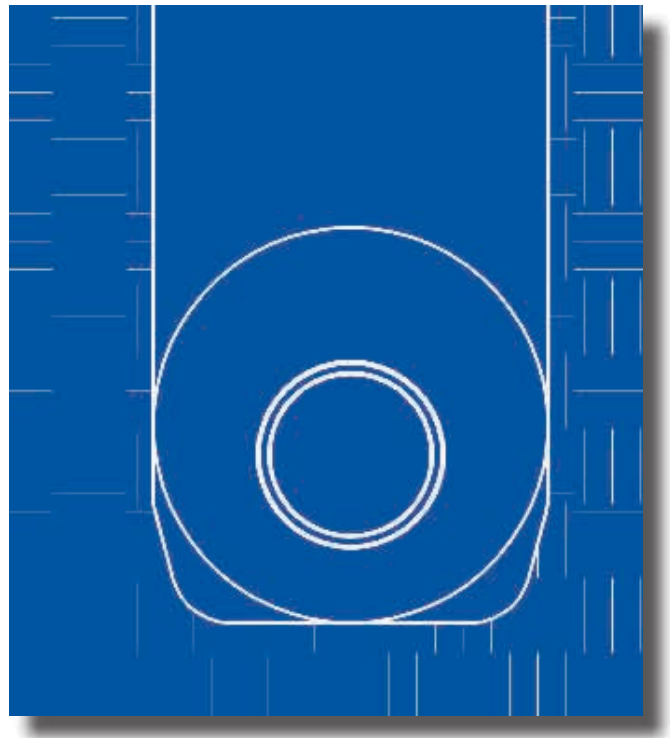


TECHNICAL SPECIFICATION GUIDE

EZ-Drain™

Pre-Engineered French Drain System



4.2010

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This information is relevant only to the product(s) identified within this document and is not intended for use with any other products. Please consult NDS Technical Services at (888) 825-4716 or e-mail TechService@NDSpro.com if you have any questions pertaining to specifications, installations, or recommended applications that are beyond the scope of this document.
BEFORE BEGINNING ANY PROJECT, CONSULT A CURRENT EDITION OF THESE SPECS AT: WWW.NDSPRO.COM

EZ-Drain Gravel Free Drain Systems from NDS are geosynthetic aggregate pipe systems for use in drainage applications. Manufactured from recycled polystyrene, EZ-Drain evacuates up to five times more water than standard gravel and pipe French drain. EZ-Drain provides maximum system life and performance, lower system costs, and an environmentally-friendly alternative.

PRODUCT DESCRIPTION

EZ-Drain drain product is 10 feet in length, with a slotted pipe surrounded by polystyrene aggregate and enclosed in geotextile mesh.

FEATURES AND BENEFITS

Ease of Installation. Convenient 10' sections are easy to connect by using internal couplings. EZ-Drain products can be easily transported and installed by a single worker which dramatically reduces labor costs.

Performance. EZ-Drain has a superior flow rate with up to five times the flow rate of gravel, which provides quick evacuation of water in the system. EZ-Drain has high storage capacity created by the engineered flow channels in the aggregate.

Flexibility. EZ-Drain's aggregate pipe combination and aggregate only bundles can easily bend around corners and other obstacles to conform to your project needs.

Environmentally Friendly. Using EZ-Drain recycled polystyrene aggregate prevents millions of pounds of waste from filling landfills.

Reliability. Using EZ-Drain drainage products means fewer call backs.

APPLICATIONS

Foundation Drains. Installed at the base of a foundation to divert water away from a home. Water can gather and permeate through a foundation leading to basement flooding. EZ-Drain units can be used individually or stacked as a foundation drain replacing stone and pipe.

French Drains or Curtain Drains. Eliminates excess water from low points and other areas prone to saturation on a property. Large French Drains are often installed in a herringbone pattern diverting water to a downstream outlet.

Landscape Drains. Ideal for the prevention of excessive water in and around landscaped areas or gardens. The light-weight bundles can be installed quickly with limited site disruption compared to traditional stone and pipe systems which can be messy and destroy vegetation.

Roof Run-off Drains. Rainwater run-off can be collected from the roof by way of guttering and stored in an EZ-Drain drainfield until it can be percolated back into the soil, helping to restore groundwater.



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APPLICATIONS CONTINUED

Retaining Wall Drains. Used to relieve pressure that water can exert on a wall. Eliminates the risks associated with backfilling a wall with stone during construction, EZ-Drain gravel free french drain are a perfect solution. Bundles can be placed at the bottom or stacked to redirect the water away from the wall.

Interceptor Drains. Intercepts groundwater that collects on an impermeable layer of soil to prevent erosion. Since interceptor drains are typically installed on a sloping piece of property, getting heavy machinery and materials close to the job site can be difficult and potentially dangerous. EZ-Drain gravel free french drain can be carried and installed by hand in just minutes without the use of stone or heavy machinery.



SPECIFICATIONS

POLYETHYLENE SLOTTED DRAIN PIPE

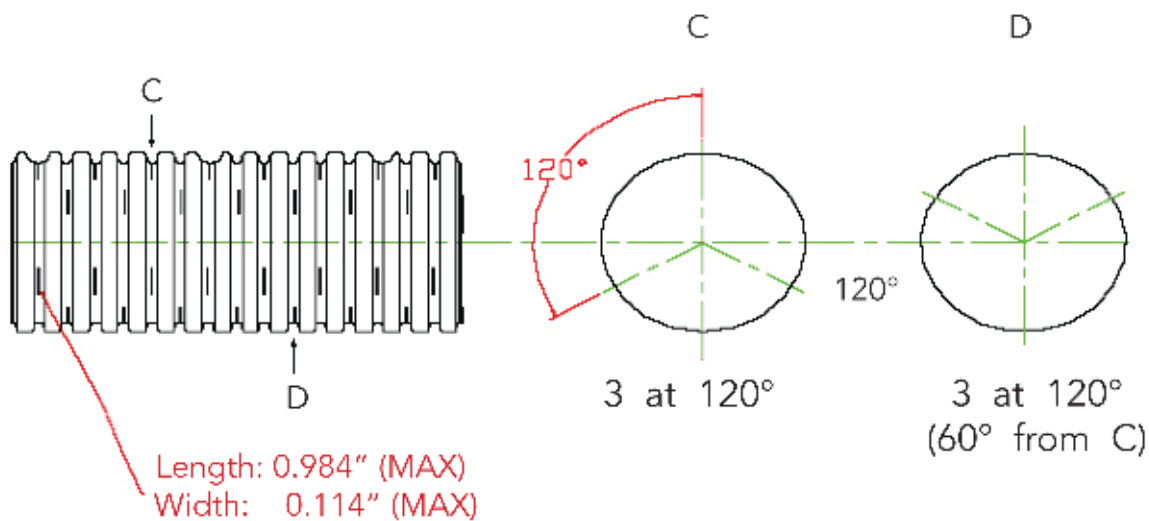
Applicable Standards

- ASTM F405, ASTM F667, AASHTO M252, AASHTO M294, SCS Code 606
- EZ-Drain drain pipe meets ASTM F405 pipe specifications/
- The slot configurations are as shown on the drawing below.

Physical Properties

- Color — Black
- Size — Nominal 3, 4, or 6 inch diameter.
- Materials of Construction — Polyethylene resins.
- Slots punched during extrusion
- Slot orientation during installation is “Random”. The orientation of the colored trademark line and the location of the slots when installed in the trench are inconsequential. The slots can be located at any position on the 360 degree circle. The figure below is a “frozen snapshot” of the pipe for hole pattern identification (Added to Spec. 7/14/00.)

Polyethylene Corrugated 3”, 4” or 6” Single Wall Perforated Pipe



POLYSTYRENE AGGREGATE

Product Description: EZ-Drain Bead, 100% Recycled Aggregate

Physical Properties:

- Color: Blue
- Cell Structure: Fine to Medium
- Shape: Cubical in form, with annotated protuberances for increased surface area and increased flow characteristics. See Picture below.

Standards Testing:

- **ASTM C127-88**, Law Engineering, Project Number 50161-8-2142-01-831.
- **ASTM D2221-84**, Gh Packaging & Product Testing and Consulting, Project Number J#08189C4.
- **ASTM C29-91a mod.**
- **ASTM C127-88 mod.**
- **Void Space:** Calculated = 53%; Measured = 57%
- **Flow Rate:** 3.53 GPM EZ-Drain Bead 2.61 GPM Gravel



Patented **EZ-Drain** Beads

GEOTEXTILE COVER

EZ-Drain's geotextile mesh fabric is made of polyethylene resins. See below for fabric specifications.

Mechanical Properties	Test Method	Unit	Average Value
Apparent Opening Size (AOS)	ASTM 4751	mm (U.S. Sieve)	0.580 (40-30)
Percent Open Area		%	16
Permittivity	ASTM 4491	sec ⁻¹	4.29
Permeability	ASTM 4491	cm/sec	0.24
Flow Rate	ASTM 4491	gpm/ft ²	321

FEATURES OF POLYSTYRENE



July 31, 2001

Mr. Dennis Koerner
President
Ring Industrial
1 Industrial Park Road
Oakland, TN 38060

Dear Dennis,

I want to answer your questions concerning the performance of expandable polystyrene.

Termites

- There is no nutritional value in polystyrene and thus it is not attractive to termites, ants, or rodents. Insects will not eat polystyrene, as it is not a food source.
- While termites may burrow through solid polystyrene, for termites it is the same as soil, something in their way, which they will either move or crawl over.

Chemical Absorption

- Polystyrene is an inert, large molecular weight compound that does not breakdown in aqueous solutions.
- Polystyrene does not act as an adsorbent like activated carbon, nor is polystyrene very permeable to liquids.

Chemical Degradation

- The chemical resistance of polystyrene is well known. It is not attacked or degraded by long exposures to either bleach, soap solutions, or common household products that are poured down the drain.

- Polystyrene is virtually resistant to all aqueous media including dilute acids and bases.

Temperature Stability

- Polystyrene has the ability to tolerate extreme temperature ranges. It has a continuous use temperature range of -108°F to +175°F.
- Polystyrene is not brittle at subzero temperature. Over time polystyrene may soften in boiling water (212°F).
- Products made of polystyrene will not be affected by the harshest of temperature climates or changes.

Life Span

- Expanded polystyrene is a highly stabile compound. The expected life span is indefinite. The product will last for well over 100 years.

If I can be of any further assistance, please feel free to give me a call.

Sincerely,



Dr. Fred Sonnenberg
Technical Advisor