

BARNES[®]

by Crane Pumps & Systems, Inc.



The Barnes **ECOTRAN[™]** Pressure Sewer System preserves groundwater **ECO**logy by collecting and grinding residential sewage in an underground basin and **trans**mitting the waste under pressure to a remote private or municipal waste treatment plant.



CRANE

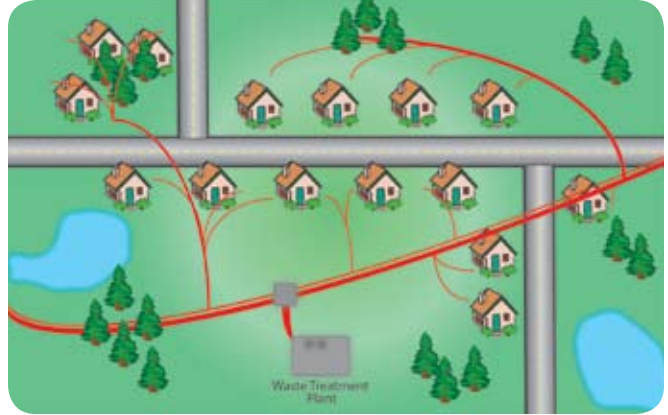
PUMPS & SYSTEMS

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 progressive 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

Dependable Activation Depends on a Reliable Level Control

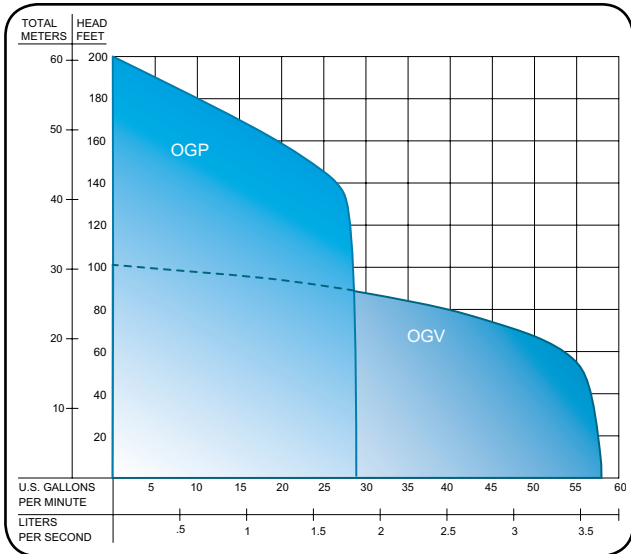
The Environmentally Sealed Pressure Switch, or ESPS, is a highly dependable level control designed specifically for use with standardized low pressure sewer packaged systems.

- 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.



Omni Grind Plus™

Barnes ESPS™



WATERPROOF CONNECTOR
ELIMINATES NEED FOR CONDUIT
BOX TO CONNECT PUMP POWER
CORD TO BURIED CABLE

CABLE HOOKS ALLOW FOR EASY
STORAGE OF POWER CORDS AND
HARNESSES

ENGINEERED
GASKETS SEAL
SYSTEM AT UPPER
AND LOWER ENDS
OF RISER

DISCHARGE FLANGE SLIDES INTO MOLDED GUIDE
RAIL AND SEALS AUTOMATICALLY UNDER PRESSURE.
THE DIAPHRAGM SEAL IS FULLY SERVICEABLE WHEN
REMOVED AS PART OF THE PUMP ASSEMBLY

BALL-TYPE SHUT-OFF VALVE IS ATTACHED TO POD
FOR EASY MAINTENANCE WITHOUT BASIN ENTRY.
GASKETED LOWER END SLIDES INTO RECEIVER

FULLY SERVICEABLE FLAP STYLE CHECK VALVE
INTEGRAL TO PUMP ASSEMBLY

VALVE HANDLE CONTROLLED FROM ADAPTER AT
TOP OF RISER WITH COLOR-CODED CORDS

STAINLESS STEEL FLEXIBLE DISCHARGE COUPLING

FACTORY ASSEMBLED AND TESTED FOR RELIABILITY

FLAP-STYLE ANTI-SIPHON VALVE
PROTECTS AGAINST NEGATIVE HEAD

ESPS- AUTOMATIC PRESSURE SWITCH LEVEL CONTROL
INCLUDES SOLID-STATE RELAY AND OVER-TEMPERATURE
SWITCH. ELIMINATES CONTROL PANEL. NO SETTING
ADJUSTMENTS REQUIRED

GUSSETS ORIENTED TO PERMIT
LIFTING WITH LIFT TRUCK

EPOXY-COATED REBAR FACTORY-
INSTALLED FOR SIMPLE CONCRETE
ANTI-FLOTATION BALLAST

Retention Volumes

Volumes

"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.

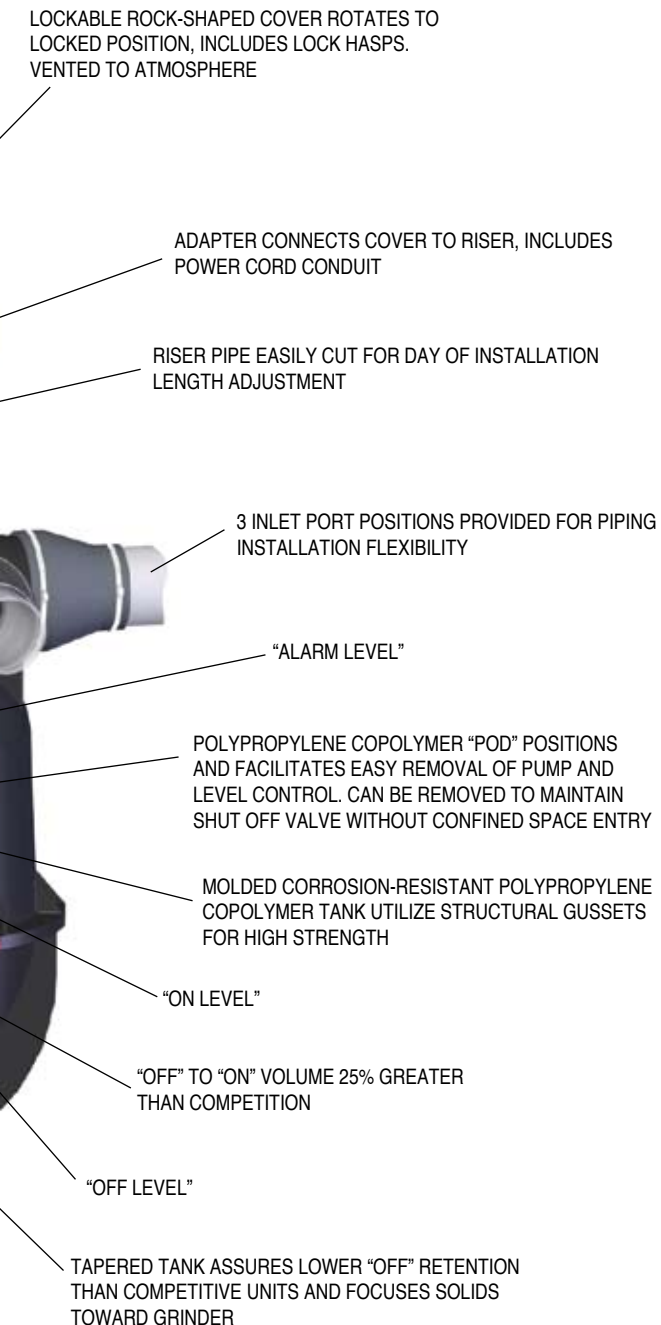
Certifications/Listings

UL 778

UL 508

UL 1951

CSA 108



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 Environmentally Sealed Pressure Switch, or 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, additional redundant check valve 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, epoxy-coated 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.

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.



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



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 progressive 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. Progressive 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,

BARNES®

www.cranepumps.com



CERTIFIED TO
NSF/ANSI 46

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A Crane Co. Company
Printed in U.S.A.
BPSECOBRO - Rev. A1 (11/06)

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