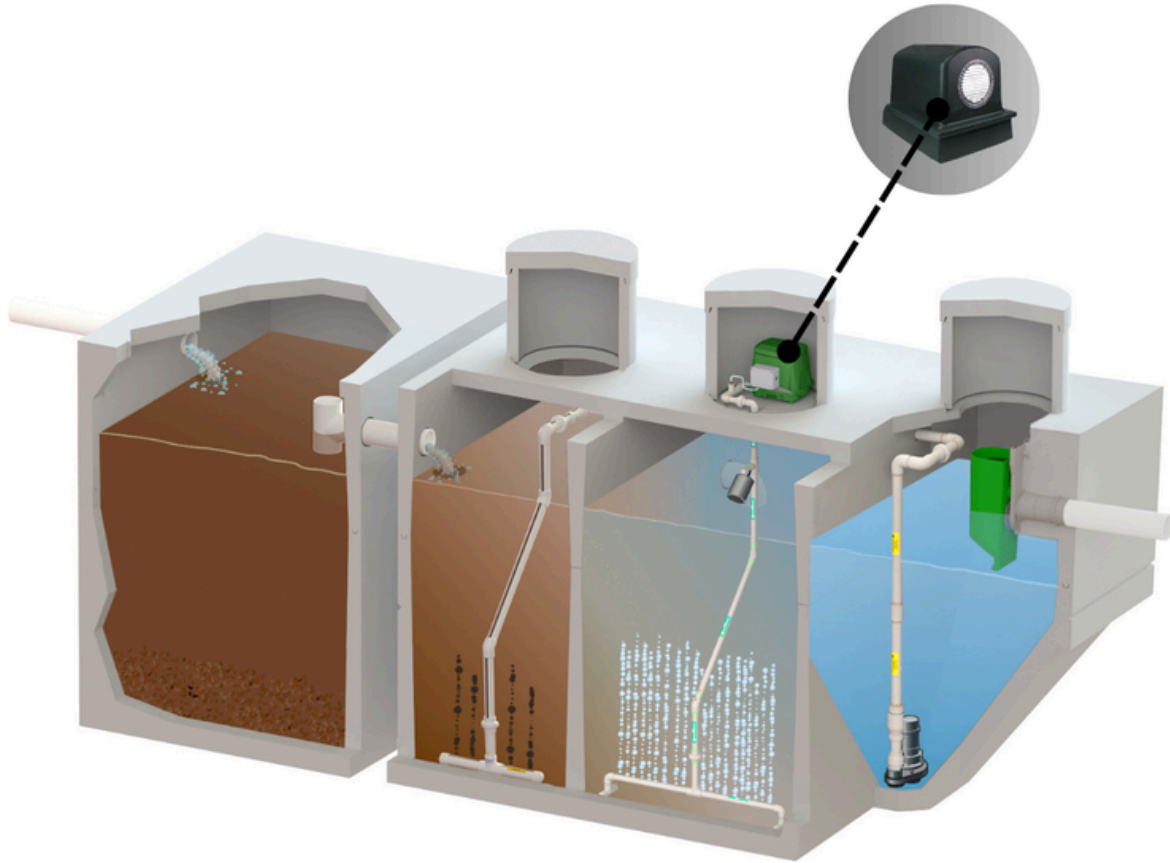
NO OWNER MAINTENANCE

The Hydro-Kinetic system should be inspected and serviced by a qualified service provider; therefore, no owner maintenance is required during the warranty period. The system does not use a septic tank and therefore is not regulated by septic tank maintenance requirements. How often pumping is necessary depends on the system's use. The local distributor will inspect the system during the warranty period to determine if pumping is required. Pumping will normally be required at three to five-year intervals. Contact your local distributor prior to pumping for complete instructions. A properly licensed tank pumping service must be used for the removal and disposal of tank contents. The tank pumper should consult with local authorities to determine the proper disposal method. **NOTE: Make sure the system is refilled to capacity with clean water after pumping.**

If a period of intermittent use or an extended period of non-use of the system is anticipated, contact your service provider for instructions. Your service provider has detailed system service instructions and has been factory-trained in troubleshooting procedures. Contact your service provider if you require service or tank pumping information.

HYDRO-KINETIC® SERVICE PROGRAM

Service inspections performed every 12 months (or as required by your local governing regulations) for the first two years of system operation, are provided by your local Norweco distributor and are included in the original purchase price of the Hydro-Kinetic system. Costs for travel and labor are not charged to the owner. During an inspection, the Model A100 air pump, Model SD103 recirculation pump, and other plant components are serviced as outlined in the Hydro-Kinetic Service Instructions. After the initial two-year service program is completed, the local service provider will offer continued service at the owner's option. In many areas, this continuing service agreement is required by the local regulatory agency. The service program should be renewed by the owner to ensure maximum system performance.



Ask your Hydro-Kinetic service provider about a renewable service contract. If you allow service coverage to expire, you can still obtain the professional assistance of a local service provider. However, these special service calls will be performed on a time and materials basis. Professional service is important to proper system operation and should not be allowed to lapse. Be sure to consider the advantages of a renewable service contract.

The Hydro-Kinetic service provider will perform the following services during each service inspection:

- ·Inspect the pretreatment chamber
- ·Check air pump operation
- ·Check air pump power consumption
- ·Check the air pump intake filter
- ·Check diffuser
- ·Check recirculation pump operation
- ·Check recirculation pump power consumption
- ·Check the mixing bar
- ·Check the operation of the control center
- ·Scrape the clarification chamber
- ·Clean flow equalization device
- ·Inspect effluent quality
- ·Inspect all transfer ports
- ·Inspect outlet line
- ·Hang the owner's record on the front door
- ·Mail health department notification

TWO YEAR LIMITED WARRANTY

The Hydro-Kinetic system components are backed by a two-year limited warranty. Each Model A100 air pump, Model SD103 submersible recirculation pump, Service Pro Model 801P control center, and any other components manufactured by Norweco are warranted to be free from defects in material and workmanship, under normal use and service, for a period of two years from the date of purchase. The two-year limited warranty is included in the original purchase price of every Hydro-Kinetic system. If the air pump, recirculation pump, or Service Pro control center fails, do not use or dismantle the unit. Do not remove it from its installed position. Do not attempt any type of repair. Unauthorized tampering or repair will void important provisions of the limited warranty. The local, licensed Hydro-Kinetic dealer or service center has detailed warranty information and should be contacted for service or replacement instructions.

SUPPLEMENTAL SERVICE RECORD

For your reference, please document service performed on the following chart:

DATE	DESCRIPTION



*Engineering the future of water
and wastewater treatment*

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