

CLARUS[®]



ENVIRONMENTAL

A Division Of Zoeller Company



Engineered Systems

Recirculating Media Filter

High Performance Upflow Wetland

Drop in Wastewater Treatment Plant

STEP Collection & System Components

Trusted. Tested. Tough.[®]



Clarus® Environmental Overview

Clarus® Environmental is a division of the Zoeller Company. Our objective is to meet the growing demand for solutions, products, and services in the fields of environmental protection and wastewater treatment. We seek to provide our customers with environmentally friendly solutions by offering high quality products and proven technology. When it comes to wastewater treatment systems and products, Clarus® Environmental has the solutions for you.

Durability in Design

Clarus® Environmental offers sustainable environmental products, solutions, and services for the collection, treatment, and dispersal of residential and community wastewater. With expertise in pumps, pressure sewers, biological and mechanical treatment processes, disinfection, and soils, Clarus® Environmental offers the experience to design, implement, and configure a wide range of projects.

When thinking about water treatment, it all comes down to one word—trust. You need to be able to inherently trust that the treated water you receive is appropriate for its intended use. Clarus® understands the crucial nature of this trust and never takes it for granted.

Wide breadth of Product Line

From simple needs such as effluent filtration to complex solutions for complete, onsite wastewater management, Clarus® has the appropriate tools and the real-world understanding to meet and exceed our customers' needs.

While Clarus® has strong roots in product manufacturing, we are capable of providing much more than a mere list of components. The Clarus® team brings to the table not only quality products, but also an impressive array of technical knowledge, practical experience, and time-savers like drawings and specifications. Clarus® Environmental does not subscribe to the "one size fits all" mentality. Each project bears unique circumstances that no single cookie-cutter answer can meet.

Let Clarus® assist you with the perfect solution to your onsite project.

Engineered Systems



Commercial installation of a large-scale Fusion® ZFL-2400

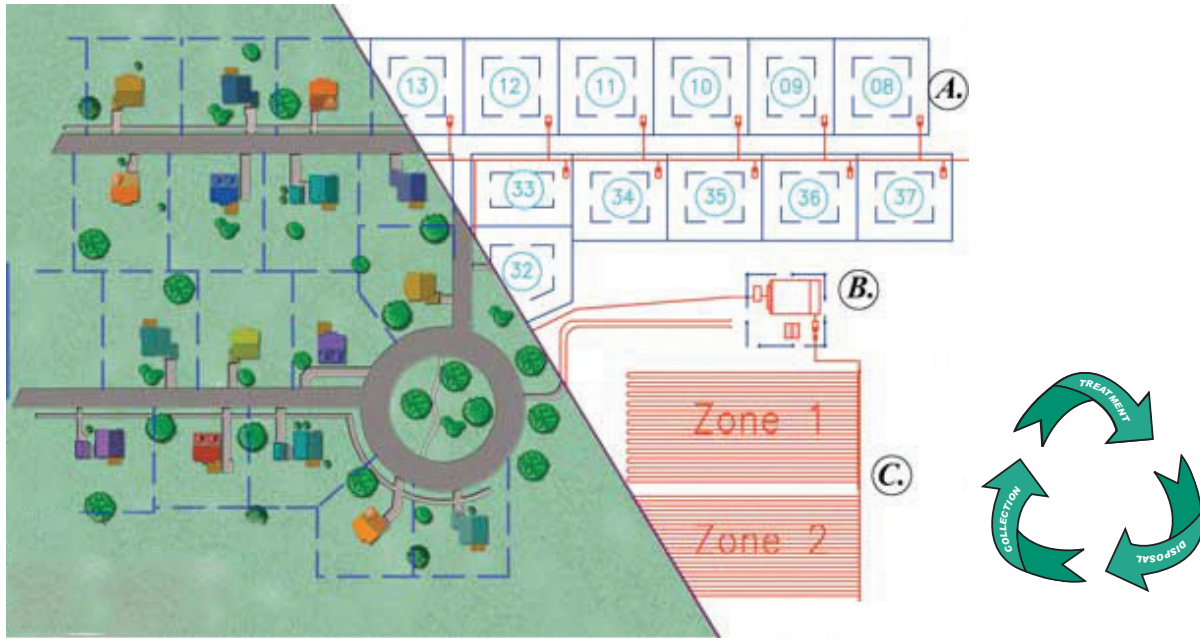


Large-capacity Z-Cell upflow wetland under construction.



Clarus Environmental can offer assistance to developers and design engineers for all manners of decentralized systems.

Bringing It All Together



A. Step Collection; B. Recirculating Media Filter; C. Drip Irrigation

Clarus Environmental's Engineered Systems provide cost-effective alternatives to conventional gravity sewers and municipal wastewater treatment plants. Recirculating media filters and constructed wetlands can be customized to fit nearly any domestic wastewater application. Fusion® series treatment systems incorporate several treatment processes into one compact, pre-engineered unit, without the need for a separate pretreatment tank. While Clarus Environmental has strong roots in product manufacturing, we can bring much more to a project than just system components.

No two projects are the same, and Clarus Environmental has valuable experience in optimizing custom solutions for custom jobs. From brainstorming options at a project's inception, to providing product details and customized specifications during the design phase, to providing a myriad of construction and post-construction support, our knowledgeable staff is our greatest resource. Let Clarus Environmental assist you with the ideal solutions for your project.



Recirculating Media Filter

Treatment Systems

RECIRCULATING MEDIA FILTERS

Media filters containing sands and gravels have been in use for over 125 years. Within the last 40 years, these treatment systems have become refined and better understood. Media treatment systems are a form of aerobic trickling filter, and are well adapted to residential, commercial, and municipal onsite waste treatment. These systems frequently replace aerobic package plants in many parts of the country because of their high reliability and lower O&M requirements (EPA 2002).

APPLICATIONS:

- Residential
- Commercial
- Small Community
- Cluster

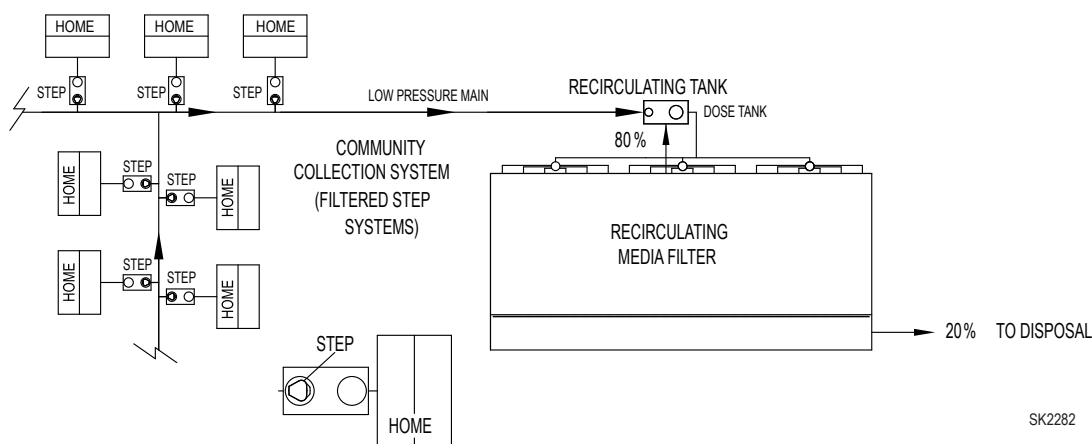
FEATURES:

- Robust, passive aerobic treatment
- Specified gravel media is more reliable than sand (3/8 inch)
- Proven and reliable technology
- Minimal maintenance requirements
- Produces <25 mg/L CBOD5 and <30 mg/L TSS
* based on domestic strength influent
- Design can be adapted to specific organic and hydraulic loading. Please contact the factory for design assistance.



Partially constructed recirculating media filter

COMMUNITY TREATMENT SYSTEMS

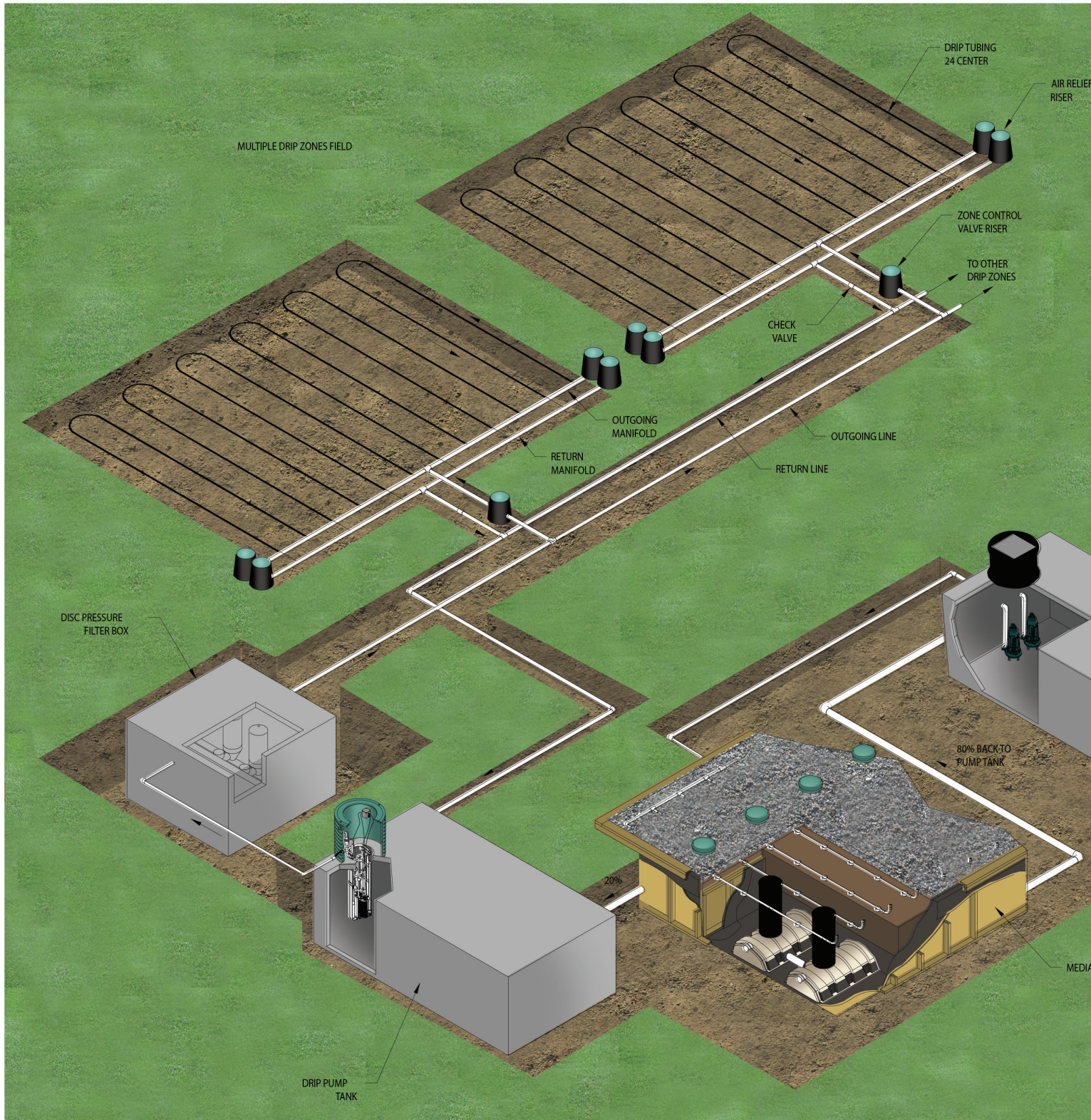


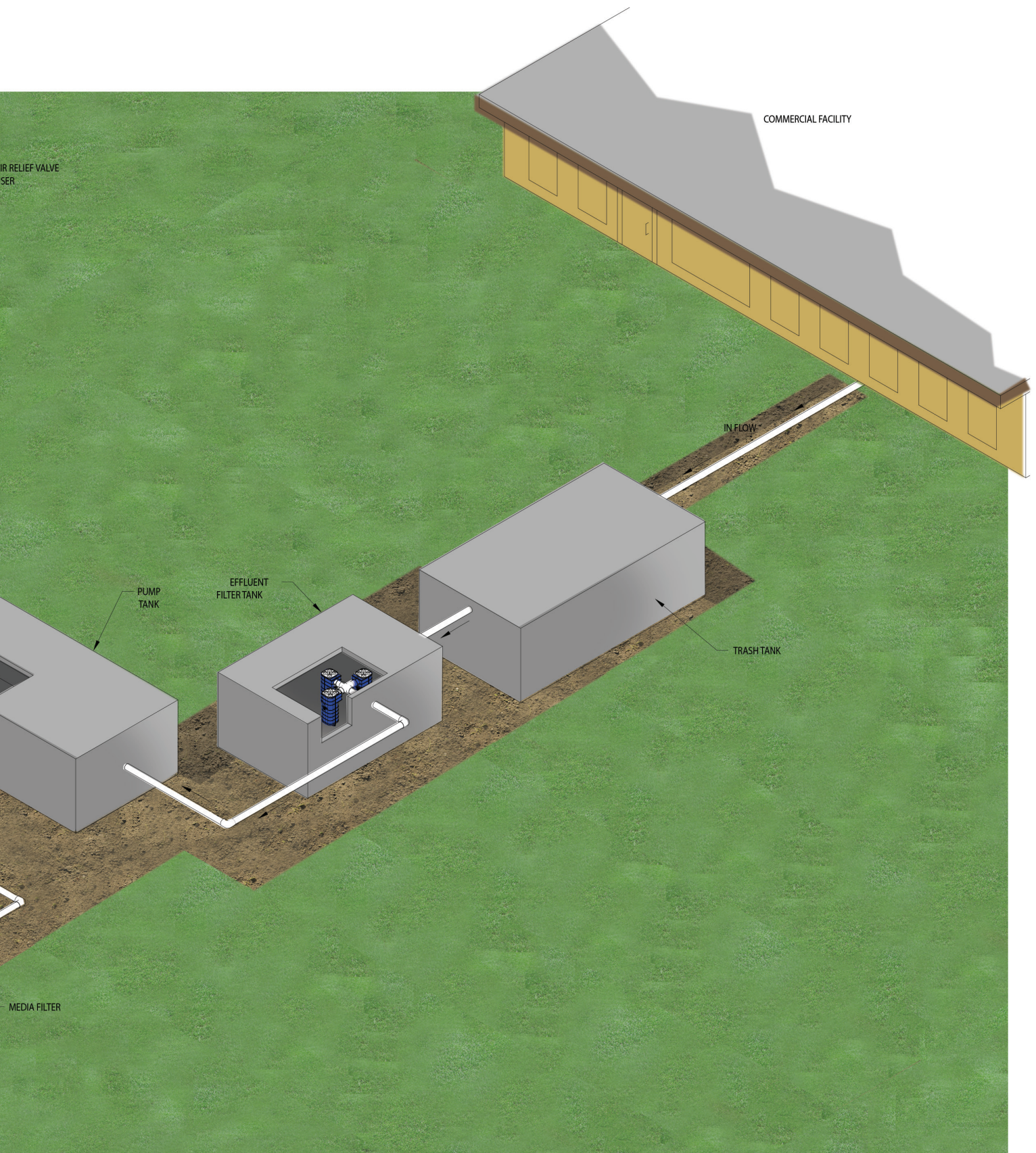
Municipal kits are designed for clustered systems where the waste strength is more predictable (BOD<200) due to the multiple sources of waste generation.

- | | |
|--------------------------|---------------------------|
| • 30' x 20' – 3,000 GPD | • 50' x 60' – 15,000 GPD |
| • 30' x 30' – 4,500 GPD | • 50' x 72' – 18,000 GPD |
| • 30' x 40' – 6,000 GPD | • 50' x 90' – 22,500 GPD |
| • 30' x 50' – 7,500 GPD | • 50' x 96' – 24,000 GPD |
| • 30' x 60' – 9,000 GPD | • 50' x 108' – 27,000 GPD |
| • 50' x 36' – 9,000 GPD | • 50' x 120' – 30,000 GPD |
| • 50' x 48' – 12,000 GPD | • 50' x 144' – 36,000 GPD |

*Custom sizes can be configured for specific projects. Please consult factory.

Installations





Treatment Systems

HIGH PERFORMANCE UPFLOW WETLANDS

Z-CELL® WETLANDS

An attractive, robust and environmentally sound treatment system

The Clarus Environmental Z-Cell® is a high-performance wetland designed for use in decentralized wastewater applications where the effluent quality must meet or exceed secondary treatment standards. The Z-Cell® is a timed-dose system and the wastewater has a 36" vertical path to an outlet pipe below the wetland's surface. By moving water vertically, the fluid must pass through the horizontally-oriented plant root zone. This eliminates short circuiting, an issue common in conventional constructed wetlands. During the growing season, evapotranspiration through plant leaves reduces the hydraulic load to downstream components.

APPLICATIONS:

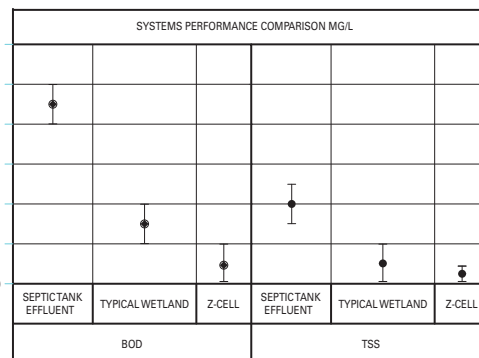
- Residential
- Commercial
- Small Community
- Cluster

FEATURES:

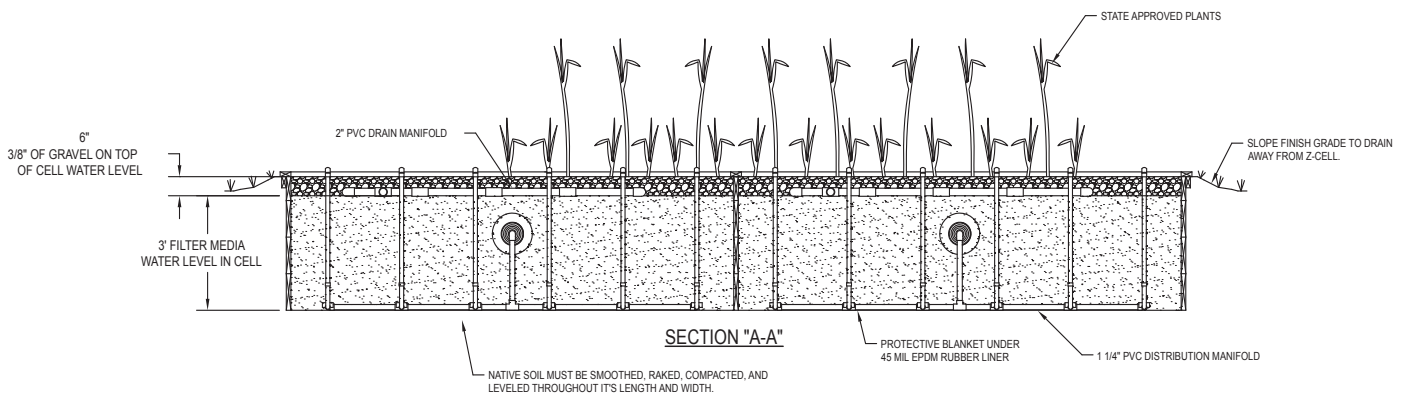
- Anaerobic vertical flow treatment
- Beautiful addition to the natural landscape
- Less water to disperse during the growing season
- Produces <25 mg/L CBOD5 and <30 mg/L TSS
* based on domestic strength influent
- Design can be adapted to specific organic and hydraulic loading. Please contact the factory for design assistance.



Z-Cell® Wetland Wastewater Treatment System - Letting Nature Work.



SK3175



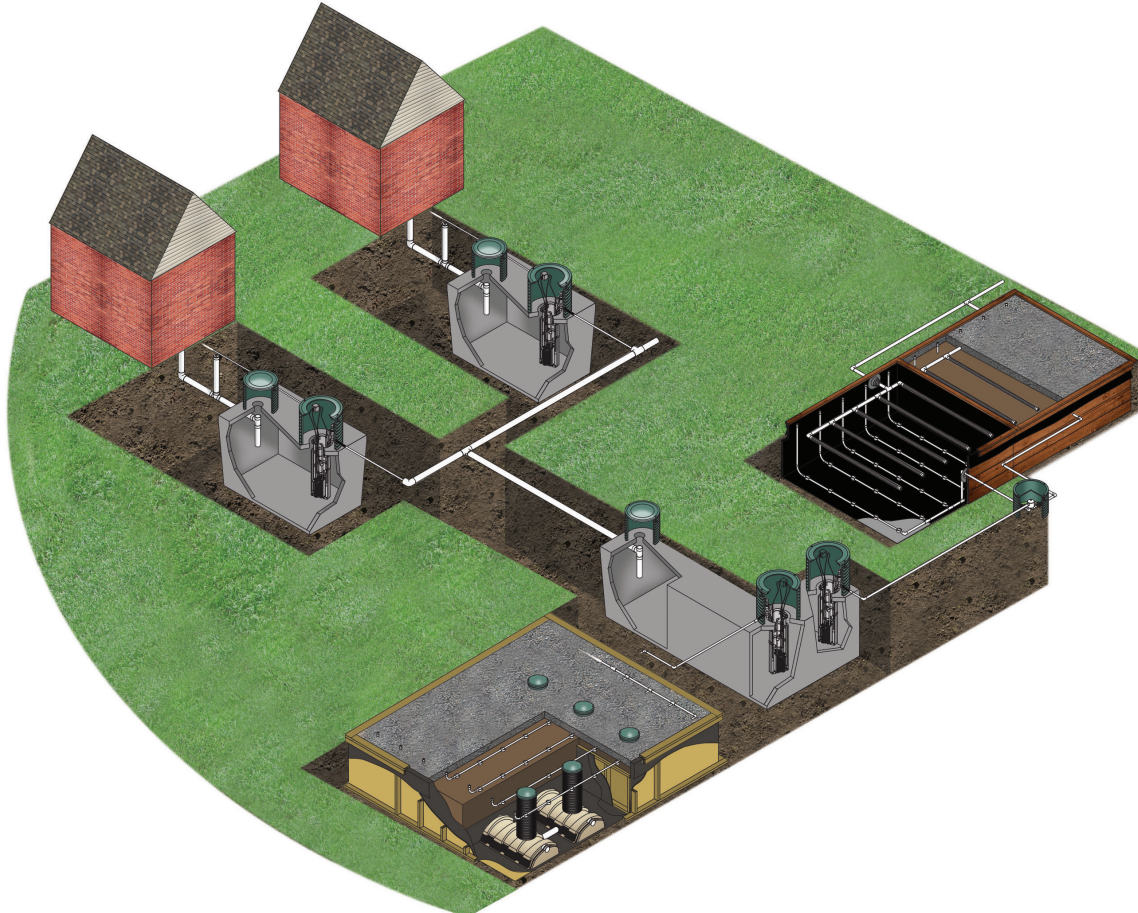
NOTE: ALL AGGREGATE MATERIAL SUPPLIED BY OTHERS.

NOTE: MEDIA FILTER SHOULD BE BACK FILLED AS AGGREGATE IS BEING ADDED TO MEDIA FILTER. DON'T EXCEED 18" DIFFERENCE IN THE MEDIA FILL AND THE BACK FILL.

NOTE: ALL LUMBER TO BE JOINED WITH GALVANIZED OR S.S. DECK SCREWS, SPIRAL NAILS, OR BOLTS. STANDARD NAILS ARE NOT ACCEPTABLE THEY COULD BACK OUT AND PUNCTURE THE LINER.

SK2338

Installations



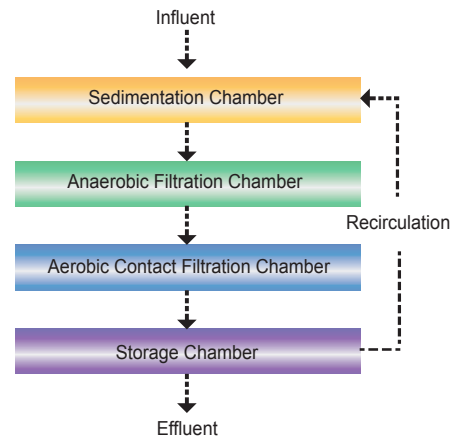
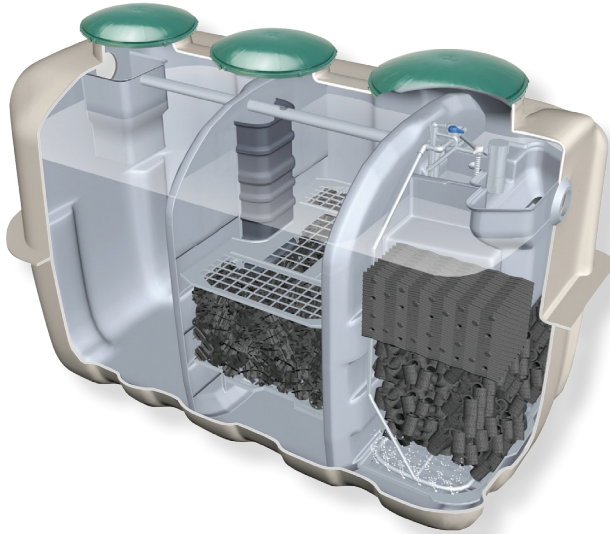
Treatment Systems

Clarus Environmental's Fusion® Series Treatment Systems are pre-engineered wastewater treatment units designed for use in decentralized applications where the effluent quality needs to meet or exceed secondary treatment standards. The Fusion® units' small footprint makes them ideal for use on sites where space is limited. Effluent disposal options include: conventional trenches, dosed systems, drip irrigation, or disinfection with direct discharge.

- Highly adjustable to site conditions
- Easy installation with only 3 or 4 pipe connections
- Lifetime warranty on the media
- Proven technology
- Produces <25 mg/L CBOD5 and <30 mg/L TSS
* based on domestic strength influent

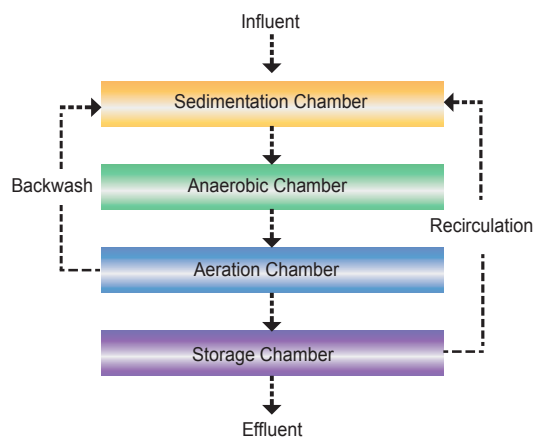
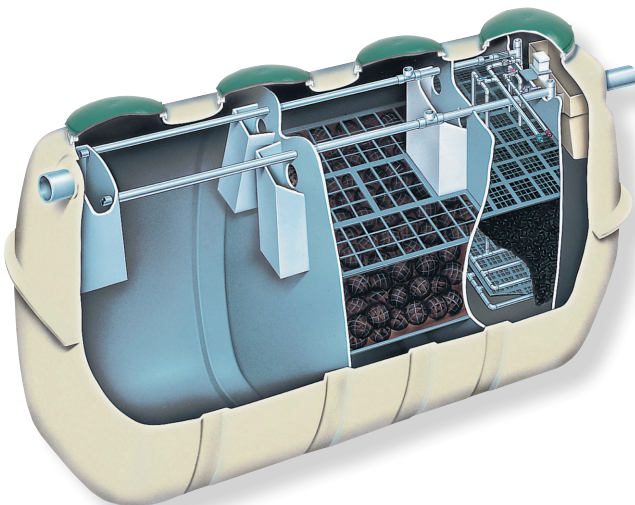
SMALL COMMERCIAL FUSION® TREATMENT SYSTEM

Compact Wastewater Treatment Plant
1,440 and 2,000 GPD

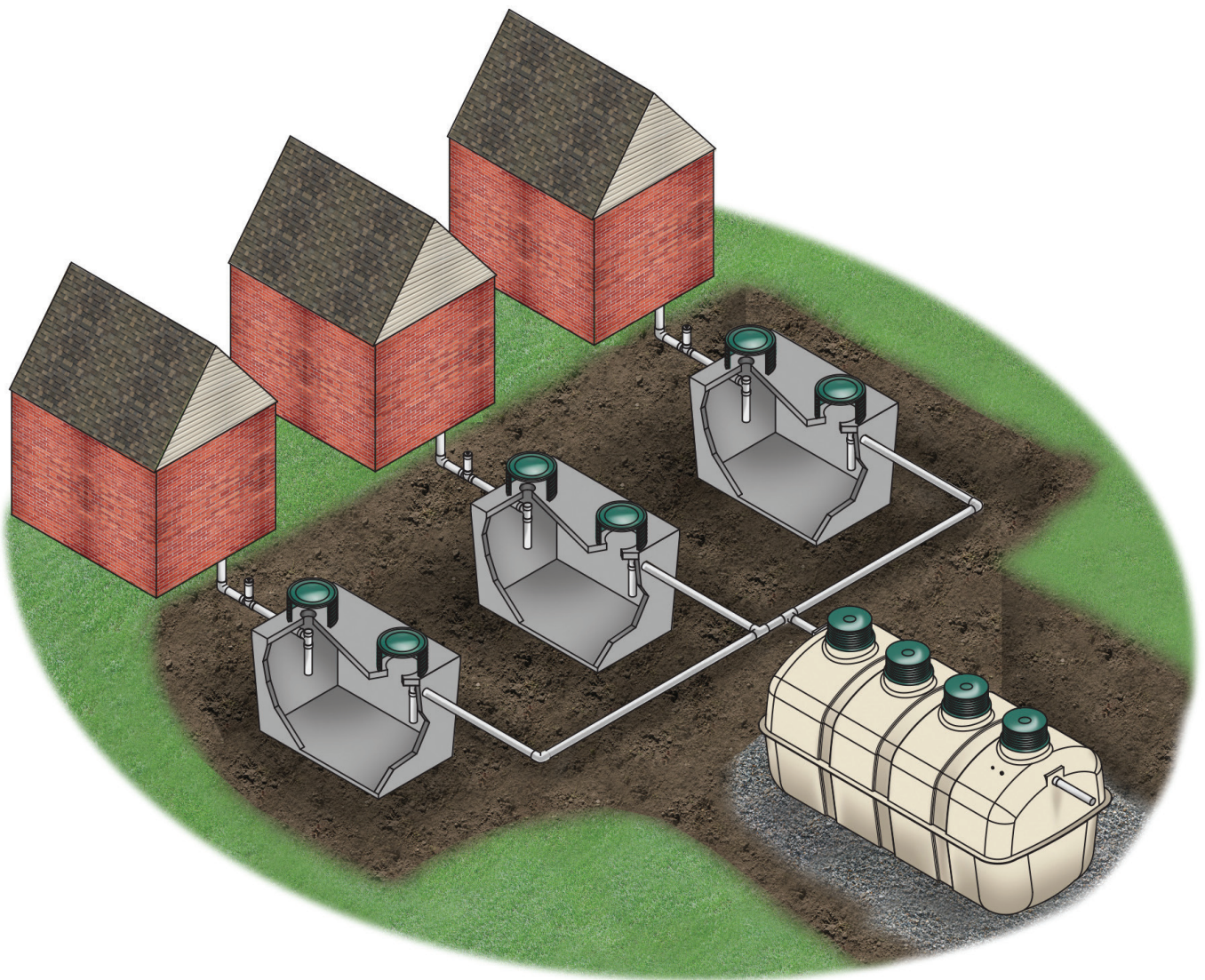
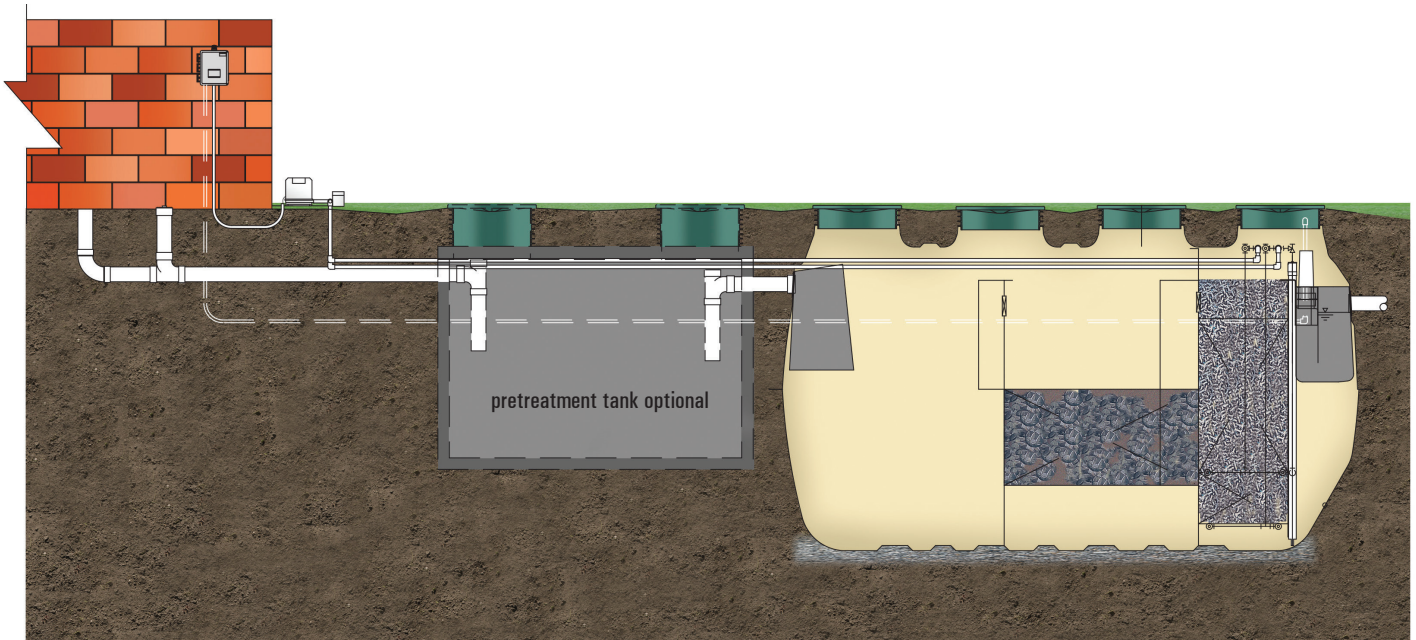


LARGE COMMERCIAL FUSION® TREATMENT SYSTEM

Compact Wastewater Treatment Plant
2,800 and 4,000 GPD



Installations



Case Studies

as seen in . . .

Pumper

March 2012

FUSION® TREATMENT SYSTEM SAVES LAKE FROM CONTAMINATION

PROBLEM

A mobile home park in Michigan had a failed septic tank resulting in surfacing effluent and contamination of a nearby lake. The site had an existing 20,000-gallon septic tank and the owner was restricted to pumping and hauling the waste away. A replacement drainfield was not possible due to site constraints that included limited space, poor soil conditions and a high water table.

SOLUTION

After careful consideration, a new system was designed to treat 5,000 GPD, utilizing the existing septic tank and Clarus Environmental WW4 effluent filters. Two ZFL-2400 Fusion® Treatment Systems were installed in parallel with influent evenly split using a Tru-Flo® splitter box. Treated effluent was collected in a 1,500-gallon dose tank. Two Zoeller model N153 pumps were used to dose the low-pressure drainfield.

RESULT

Since startup, the system has performed perfectly. System maintenance is performed twice per year.



RECIRCULATING MEDIA FILTER SOLVES HIGH STRENGTH WASTE PROBLEM

PROBLEM

Huber's Orchard and Winery, located in Starlight, IN, had installed a mound system to treat waste from numerous structures including an ice cream shop and a catering operation. After one year of careful monitoring by the local county health department and the State Department of Health, it was determined that the waste strength loading was too high for the new mound system and an additional pretreatment system was needed to lower the waste strength prior to discharge to the mounds.

SOLUTION

Clarus assisted with recommendations for a new pretreatment system and ultimately recommended a recirculating media filter (RMF) treatment system to be installed between the existing septic tanks and the mound system. A local engineer designed the new RMF resulting in the construction of a 30 ft x 30 ft RMF. Zoning of the RMF distribution laterals was utilized so the effective treatment area could be reduced as needed by turning off zones during slower times of the year when flows were lower. Two new dose tanks were installed and plumbed together. These tanks were used as recirculating dose tanks and contained two Zoeller Model 295 pumps that were controlled by a duplex time dose panel.

RESULT

Commissioning of the RMF was done in October 2019. Within approximately one month, the new RMF was treating wastewater efficiently, meeting the objective of effective pretreatment to the mound system.



Case Studies

COMMERCIAL RECIRCULATING MEDIA FILTERS



A church, located in Central Indiana, was expanding to accommodate an increase in membership and the existing septic system was too small for the new kitchen facility. A Zoeller 20' x 30' Recirculating Media Filter was designed to handle up to 3,000 GPD, with a drip system for final effluent disposal. The versatility of drip was demonstrated by locating the three zones in an adjacent field used for recreational purposes. The system was installed in June, 2003 and 14 subsequent samplings have revealed an average effluent quality of 3 mg/L BOD5 and 2 mg/L TSS.



A restaurant, located in South Central Kentucky, was experiencing a \$6,000 per month expense pumping their holding tanks. The 150 seat restaurant had a design flow rate of 4,500 GPD with septic tank effluent waste strength over 600 mg/L BOD5. A Zoeller 50' x 36' Recirculating Media Filter was installed in March 2004. Effluent is dispersed through 15,000 feet of pressure compensating drip line. Sampled quarterly for four years after installation, effluent BOD5 and TSS are less than 7 mg/L - a 98% reduction in waste strength.

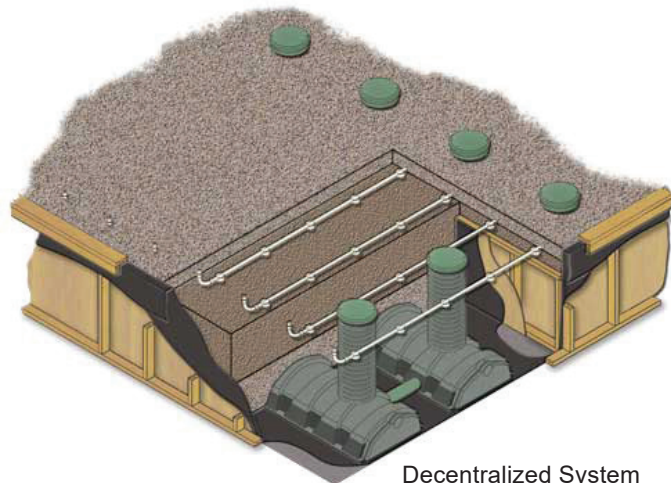
Case Studies



A utility company located in South Central Wisconsin had a failing aerobic package plant and needed an alternative system. The failing plant was not only high maintenance but was also discharging unacceptable effluent to a nearby recreation area, causing intense public scrutiny. Zoeller Pump Company was able to work with a local engineering firm to solve the wastewater dilemma. A 40'x 70' recirculating media filter, capable of handling 14,000 GPD, was designed to meet their needs. Plant personnel were trained by Zoeller and are now routinely monitoring and maintaining the system.



Lake Conway, the largest commissioned game and fish reservoir in the U.S., is a major recreational destination in Central Arkansas. The lake was finished in 1951, and development around its shores began almost immediately. At the time, little was done to standardize the septic installations. The lack of good quality installations, combined with poor soils and negligent septic management practices, led to pollution in the waters of Lake Conway. Money was granted in a first phase to convert over 300 of the original 1,700 homes from their existing septic tanks to a new wastewater treatment system. Zoeller Recirculating Media Filters were engineered to treat the clustered wastewater. In addition, Zoeller Pump Company helped design the force mains that delivered the septic tank effluent from each home to the treatment system. The system is composed of four 55' x 140' recirculating media filters and is designed to treat over 150,000 gallons per day. Treated water passes through a chlorine contact basin for sterilization and is discharged into the lake. Discharge limits were established and monitored by the Arkansas Department of Environmental Quality. The system is operating and performing well.



Decentralized System

Pump Systems

TURBINE EFFLUENT PUMPS

APPLICATION:

STEP systems
Effluent sewer force mains
Treatment systems
Drip field dosing

ACCESSORIES:

Check valves
1-1/4" (p/n 30-0187)
2" (p/n 30-0189)

FEATURES:

- 1/2 HP up to 3 HP
- 115 and 230 Volt, 1 Ph
- Inlet screens
- Franklin Electric submersible motors, pumps pass 3/32" spherical solids
- Corrosion-resistant stainless steel motor, pump casings, and hex drive pump shaft
- High efficiency floating stack impeller design
- 10' of jacketed 50 type power cord (1/2 HP - 1-1/2 HP)
- Additional cord lengths of 25', 50' and 100' also available
- 1-year warranty from date of purchase
- 5-year warranties also available



11, 19, 27 GPM
Models

35, 55, 85 GPM
Models



CENTRIFUGAL STEP SYSTEMS

APPLICATION:

Onsite enhanced flow or low pressure pipe (LPP) systems, or repairs to failed septic systems where gravity flow is not an option.

FLOW RATE:

Up to 50 GPM

FEATURES:

- Available with models 51, 53, 98, 142, 145, 151, 152, 153 centrifugal pumps
- Tank made from durable polyethylene
- Cast iron centrifugal pump
- Alarm box or control panel packages available



TURBINE STEP SYSTEM

APPLICATION:

Onsite enhanced/pumped septic systems, or repairs to failed septic systems where gravity flow is not an option, sand filters, pressure pipe dosing systems or other alternatives that require high head.

FLOW RATE:

Systems up to 85 GPM available

FEATURES:

- Tank made from durable polyethylene
- Stainless steel/plastic turbine effluent pump
- Heights from 51" to 120" available
- Simplex and duplex systems
- All vaults fit in an 18" tank opening.
- Alarm box or control panel packages available

ACCESSORIES:

Float Tree (see CL0150 for options)

PATENT NO.
5,985,139
OTHERS
PENDING



Products may not be exactly as shown.

Distribution Components

ACTUATOR ZONE VALVES

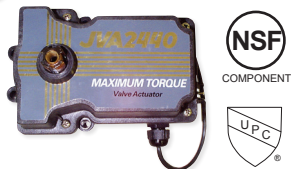
APPLICATION:

Zoning of large effluent distribution networks
A more reliable alternative to solenoid valves

FEATURES:

VALVE

- Never needs lubrication
- Can be operated manually
- 24-month limited warranty
- 2 and 3 port configurations



ACTUATOR

- Mounts directly to zone valve
- Utilizes 24-volt AC power
- Movement is completely customizable
- 24-month limited warranty

AUTOMATIC MULTIZONE VALVES

APPLICATION:

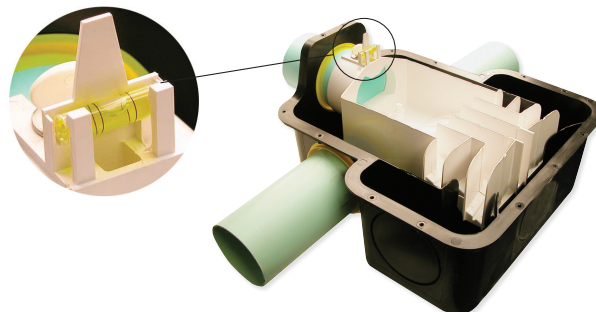
Multiple-zone residential and small commercial disposal fields

FEATURES:

- No electricity required
- For use in pump-fed applications
- 4000 Series - High-strength non-corrodible ABS polymer construction
- 6000 Series - Die-cast metal & high-strength non-corrodible ABS polymer construction
- Purple cap indicates applicability for wastewater
- Preassembled units with unions and shut-off valves are available. Consult factory.
- Available for 2 to 6-zone operation



TRU-FLOW[®] SPLITTER SYSTEM



TRU-FLOW[®]

APPLICATION:

Alternative to a concrete distribution box
4:1 or 3:2 recirculating splitter

FEATURES:

- Tested from 1/10 GPM to 30 GPM flows
- Bubble level built-in for easy adjustments and maintenance
- Maintainable and adjustable from surface after installation
- 4" riser easily attached to visually inspect and adjust the diverter
- Non-corrodible polypropylene frame
- Will tolerate settlement of as much as 15° front-to-back (30° total) and/or 12° side-to-side (24° total)
- Field adaptable from 2 to 5 outlets
- SCH 40 model also available

ACCESSORIES:

6" diameter x 36" tall riser (p/n 173-0007)

Patent Nos.
6,112,766 and
6,152,650

ORIFICE SHIELDS

APPLICATION:

Protects dosing orifices from surrounding media in pressurized distribution systems

FEATURES:

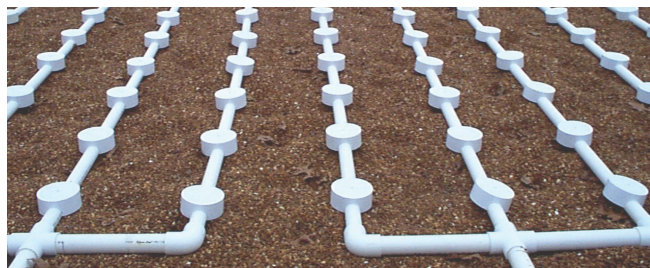
- Solid (upward spray) or slotted (downward spray)
- 3" shields easily snap onto 3/4" or 1" piping
- 4" shields easily snap onto 1-1/2" or 2" piping



Slotted Caps



Solid Caps



Distribution Components

DRIP LINE & ACCESSORIES

Drip irrigation is an ideal dispersal method for placing treated effluent into limiting soil conditions that have shallow fragipans, rock layers, water tables and high clay content. Designed to enhance soil treatment and dispersal performance by using small, timed doses over a uniform area, drip irrigation can allow sites that were otherwise unusable for a conventional septic system to become useable.

Clarus has a complete line of drip irrigation components including treatment systems, drip tubing, connectors, control panels, hydraulic control units, and pumps. Let our experienced staff assist your system designer with drip irrigation CAD drawings and specifications from small home systems to large commercial and clustered systems.



Accessories

ECONOMY RISER SYSTEMS

FEATURES:

- Available in 12", 20" and 24" diameters
- Injection molded, exceptionally strong
- HDPE is non-corrodible in a septic environment.
- Watertight
- Stackable
- Economical



STANDARD RISER SYSTEMS

FEATURES:

- Available in 12", 18", 24" & 30" diameters
- Heights up to 7'; for larger heights consult factory.
- All materials are non-corrosive & environmentally safe.
- Lid is secured.
- Sturdy construction
- Gas-tight and watertight



Controls

TIMED DOSE CONTROL PANELS

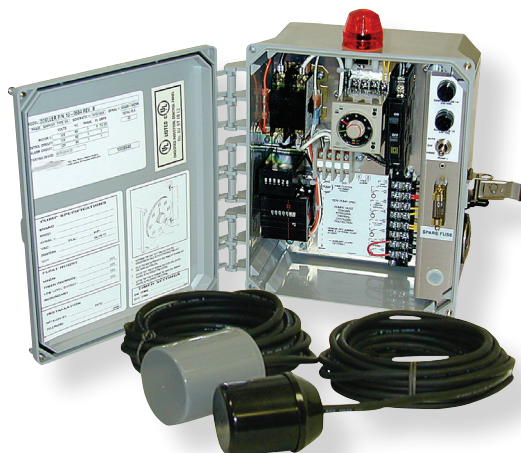
APPLICATION:

- Media filter systems
- Pressure distribution systems
- Mound systems



FEATURES:

- NEMA 4X enclosure
- Panels include (3) 20' control switches
- Exterior alarm: test/normal/silence
- 24-month warranty
- Lockable Latch
- Custom panels available. Consult factory.



ALARM BOX WITH TOUCH PANEL

APPLICATION:

- Pump chambers
- Dose tanks
- Sump pump basins
- Holding tanks
- Lift stations
- Non-potable water applications



FEATURES:

- NEMA 4X enclosure, UL-listed, 115V
- Audible and visual alarm
- Float sold separately.





ABOUT THE ZOELLER FAMILY OF WATER SOLUTIONS

Founded in 1939, Zoeller Company is one of the oldest independently-owned professional pump manufacturers in North America. Headquartered in Louisville, Kentucky USA, Zoeller has over 800 employees worldwide and close to 600,000 sq. ft. of manufacturing facilities from our seven operations in North America and Asia.

Zoeller Company has established itself as an innovative leader in pumping equipment and water treatment systems by continuous research and development. The quality of our products is demonstrated by UL, CSA, CE, and NSF listings as well as continued growth throughout the United States, Canada, Mexico, and over 40 other countries around the globe. The company has also expanded to include five brands, which have become the foundation of Zoeller.



The original Zoeller product line now resides in Zoeller Pump Company, which offers a broad range of submersible pumps from fractional to 7-1/2 HP for residential and commercial sump, effluent, dewatering and grinding applications.



Flint & Walling, founded in 1866 in Kendallville, Indiana USA, is the only pump company in the U. S. to manufacture its own motor for jet and centrifugal pumps. This product line specializes in deep well pumps that range from 5 GPM to 1,000 GPM, as well as centrifugal, jet, booster, and submersible pumps up to 7-1/2 HP.

Founded in 1952, Wolf Pump is a manufacturer of submersible turbine pumps located in Abernathy,



Texas. Wolf currently produces 4" to 8" pumps with capacities ranging from 35 to 1000 GPM. These pumps are known for their efficiency and durability in demanding water applications including irrigation, municipal water supplies, dewatering applications, dairy production, mining, the oil and gas industries, aquaculture, and more.

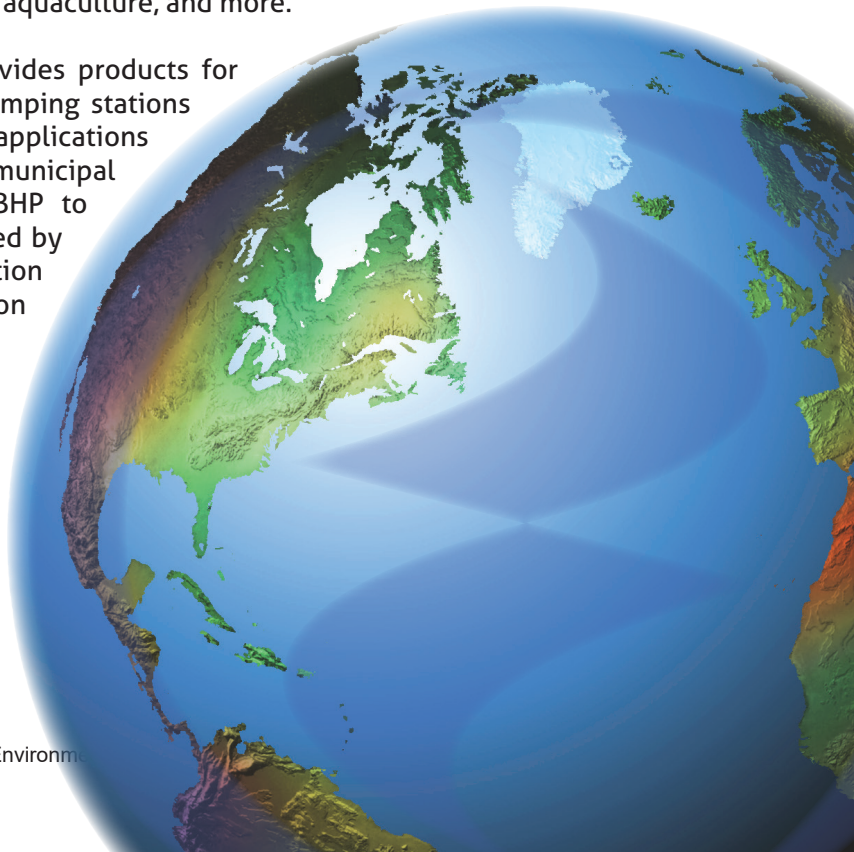


Zoeller Engineered Products provides products for storm water removal, sewage pumping stations and hazardous environment applications for residential, commercial and municipal markets. Available from 1/2 BHP to 100 BHP, each pump is customized by design, manufacture and installation according to exact application needs.



Clarus® Environmental offers sustainable environmental products, solutions, and services for the collection, treatment, and dispersal of residential and community wastewater. This line specializes in onsite pumps, pressure sewers, biological and mechanical treatment processes, disinfection, and discharge of safe water.

© Copyright 2020 Clarus Environmental



CL0149
0220
Supersedes
0218



Trusted. Tested. Tough.®

3649 Cane Run Rd. • Louisville, KY 40211-1961 • (502) 778-2731 • FAX: (502) 774-3624
clarusenvironmental.com

© Copyright 2020 Clarus Environmental. All rights reserved.