will shut off. This process will cleanse the pump and leave it filled with a small amount of clean water. Dish washing detergent can also be added to the water. Always leave the electrical power to the basin turned on.

For an extended absence and non-use (greater than a few weeks), the above process should be followed two or more times to provide additional cleaning of the system. Another rule of thumb is to drain two bath tubs full of water. An 1/8th cup of liquid dish detergent (i.e. Dawn, Joy, Palmolive) can also be added with the water running to the drain to clean the interior of the basin while not in use. Powered detergents and industrial cleaners are not recommended for this and can damage the system.

Again, always leave the electrical power to the basin on while you are away. At both the alarm panel and interior circuit breaker.

By following these guidelines, you can ensure that your low pressure sewer system will provide many years of safe, reliable service.

SERVICE CONTACT:

[Place utilities department sticker with all contact information here]

[Place local representative sticker with all contact information here]

GRINDER PUMP STATION HOMEOWNER INFORMATION

Crane Pumps & Systems

420 Third St, Piqua, OH 45356
Phone: 937-773-2442 Fax: 937-615-3539

BARNES®
PRESSURE SYSTEMS

GRINDER PUMP HOMEOWNERS GUIDE

The Barnes grinder station serving your home is part of a low-pressure wastewater system. Every day of the year a network of pipes carry wastewater to a pump station or wastewater treatment plant.

The grinder pump in your yard is an important part of the system. Your home is served by a low-pressure system, which uses a grinder pump to grind the wastewater from your home (much like a garbage disposal in a kitchen) and push the ground wastewater through small diameter plastic pipe to the larger pipe in the street. The grinder pump station is designed to handle routine, domestic sewage. Solid waste materials should be thrown in the trash.

Low-pressure wastewater systems are economical solutions for areas that cannot be served by traditional gravity lines. However, a grinder pump system does require the homeowner take a more active role than required for a property served by gravity sewer.

It is important that you know how your home sewer system operates and that you notify your local emergency dispatchers if a problem occurs. Our technicians provide maintenance and service; however, there may be service charges for pump repair and/or replacement.

Installed grinder pump stations may be placed in a utility Easement to provide access for maintenance and service. It is not advisable to plant flowers or shrubs or place such items as fences, decorative pilings, fish pond, etc. within close proximity to the grinder pump station as damage to the grinder pump station, underground electrical or piping systems may occur. The county/municipality will not be responsible for any damage to landscaping items placed in close proximity to the grinder pump stations while performing any maintenance function. Also, electrical power and alarm wires are buried under the ground between the control panel and the grinder station tank. Before digging in the area, call to have a technician locate the lines.

The grinder pump stations are provided with a small breather vent holes located on the side of the tank or cover. It is important to keep this vent open and free of debris, such as mulch or grass, for the unit to remain operational. It is also helpful to have the ground sloped away from the station so water will not pool and enter the vent rendering the unit inoperable.

With your cooperation, your low-pressure system will provide many years of safe, reliable service. Please take a few moments to read the following information to ensure the proper function of your pump.

IF THE ALARM SOUNDS

If the fluid level in the station reaches the alarm level, an alarm horn and light located in the alarm box on the outside of your home will automatically turn on.

You should...

- Limit water use to prevent overflows.
- Turn off the alarm by depressing the "silence" button on the side of the alarm box. The alarm horn will silence, but the light will remain on until the issue is remedied.
- Wait 15 minutes before taking further action. A high level of water usage will sometimes cause the alarm to come on. This situation is self-correcting. If the pump is operating correctly, the wet well will automatically be pumped down and the alarm light will turn off.
- If the alarm light is still on after 15 minutes, call your service provider.
- Never attempt to open the tank cover or the electrical panel box.

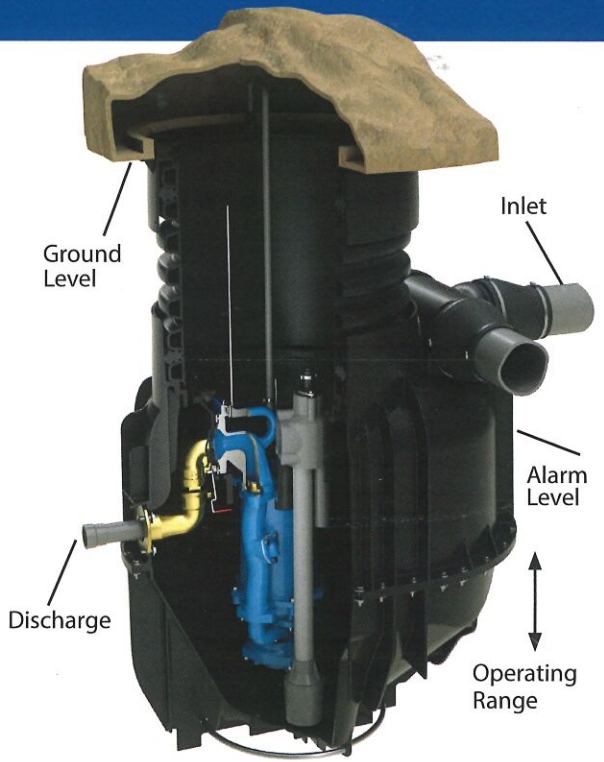
CAUTION: Electrical shock or damage to the system may occur.

PROTECT YOUR PUMP

The grinder pump can easily handle any wastewater that is normally discharged to the sewer from the kitchen, bathroom, or laundry. Some chemicals and materials may cause operating problems or safety hazards. It is advisable to check labels on chemicals prior to their disposal. Never connect a sump pump to the grinder pump station.

CAUTION: Never put any of the following materials into sinks, toilets, or drains – they may clog your system or create an unsafe environment:

- Glass, metal, wood, seafood shells, coffee grounds
- Paper, socks, rags, or cloth of any kind
- Tampons or sanitary napkins
- Plastic objects (toys, eating utensils, etc.)



- Any strong chemical, toxic, caustic, or poisonous substance
- Degreasing solvents
- Any explosive or flammable material
- Gasoline, kerosene, fuel oil, paint thinner
- Automotive antifreeze, lubricating oil or grease
- Cooking fat (lard, oil, grease)
- Kitty litter
- Baby wipes and products marked as "flushable"

FAQ

Alarm sounds when it rains

The unit is a sealed system and should not have any infiltration. Contact the utilities department for further investigation.

My neighbors alarm sound while they are away

Call the numbers listed in the contact section.

Odor is coming from the unit

Under normal operation, no odor should be present. The unit may require flushing with clean water the equivalent of half a bathtub volume. If odor persists, call the numbers listed in the contact section.

NUTS AND BOLTS... TECHNICAL DETAILS

A polypropylene wastewater holding tank has been installed underground on your property and a wastewater grinder pump is housed in the tank. The tank cover is round and is the only part that shows above the ground. All of the wastewater from your home flows into the buried tank. When the tank fills to a pre-set level, the grinder pump automatically turns on, grinds the waste, and forces it out of the tank and into the wastewater system.

The grinder pump normally will run for one minute or less and will automatically turn off when the tank has been emptied. The pump is programmed to operate in cycles, rather than continuously. Cycles are determined by the amount of water used, usually after 20 gallons has entered the tank. During a usual day, the grinder pump will turn on and off to empty the tank 10 to 20 times.

The grinder pump is powered by electricity and is connected to the electric service lines usually at a panel box located near your electric meter on the outside wall of your home. However, some are located in a panel inside the home. Grinder pump electricity charges are estimated to be less than a couple dollars a month and are included in your monthly electric bill.

IN CASE OF POWER FAILURE

If there is a power failure which affects your home, your grinder pump will also experience a loss of power and not be able to operate. The grinder pump tank has a holding capacity to help avoid alarm or high-level occurrences. Interior water usage should be limited until power has been restored.

Some units are equipped with a factory installed generator receptacle. This allows the pump to be operated in case of power failure. Follow the generator manufacturer's instructions when connecting a generator to these style panels.

WHILE ON VACATION OR EXTENDED LEAVE

If you will be away from your home for more than a week, the following steps should be taken to minimize the potential for the development of stagnating odors:

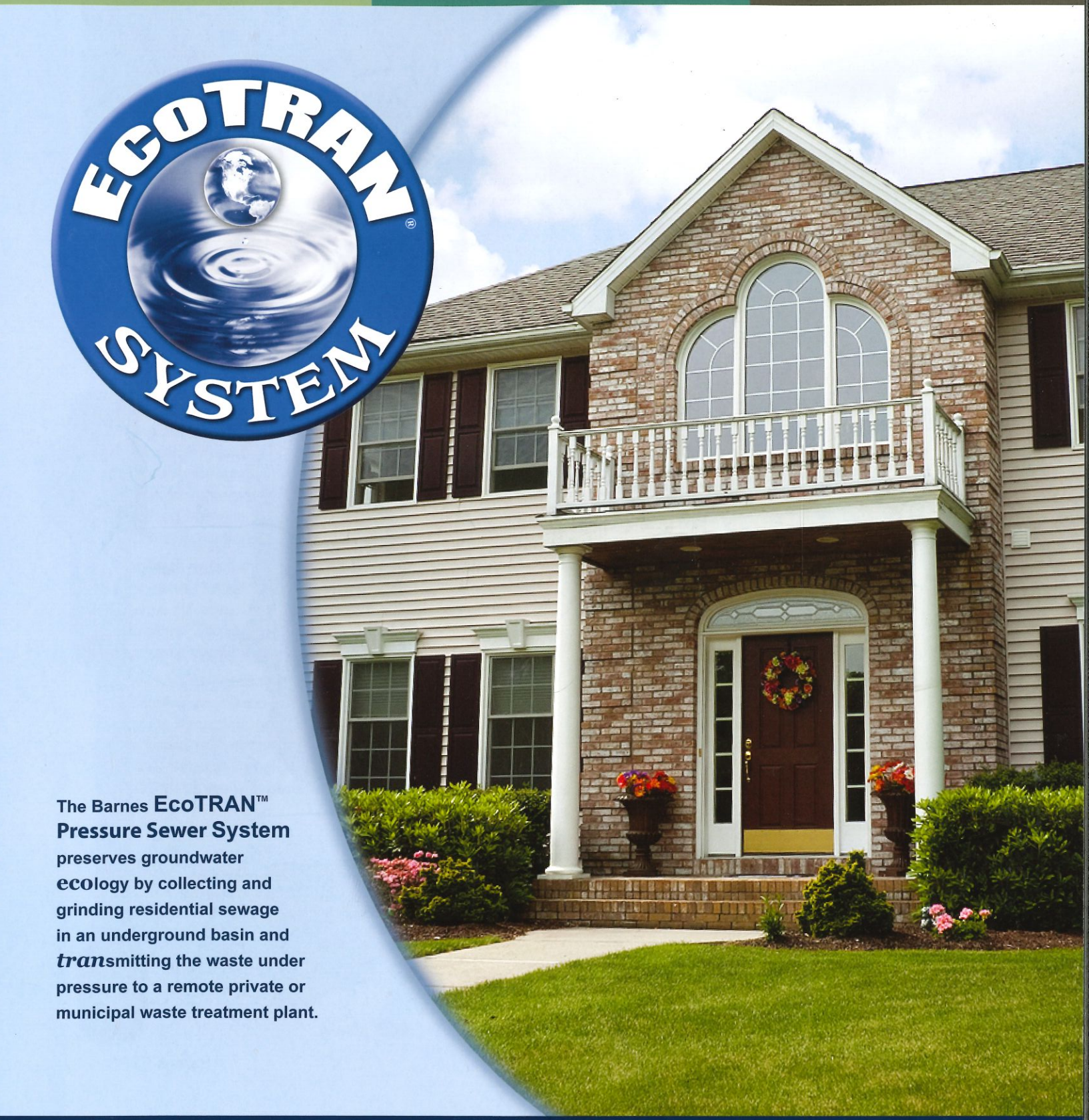
First, DO NOT shut off the power to the basin or your main power disconnect. The station should be energized at all times.

Run water from an inside tap long enough for the grinder pump to begin working (the equivalent of half a bath tub volume). The grinder pump will run until the tank is empty and

BARNES®

Pressure Sewer Systems

brands you trust.



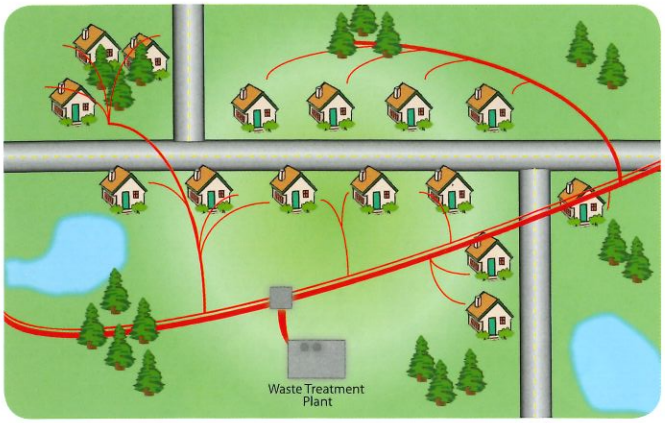
The Barnes **EcoTRAN™ Pressure Sewer System** preserves groundwater **eco**logy by collecting and grinding residential sewage in an underground basin and ***tran***smitting the waste under pressure to a remote private or municipal waste treatment plant.

Why Use a Pressure Sewer System?

Pressure sewer systems are an effective method to move residential wastewater through small diameter pipes to collection facilities where other methods are less economical or less feasible. The primary differences between conventional gravity sewer systems and pressure sewer systems are in the piping network and the reduction of solids size in the wastewater. Pressure sewer systems use specialized submersible grinder pumps, which are designed to reduce sewage particulate size to easily move the sewage through small diameter pipes.

Adapted from SWPA White Paper, "A Pressure Sewer Overview"

The application of grinder pumps and pressure sewer systems is a cost-effective, long life answer to allow more home sites, both existing and new, access to a public sewer system or regional private waste water treatment system.



The Heart of the System is the Grinder Pump

The Barnes Omni Grind Plus™ (OGP) provides heads up to 200' and flows to 28gpm. With the high head capabilities of a progressing cavity pump and the long life of Barnes centrifugal grinder pumps, the Omni Grind Plus is truly a universal grinder pump for single family residences.

Superior Performance

- Two stage pump design provides high head capability.
- Installed with the Barnes ESPS™, (Environmentally Sealed Pressure Switch) problems with grease build up are nonexistent.
- Start and run capacitors are located in the motor housing so no expensive control panel required.
- UL and CSA listed to assure quality and electrical safety.

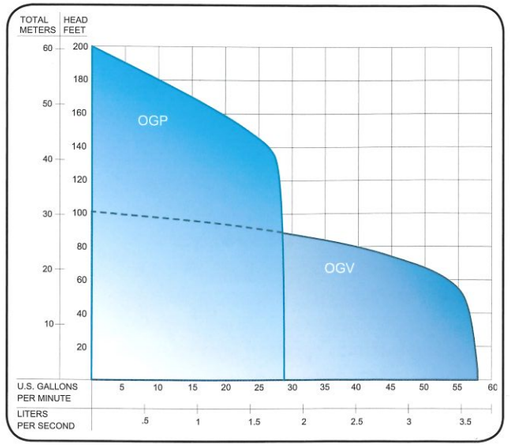
Omni Grind Plus

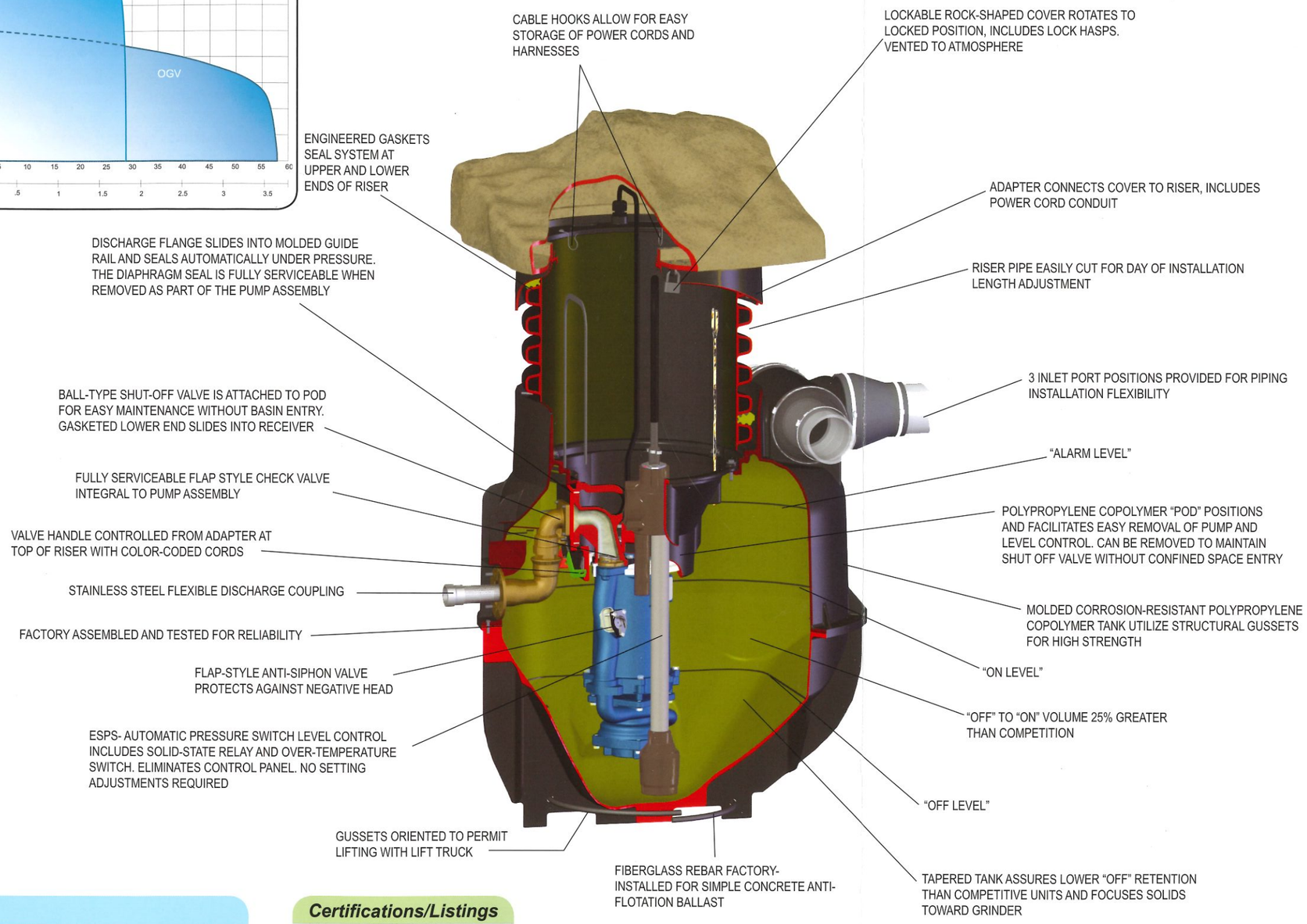
Dependable Activation Depends on a Reliable Level Control

The ESPS, is a highly dependable level control designed specifically for use with standardized low pressure sewer packaged systems.

- Pressure switch parts are protected from the basin environment with a Barnes exclusive sealed design.
- Slim, rigid column with no external moving parts. Unit is unaffected by solids, grease build up, or liquid swirling in basin.
- No field adjustment required because operating levels are factory preset.
- Barnes exclusive quick connect power cord seals tight and reduces strain.
- Overflow protection with separate air bells for operating control and high-level alarm.

Barnes ESPS





"Inlet" to "Alarm"	15.5 Gal.
"Alarm" to "On"	18.5 Gal.
"On" to "Off"	20.0 Gal.
Residual Volume Below "Off"	10.5 Gal.

Certifications/Listings
UL 778
UL 508
UL 1951
CSA 108
NSF/ANSI 46

Engineer / Specifier

The Barnes EcoTRAN Pressure Sewer System has been designed, tested, and certified to ensure long term, trouble-free operation. The system components and basin package, as a whole, were tested and certified to UL and CSA electrical standards and NSF/ANSI 46 grinder pump and station requirements.

All non-metallic components in polypropylene, polyethylene and thermoset vinyl ester provide outstanding corrosion resistance and high strength. All metallic components in cast iron, stainless steel or bronze offer proven resistance to corrosion in sewage applications.

Two grinder pump alternatives, the Omni Grind Plus (OGP) or Omni Grind™ (OGV), provide system design flexibility and "universal" residential hydraulic coverage. The OGP high-head grinder pumps can be used universally, while the medium-head OGV grinder pumps can be used as a cost-savings measure for lower system heads.

Factory pre-set ESPS , is immune to the effects of grease build-up and requires no field adjustment.

Both vented and "flood plain" covers are also available.

Simple Installation

The Barnes EcoTRAN Pressure Sewer System is easy to install and designed to eliminate time consuming callbacks.

Direct burial cable, alarm box and all needed parts and gaskets are supplied with the EcoTRAN unit. Wiring and lifting harnesses stow neatly with cable hooks at top of the riser.

To install the system, a 36" auger or backhoe can be used for excavation. Pre-installed, fiberglass rebar allows simple anti-flotation ballasting with poured concrete. Only 1/3 yard of concrete is required for any installation depth. The riser design also permits day-of-installation depth setting.

Three inlet positions provide piping location flexibility and a flexible outlet connector prevents potential misalignment due to settling. Pre-wired waterproof power connectors dramatically simplify electrical wiring and the alarm box readily attaches to a residence or post.

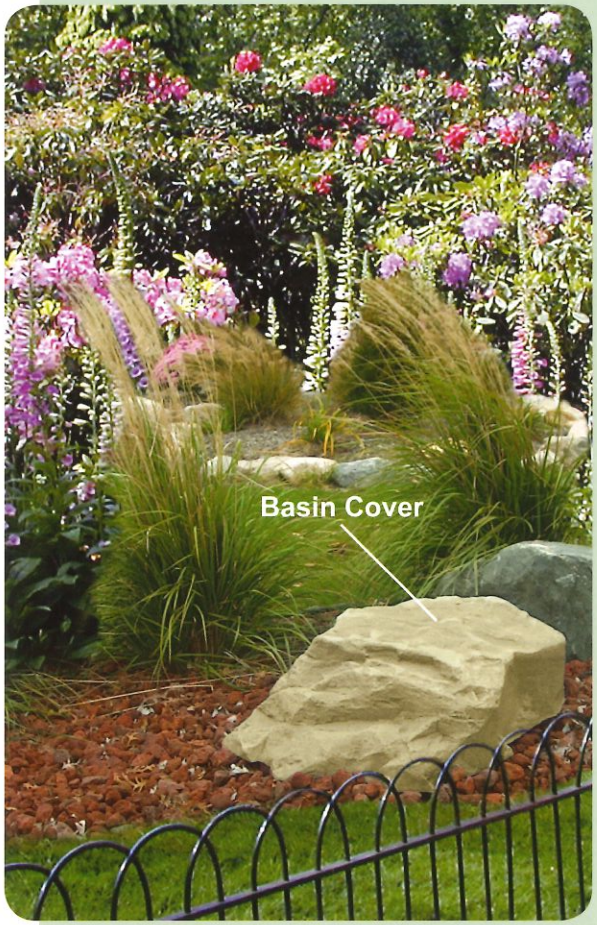
All components are easily installed, including the level control and pump. The level control drops into factory pre-set position, with no adjustments required. The pump then slides easily into position and does not need to be powered up until system start-up.

Homeowner Features

Barnes EcoTRAN Pressure Sewer System is dependable, safe and aesthetically pleasing to homeowners.

The EcoTRAN is equipped with a sealed pressure switch, eliminating costly maintenance frequently required of float systems where grease is present or in areas where mercury float switches are banned or restricted. Additionally, a highly dependable centrifugal grinder pump eliminates wearing components for trouble-free operation.

Equipped with a low profile, non-rusting alarm box with silence button, the system provides both light and horn notification in the event of pump malfunction. The EcoTRAN System is also equipped with lockable rock-shaped cover which makes the system safe and completely childproof. This unique cover design also blends well with its surroundings, reducing visual impact, which makes the system both out of sight and out of mind.



The Barnes EcoTRAN System basin cover readily adapts to virtually any landscape design, blending in with the natural environment surrounding it.

Maintenance

Barnes EcoTRAN Pressure Sewer System is easy to maintain. All system maintenance is performed from topside so confined space entry is never required.

The cover is easily removed by unlocking the padlock, twisting the cover to unlock and then lifting off. The level control can be readily removed without handling the pump. The pump-mounted check valve, discharge diaphragm and anti-siphon valve are all easily serviced. A pre-attached two-point lifting harness allows quick and easy removal of the pump with no unbolting required.

To facilitate repair, the pump motor is bolted to frame components, rather than press or shrink-fit to the housing. The shut-off valve, connected to the pod, is easily removed from above. The isolation valve is also operated from above with a color-coded actuation cord.

Quick-connect cords were designed to simplify pump and level control connection, allowing for rapid component swapping if needed. All systems are equipped with standard alarm boxes with circuit breakers, eliminating the need to decipher through complicated, customized control panels, or optional boxes with generator receptacles.

Alarm Box

Frequently Asked Questions

Q. Barnes offers a choice of two different grinder pumps with an EcoTRAN System. Which pump should I choose?

A. The Omni Grind (OGV) is rated for low to medium heads, up to 95 feet or 41 PSIG, while the Omni Grind Plus (OGP) is designed for higher heads, up to 180 feet or 78 PSIG at 10GPM. The project Engineer or a Barnes Pressure Sewer specialist can advise the expected head based on the system piping design, or you can simply select the OGP for any head up to 180 feet.

Q. Are progressing cavity grinder pumps available with the EcoTRAN System?

A. No. In order to provide the best possible grinder pump life, we have chosen to use grinder pumps with the proven centrifugal vortex design. Progressing cavity pumps continuously wear, and the wear is accelerated under certain operating conditions; centrifugal pumps by their nature are not affected by pressure extremes or high flow rates.

Q. The Barnes EcoTRAN System is fairly compact. What do I do if additional retention capacity is required?

A. Barnes offers an extensive line of engineered pressure sewer systems with available depths up to 20 feet and diameters up to 6 feet. Larger capacity stations are readily available for your specific needs.

Q. Many specifications call for a minimum 24" diameter basin. Why was the riser on the EcoTRAN System selected with an 18" diameter?

A. The size of the external cover (effective diameter) depends primarily on the riser diameter; an 18" diameter was chosen to reduce the visual impact of the cover in the homeowner's yard. The specifications calling for a 24" diameter require a worker to enter the basin to perform shutoff valve maintenance. With the removable POD design, all maintenance is performed from topside eliminating the need for confined space entry.

Q. How are children prevented from gaining access to the basin or the alarm box?

A. The EcoTRAN is provided with brass padlocks for both the basin cover and the alarm box.

Q. What happens if solid materials or drain cleaners enter the system from house?

A. The EcoTRAN has been thoroughly tested and qualified to NSF/ANSI 46, a specification that requires successful operation despite the occasional entry of a wide range of challenging materials, including cloth.

Visit our website to read Case Studies on Pressure Sewer *SUCCESS* stories!

CERTIFIED TO NSF/ANSI 46

CRANE PUMPS & SYSTEMS

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