Water Features
Aerators + Drainage
Atlantic • Aqua Control • Easy Pro • Kasco Marine
NDS • Otterbine • Winston Water Treatments

NEW! This catalog is loaded with mobile ready information. From Drainage Calculations, Pond information, and so much more. Everything you need is now at your fingertips and your phone.

www.kenneyoutdoorsolutions.com
Serving the Landscape Industry since 1938

Through the years we have listened to our customers and have worked to continuously improve our offerings to YOU the professional. Our partnership is based upon serving as your source for technical knowledge and quality products to make you profitable. We will continue to operate on the same founding principals we started this company with over 70 years ago, but excited to also offer you the latest in technology. With QR codes throughout this catalog you are linked to a wealth of information right from your phone. Not familiar with this new app? Ask any of our sales team and they will assist. Welcome to the latest in technology!

Mike Kenney - President

NEW Feature...QR Codes
What’s that box?

Through out this catalog you will find these “QR Codes” or commonly referred to as mobile barcodes. These are quick easy links to valuable information direct from your phone. If you don’t already have the reader app on your phone go to http://www.mobile-barcodes.com/qr-code-software/ and you can download the free the scanning application. Not familiar with this technology? Ask your KOS sales member to demonstrate just how easy it is.

Look for our complete line of Eco-Friendly Water Treatments

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Our thanks go out to the partnering vendors that have shared in the production of this catalog and we hope to continue to bring to you the quality and professional products you’ve grown to expect from Kenney Outdoor Solutions.

Please note all products may not be available in all locations.

Locations
Indiana · Illinois · Kentucky · Kansas · Michigan · Missouri
www.kenneyoutdoorsolutions.com
New Product Offerings

Colorfalls Kit... New 12”
Enjoy the beauty of Colorfalls in the new 12” size for more design flexibility or homeowner use. Comes in a complete kit for quick install.

Rain Harvesting and Rain Collection

Clean Rain Ultra ...NEW
The all-in-one rainwater filtration and distribution system from Atlantic allows you to top up swimming pools and water features or store clean water for future use.

Self Contained Fountain
This new water feature from EasyPro is a fiberglass/resin mix creating a strong realistic display.

Low Cost Fountain Basins
For use with the lighter weight resin type statuary pieces. Clear span under grating provides for easy pump installation. 100 pound load rating and available in 40” and 48” sizes.

New Statuary Options and Kits
Bubbling fountains and statuary fountains are an easy way to introduce the homeowner to water features and provide the soothing sound of water even in small spaces. Complete kits are available or buy individual items as needed.

www.kenneyoutdoorsolutions.com

EZflow Drainage...The Professional’s Choice
EZflow is a gravel-free alternative to a traditional French Drain system. By collecting surface water and redistributing it into the subsoil, EZflow also offers a sustainable solution for management of storm water run-off.

Scan this to see EZflow video highlighting install features.
Customized Marketing Materials
Need a brochure or flyer to introduce water features to your customers? We can work with you to customize your own specialized marketing materials.

FAQ’s:

Why should I offer water features?
Many contractors have found today’s market challenging and in many cases shrinking market share. With the addition of water features to your offering you grow your business and in many cases do so with your existing loyal customers.

How much time does it take to install the typical water feature?
Many statuary and self-contained kits can be installed in a matter of hours. Other larger projects can take several days based upon size and complexity. If unsure about how to estimate your labor ask your Kenney professionals and they will be happy to assist.

How do I calculate the amount of rock required for stream or waterfall installations?
See our reference charts in this catalog for pond and pump calculations. Additional information is also available at our web site www.kenneyoutdoorsolutions.com

Do Ponds require a lot of maintenance?
A properly designed and built pond is nearly self-maintaining. Ponds can be built in sun or shade, large or small. With the right skimmer filtration, most pond debris is automatically bagged and ready for easy removal. A biological filter with supplemental bacteria additions will clean the pond, letting nature establish an ecosystem that recycles fish waste and eliminates green water.

What is a good starter size for a Pond?
Over the years, we have found that an 11 ft. x 16 ft. pond (roughly 180 sq. ft.), 24 inches deep is a good size to start off in most yards. This size will allow plenty of room for fish and plants to be added over the years to come. When designing the pond, keep in mind that our greatest complaint from the customers for whom we’ve installed ponds is, “I wish we had made it bigger!”

We not only work with you we provide you support from start to finish:

- Assist in developing marketing plan
- Consult and work with you on design
- Build materials list and quote
- On-site assistance for first job

Our focus is your prosperity!

Thought about marketing water features in the past?

Rethink the possibilities today.
3 Kit Sizes With Everything Included For Your Next Hardscape Project

Colorfalls
LIGHTED FALLS

SOL White
Ice Blue
Fire Red
Crystal White

Consider the possibilities

Colorfalls, Basins & Kits
Colorfalls adds a breathtaking new dimension to a water feature - waterfalls with shimmering details in red, white or blue hues.

12”, 24” or 36” Colorfalls Kits include:
- Colorfalls and Basin
- TW2400 or TW3700 TidalWave 2 Pump
- 10’ of 1 1/4” Flexible PVC Pipe
- Splash Mat, Pump Discharge, Glue, Cleaner, Thread Sealant, Colorfalls Brush and fittings

Want to see “How To’s” on Atlantic Products?
Check out the many videos with quick easy install tips from the folks at Atlantic Water Gardens on your smart phone.

If you don’t already have the reader app on your phone go to http://www.mobile-barcodes.com/qr-code-software/ and you can download free the scanning application.

(800) 565-8676

Stop by our showrooms to see the full line of many exciting new ideas to make water gardening profitable and easy to install.

www.atlanticwatergardens.com
www.kenneyoutdoorsolutions.com
Complete Pond and Pond-Free Kits for the Professional

Pond Treatments for the Professional

**Eco-Klean Oxy Pond Cleaner**
- Immediately removes organic debris
- Deep cleans rocks, waterfalls, streambeds
- Safe for Aquatic and Domestic Animals

**Eco-Solv9 Complete Pond Cleaner**
- Clears Water, regardless of color
- Removes attached and suspended organics
- 2X more concentrated

**Clarity-Blast+ The Ultimate**
- Removes Pond Owner’s Worst Problems
- Removes Slimy Debris from Ponds, Waterfalls and Streams
- Safe for Aquatic and Domestic Animals

**Quick-Clear Pond Flocculent**
- Clears Pond Water Fast
- Makes Pond Water Sparkle

**Re-Vive Dechlorinator Liquid**
- Immediately removes Chlorine, Claramine & Heavy Metals
- Adds Fish Slime Coat Protectant
- Safe for Aquatic and Domestic Animals

**Bio-Max+ All Season Beneficial Bacteria**
- Cleans Water, Removes Debris, and Seeds Filters
- Keeps Your Water Clear Year Round
- Safe for Aquatic and Domestic Animals

**Bio-Max Beneficial Bacteria**
- Removes Sludge and Odors Fast
- Breaks Down Dead Algae, Leaves and Debris
- Safe for Aquatic and Domestic Animals

Professional Pond Kits - Small, Medium and Large Complete pond and pond free kits offer a convenient, easy and affordable way to sell water gardens to your customers

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<th>Kit No.</th>
<th>Pond Size</th>
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<td>PK261515P</td>
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<td>PK382530A</td>
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Call for additional sizes and quotes

Included in the catalog for your easy reference is our Standardized Quote Form to assist with layout, sizing, pricing and complete checklist for your water garden job estimating needs. Also check out the additional reference pages to assist with all of your design calculations and material estimation tools.

www.kenneyoutdoorsolutions.com (800) 565-8676
Pond Pumps from Atlantic

TidalWave2 asynchronous pumps deliver professional grade performance in a retail product. Perfect for pond and waterfall applications, these pumps deliver high-volumes with direct-drive performance and magnetic-drive efficiency.

Tidal Wave A Series Pumps have set the new standard for performance, quality, and durability. These professional-grade pumps are engineered for high-head, high volume applications and perform where most pumps cannot.
Rock Lids
No longer do you have to deal with the FAKE ROCK look with the new sturdy fiberglass construction and realistic textures of the Atlantic Rock Lids. With a choice of four regional colors you can now select the size and color to meet your specific needs.

Model RL30G - Great Lakes
Dimensions: 24"L x 24"w x 5"H
Match to Skimmer: PS3900
Match to Pump Vault: PV1800/PV2300/RHPV

Model RL40G - Great Lakes
Dimensions: 32"L x 30"w x 5"H
Match to Skimmer: PS400/PS4500
PS4600/PS4900

Model RL70G - Great Lakes
Dimensions: 40"L x 36"w x 10"H
Match to Skimmer: PS700/PS9500

Model RL140G - Great Lakes
Dimensions: 42"L x 38"w x 10"H
Match to Skimmer: PS1400/PS20000

SOL Lighting
Atlantic’s high power “warm white” compact LED spotlights out shine the competition. 3X’s more power!

Triton Ionizer
Low voltage systems introducing microscopic ions of copper, silver & zinc into the water to control algae and keep ponds clear.

Bio-Bag
Contains Bio-Tech Media to promote the growth of water filtering bacteria.

Pond & Garden Protector
Year round protection from predators for your pond or garden.
* Protect your fish from Heron and other predators
* Keeps leaves from pond for easy clean-up
* Easy to assemble and remove

www.kenneyoutdoorsolutions.com
(800) 565-8676
Atlantic’s all-in-one rainwater filtration and collection system collects, cleans, and filters rainwater and accommodates multiple connection methods for immediate or future use in the garden and around the yard.

How It Works: Rainwater is collected from the gutter downspout and flows into the Clean Rain Ultra downspout diverter, which cleans waste, dirt and debris from the water. After the first flush of water is sent to waste, clean water then flows to the Eco-Blox cistern to be stored for future use.
From small patio self contained units to large scale water features, all incorporating function and beauty with the soft sounds of bubbling water. Keep all of your water features clean and sparkling with our pond treatments.
Waterfall Filters - Eco Series

- Melody Filter - WF29E
- Prelude Filter - WF10E
- Symphony Filter - WF60E

Waterfall Filters - ECO SERIES
These patented waterfall filter boxes are the easiest to install of any similar style filter on the market today
- Inlet bulk head fittings are pre-installed
- Biological filter media is included
- Easy, tool-free liner attachment

See additional replacement items on page 12

Not sure what these QR-codes do?
Once you have the reader app on your smart phone you have access to a wealth of information.
If you don’t already have the reader app on your phone go to:
http://www.mobile-barcodes.com/qr-code-software/
Download free the scanning application and give this a try!

Everything you need for creating and maintaining water features, ponds and lakes.
Visit www.easypropondproducts.com for more information.

Kenney Outdoor Solutions is pleased to offer EasyPro Pond Products.
Easy To Use, Professional Pond Products

Eco Series Pond Skimmers

The patented design of these skimmers eliminates silicone or cutting liner. These skimmers install completely inside the liner eliminating any chance of leaks.

Pro Series Pond Skimmers

SKIMMERS and POND KITS

Eco-Series Spillways

Medium Pond Kit Complete - EM1116FB

www.kenneyoutdoorsolutions.com (800) 565-8676

All Pond Kits Include:
- Rubber Liner
- Liner Underlayment
- Skimmer
- AquaFalls Filter
- High Efficiency Pump
- Check Valve Assembly
- Waterfall Installation Kit
- Flexible PVC Pipe
- Underwater Light Kit w transformer
- Bacteria
Submersible Mag Drive Pumps

Metala Filtration Media
4 levels of filtration with
Black - Course high volume
Green - Coarse allows good flow with
    good filtering
Blue - Fairly dense and traps a lot of
    debris with medium flow
Grey - Very dense with low flow and excellent filtering

TM9500 & TB8000
8,000 - 14,000 GPH High Volume
Waterfall & Stream Pumps
TM Series - Low Head up to 13,500 GPH
TB Series - High Head Series
Oil Free Design makes it ideal for Fish Ponds
Top quality double mechanical seals for over
100,000 hour life expectancy

Tabletop Fountain Pump - Perfect for
small fountains
45 and 65gph flow

Kenney Outdoor Solutions and EasyPro offers one of the largest selections of pumps in the country! In addition to the few pumps shown, we have hundreds of additional pumps available. We specialize in high volume pumps and can supply you with virtually any size pump you could ever need. Contact Kenney Outdoor Solutions for all your pumping needs. We are glad to help you size and select the proper pump for your application.
Call for quotes and pricing for all of your pond underlayment and liner needs.

Fiber Optic Lighting
Fiber optic lighting is much different than normal low voltage lighting. Fiber optic lighting has a shore mounted illuminator box which has the light bulb inside it. The light shines through a rotating color wheel, as it rotates the light changes color. The light is then carried down the fiber optic cables into the water. This means that there is no power in the water and when it’s time to change a light bulb it is easy to do since the bulb is on shore in the illuminator box, not underwater! Up to 18 fiber optic cables can be run off of one light bulb in the deluxe illuminator box and each fiber cable can be up to 80’ long.

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**Floating Weeds**

Floating plants have structures that float on the surface, drawing nutrients directly from the water and are not rooted in the bottom sediment. Common species include:

- Bladderwort
- Common Duckweed
- Giant Duckweed
- Water Hyacinth
- Water Lettuce
- Watermeal
- Common Salvinia

**Submerged Plants**

Generally these plants will be found completely underwater rooted in the bottom of the lake or pond. For those with flowers, they will extend above the water surface. Common species include:

- Elodea
- Baby Pondweed
- Brittle Naiad
- Coontail
- Curly Leaf
- Eelgrass
- Fanwort

**Shoreline Plants - Emergent**

Found growing in the shoreline and shallow areas of ponds, lakes and streams. Distinguishing feature of these over the submerged plants is their plant structure which does not require water for support. Common species include:

- Arrowhead
- Cattails
- Common Reed
- Loosestrife
- Pickerelweed
- White Water lily
- Smartweed

**Algae**

Related to the fungi, algae consists of over 15,000 different species, but can all be controlled with similar treatment. Common species include:

- Muskgrass-Chara
- Filamentous Algae
- Planktonic Algae

**Steps to Weed Control**

1. Identify the class of weed — Floating, Submerged, Emergent or Algae
2. Determine which weed from above reference
3. Select a product — See reference table on page 15
4. Determine how much needed by determining water areas to be treated
5. Make application and then follow-up as needed to maintain healthy pond and lake

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**Your source for complete support for Pond and Lake Management**

Consider offering your services to maintain commercial and residential neighborhood associations

(800) 565-8676  www.kenneyoutdoorsolutions.com
## Aquatic Weed Control

Many states restrict the shipment of EPA registered chemicals into the state. At this time most products that are not EPA registered are not restricted. Please look next to each product to see if it is EPA registered. If it is, please consult the information below to see if it can be shipped into your state:

- AK, CA, CT, ID, HI, ME, MA, NH, NJ, NY, RI, VT & WA restrict the shipment of products into their states. Products can be bought from within the state but not shipped in.
- No products can be shipped into Canada. Canadian law requires different labeling and registration. US labeled chemicals cannot ship into Canada.
- GreenClean (GC20, GC50) can be purchased in NY but you must obtain a permit to apply in that state, all other states ok. GreenClean Pro (GC50PRO) and GreenClean Liquid (GC50) are restricted in MA. The states of NY, NJ, VT and ME can buy GreenClean Liquid (GC50) but must obtain a license to apply in that state.

The following chart shows which treatments work best on each aquatic plant:

### E = Excellent Control • G = Good Control

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<th>Chemical Name</th>
<th>All Types</th>
<th>Algae</th>
<th>Emergents &amp; Catalai</th>
<th>Water Lilies</th>
<th>Duckweed</th>
<th>Elodea</th>
<th>Pondweed &amp; Family</th>
<th>Naeds</th>
<th>Milfoil</th>
<th>Coontail</th>
<th>Bladder Wort</th>
<th>Hydrol</th>
<th>Panct</th>
<th>Feather</th>
<th>Water Hyacinth</th>
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### General Restrictions On Use Of Treated Water

**Number of Days Restricted**

(Always refer to current product label for specific requirements)

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<th>Chemical Name</th>
<th>EPA Registered</th>
<th>% of Active Ingredient</th>
<th>Human Safe to Drink</th>
<th>Safe to Swim</th>
<th>Safe for Fish Consumption</th>
<th>Animal Safe to Drink</th>
<th>Safe for Turf</th>
<th>Forage</th>
<th>Food Crops</th>
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<td>Cutrine®-Plus Liquid</td>
<td>Copper: Akanoamine Complexes</td>
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<td>D-nectam salt of endothall</td>
<td>Yes</td>
<td>63%</td>
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<td>0</td>
<td>7-25</td>
<td>7-25</td>
<td>7-25</td>
<td>7-25</td>
</tr>
<tr>
<td>Cide Kock/Cygnet Plus</td>
<td>D. Limonene</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hydrothol 191 Granular</td>
<td>Mono (N,N-dimethylalkylamine) salt of endothall</td>
<td>Yes</td>
<td>11.2%</td>
<td>7-25</td>
<td>0</td>
<td>0</td>
<td>7-25</td>
<td>7-25</td>
<td>7-25</td>
<td>7-25</td>
</tr>
<tr>
<td>ShoreClear/AquaPro</td>
<td>Isopropylamine salt of glyphosate</td>
<td>Yes</td>
<td>52.8%</td>
<td>**</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Weedone-D</td>
<td>Dquat DiBromide</td>
<td>Yes</td>
<td>8.3%</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Reward</td>
<td>Dquat DiBromide</td>
<td>Yes</td>
<td>37.3%</td>
<td>1-3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1-3</td>
<td>1-3</td>
<td>5</td>
</tr>
</tbody>
</table>

* In cases where restrictions are not given in above chart, consult your State Conservation Commission or Fish and Game Department for specific restrictions. Chemical manufacturers and manufacturer's representatives can also supply you with specific recommendations based upon water usage.

** See label for distance allowed from potable water intake.

+ Not for use in potable water.

**NOTE:** Waiting period ranges given for Endothall products (7-25 days) are dependent upon dosages used. See labels for accurate determinations.

**NOTICE:** Copper sulfate is not included in this chart nor is it recommended due to problems with copper buildup in sediments and toxicity to aquatic organisms.
Diffusers to Improve Aeration and Pond Clarity

Do you think winter or summer for aeration and bubblers?

The average pond theory is that bubblers and diffusers are best utilized in the winter. Actually summer use should be a must as this is when the feeding rates are highest, and the biological activity will be at its peak. Market potential is high with over 8 million ponds over .25 acre in the US alone.

**Winter Benefits:** Use to circulate water and keep an opening in the ice to vent off toxic gases and allow for proper gas exchange to keep fish healthy during those cold winter months.

**Summer Benefits:** Ability of water to hold oxygen is temperature dependant. The warmer it is, the less it can hold and compounded by the fact that most aquatic plants consume oxygen at night, literally starving fish. Diffusers and aeration are essential for a healthy pond environment.

---

**Air Diffusion Systems - Key Points to Consider**

- Effective in 15ft. or 5m or deeper.
- Depth must be sufficient to allow for rising air bubbles to expand towards the water surface.
- Most unobtrusive of all systems.
- No electricity running water.
- Shore mounted compressor forces air to diffuser stones/perforated installed at the bottom of the pond.

---

**Education and Awareness to your customers is essential**

With a little education you can interest many individuals, home owner associations, condo associations and commercial sites by offering inexpensive ways to improve their pond quality and it’s inexpensive to run. Reduce murky water, scum on surface and the unattractive ponds seen in your market area. Not sure where they are?...Google maps is a great way to search out those ponds.

(800) 565-8676

www.kenneyoutdoorsolutions.com
“Since we’ve added the fountains, we don’t have algae problems any longer. Members of the community actually walk out of their way to go by the lakes now because they provide very pleasing sights and sounds. Not only have the aesthetics improved 100 percent, we’re saving money by not having to buy any chemicals to treat the lakes.”
-- Leonard Theis,
Golf Course Superintendent
Sun City Roseville, CA

Providing beautiful, natural solutions to water quality management.

Otterbine aeration systems provide the industry’s highest independently tested oxygen transfer and pumping rates to maximize the consumption of excess nutrients that can turn an attractive water feature into an eyesore. A natural solution to treating poor water quality, Otterbine surface, sub-surface and diffused aerators effectively control algae, aquatic weeds, and foul odors in ponds and lakes to create healthy, clean aquatic environments.

Innovative technology, superior craftsmanship and a dedication to providing the highest quality products and services, has made family owned and operated Otterbine-Barebo, Inc. the #1 choice in pond and lake management for over 60 years.
Aerator Fountains add beauty and functionality

- Aerating Fountains and Lighting, Subsurface Mixers and Diffused Aeration
- A Natural Solution to treating poor water quality
- Aerating Fountains and Industrial Aeration Systems come as complete packages with unit, power control center and cable
- 5-year warranty on all Aerating Fountains; best in the industry
- For Additional details and to explore the advantages to Otterbine go to their web site at www.otterbine.com

Aqua Control
WATER FEATURES

Standard features with most Kasco Fountains include:
- Control Panel (GFI, timer & photocell for optional light kits), and mooring ropes. Ask about the optional light kits for day and night enjoyment.

Don’t see what you need in this catalog? At Kenney Outdoor Solutions we carry additional lines and offerings to meet every design aspect. Contact us today and we’ll source what you need every time!
Drainage has a new meaning to ease and convenience

EZflow
Gravel-Free French Drain System

Dare to Compare

<table>
<thead>
<tr>
<th>Gravel</th>
<th>EZflow</th>
<th>Advantages of EZflow vs. Gravel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Savings</td>
<td>✔</td>
<td>Up to 50% labor savings</td>
</tr>
<tr>
<td>Easy to Install</td>
<td>✔</td>
<td>EZflow takes minutes versus hours for gravel</td>
</tr>
<tr>
<td>Load Rated</td>
<td>✔</td>
<td>Lead rated to support light vehicular traffic</td>
</tr>
<tr>
<td>Built to Last</td>
<td>✔</td>
<td>Over 100 year lifespan</td>
</tr>
<tr>
<td>100% Recycled Content</td>
<td>✔</td>
<td>EZflow™ Poly-Rock™ is 100% recycled content</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>✔</td>
<td>EZflow™ flow rate is 35% better than gravel</td>
</tr>
<tr>
<td>Protects Against Soil Fines</td>
<td>✔</td>
<td>Gravel contains some soil fines</td>
</tr>
<tr>
<td>Labor Savings on Site Cleanup</td>
<td>✔</td>
<td>No gravel to clean up</td>
</tr>
</tbody>
</table>

EZflow Drain Product

EZflow drain product is a 10 foot long slotted pipe surrounded by Poly Rock (polystyrene aggregate) and enclosed in a geotextile mesh. The patented EZflow™ Poly-Rock™ aggregate is uniquely engineered with “flow channels” designed to increase void space — and engineered for improved water flow rates, drainage capacity and structural integrity to resist compaction and support vehicular traffic. Combining the pipe, aggregate and mesh in one product reduces the labor costs of installing a French Drain system by 50% or more.

Applications

EZflow
French Drain
Foundation Drain
Retaining Wall

What is EZflow?

EZflow drain product is a 10 foot long slotted pipe surrounded by Poly Rock (polystyrene aggregate) and enclosed in a geotextile mesh. The patented EZflow™ Poly-Rock™ aggregate is uniquely engineered with “flow channels” designed to increase void space — and engineered for improved water flow rates, drainage capacity and structural integrity to resist compaction and support vehicular traffic. Combining the pipe, aggregate and mesh in one product reduces the labor costs of installing a French Drain system by 50% or more.

What to compare?

EZflow vs. Gravel

Labor Savings

EZflow takes minutes versus hours for gravel

Easy to Install

EZflow takes minutes versus hours for gravel

Load Rated

Lead rated to support light vehicular traffic

Built to Last

Over 100 year lifespan

100% Recycled Content

EZflow™ Poly-Rock™ is 100% recycled content

Flow Rate

EZflow™ flow rate is 35% better than gravel

Protects Against Soil Fines

Gravel contains some soil fines

Labor Savings on Site Cleanup

No gravel to clean up

NDS Drainage Puts Water in it’s place

0451-100 - 4” Solid x 100’
0401-100 - 4” Perf x 100’
0651-100 - 6” Solid x 100’
0601-100 - 6” Perf x 100’
A-104 - 4” Drain Coupling
A-104C - 4” Drain Cap
A-804 - 4” Drain Tee
A-402 - 4” Elbow
All also available in 6”

Dura Slope Trench Drain Systems

For a quick, durable alternative to concrete trench systems.

Dare to Compare

Gravel
EZflow

Labor Savings | ✔ | Up to 50% labor savings |
Easy to Install | ✔ | EZflow takes minutes versus hours for gravel |
Load Rated | ✔ | Lead rated to support light vehicular traffic |
Built to Last | ✔ | Over 100 year lifespan |
100% Recycled Content | ✔ | EZflow™ Poly-Rock™ is 100% recycled content |
Flow Rate | ✔ | EZflow™ flow rate is 35% better than gravel |
Protects Against Soil Fines | ✔ | Gravel contains some soil fines |
Labor Savings on Site Cleanup | ✔ | No gravel to clean up |

Accessories

Part # Description
D-010A 1” internal coupling 600/bag $3.09
D-020A 2” internal coupling 360/bag $3.96
D-030A 3” internal coupling 120/bag $4.24
D-040A 4” internal coupling 100/bag $4.20
D-060A 6” internal coupling 15/bag $4.10
D-080A 8” internal coupling 10/bag $4.25
D-100A 10” internal coupling 8/bag $4.39
D-120A 12” internal coupling 6/bag $4.54

NDS50 - 6” Grate
Many specialty items available to meet your individual needs.

NDS50 - FloWell

www.kenneyoutdoorsolutions.com

EZflow
Gravel-Free French Drain System
Permeable Paver Systems

Alternative to concrete or asphalt

Hexagonal cells stabilize soil or gravel & can support light to heavy vehicular traffic

Finished area looks identical to grass landscape or a gravel road

Additional Advantages:

• Reduced storm water runoff can reduce or eliminate need for large drainage systems
• Grass pavers can be used for erosion control
• Existing job site native soils can be used
• Qualifies for LEED credits

Tufftrack Grass Paver:
24” honeycomb cell paver panels
Rigid for maximum strength
Panels are linked with tongue and groove latching system
Empty cells load rated at 98,770 lbs per sq. foot

EZ Roll Grass Paver:
24” honeycomb cell paver panels linked into a roll for easy installation
Hexagonal cells prevent soil compaction, so root system of grass is maintained and not damaged by loads.
Empty cells are load rated at 66,000 lbs per square foot

Want to learn more? Ask us today for the full line of products we have to offer as alternatives to gravel or paved surfaces.

LANDSCAPE EDGING

Whatever your edging needs are, you can look to Kenney Outdoor Solutions for all styles and types. Manufacturers carried include Permaloc, Sure-loc and Curv-Rite. All styles may not be available in all locations.

www.kenneyoutdoorsolutions.com
Pond Calculations - Keep these easy calculations handy for your pond projects

Calculate liner size:
Measure the maximum length and the maximum width of the pond. Add the maximum depth x 2 to each dimension then add another two feet of liner to each dimension for your anchor trench.

Calculate approximately how many gallons of water are in a pond:
Average length x Average width x Average depth x 7.48 = Total gallons.

Calculate approximately how many gallons of water are in the stream:
Maximum length x Average width x 0.25 x 7.48 = Total gallons. (This would be water in transition. Water that has to be supplied by the lower pond is water in transition. Upper ponds, streams or multiple streams all contribute to this total number.)

Calculate approximately how many gallons of water are required to overflow an upper pond:
Maximum length x Maximum width x 0.8 x 0.25 x 7.48 = Total gallons required to overflow upper pond. (This would be water in transition.)

Calculate how many gallons of water are available to put in transition, before the water level in the lower pond, is drawn down below the skimmer opening:
Maximum length x Maximum width x 0.8 (unless your pond is completely square) x 0.33 x 7.48 = Total gallons available at the skimmer faceplate. (It is recommended that no more than half of the volume of water available at the faceplate is put in transition. If power is interrupted the lower pond will have to receive all the water in transition, or the pond will overflow)

Stream Depth Fractions:
.50 = 6” .41 = 5” .33 = 4” .25 = 3” .16 = 2”

Surface Area Formula:
(Length x Width) / 43,650 = Acres

Just-A-Falls Calculations or Pond Free

Calculate how many gallons of water are in a Just-A-Falls reservoir:
Length x Width x Average depth x 7.48 x 0.80 = Total gallons. (60% of the reservoir is mass / rock and 40% is water.)

Calculate how many inches of draw down there will be in a Just-A-Falls reservoir to fill the stream:
Total gallons contained in reservoir / Depth of reservoir in inches = gallons per inch. (Calculate how many gallons of water your stream requires using the stream formula. Try to have three times as much water in your reservoir than you will have in transition.)

Total gallons required for the stream / Gallons per inch in reservoir = Total inches the water level will be drawn down in reservoir. (Make sure that there will be enough water remaining in your reservoir to keep the pump completely submerged in water. This is required so that the pump will cool properly.)
Quantity of Boulders for a Pond

\[
\text{Length} \times \text{Width} \div 40 = \text{Tons of Boulders}
\]

For every 1 ton of 6"-12" boulders, get 2 tons of 12"-18" boulders and 1 ton of 18"-24" boulders

Quantity of Boulders for a Stream

1.5 tons for every 10’ of stream using a 1:2:1 ratio above

Quantity of Gravel in a Pond

\[
\text{Pond gravel} = 25\% \text{ of the total tons of boulders used in the pond}
\]

Quantity of Boulders for Face of a Waterfall Box

22" — 1 ton of mixed boulders
30" — 1 ½ tons of mixed boulders
40" — 3 tons of mixed boulders

Pond and Stream Plant Recommendations

<table>
<thead>
<tr>
<th>Pond Size</th>
<th>Marginal’s</th>
<th>Water Lilies</th>
<th>Floaters</th>
<th>Submerged</th>
</tr>
</thead>
<tbody>
<tr>
<td>6’ x 8’</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>8’ x 11’</td>
<td>9</td>
<td>1</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>11’ x 16’</td>
<td>12</td>
<td>2</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>15’ x 21’</td>
<td>15</td>
<td>3</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>21’ x 26’</td>
<td>21</td>
<td>5</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Stream per 10’</td>
<td>3-6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Light Recommendation

8 x 11 pond or smaller use 1-2 lights
11 x 16 — 21 x 26 pond use 3 or more lights
Stream: 1 per waterfall drop

Total Head Pressure

\[
\text{Vertical Rise} = \text{Elevation Change} \\
\text{Pipe Run} = \text{Friction Loss} \\
10’ \text{ of pipe run} = 1’ \text{ of vertical rise} \\
\text{Vertical Rise} + \text{Friction Loss from pipe run} = \text{Total Head Pressure}
\]

Pipe and Tubing Flow Chart

<table>
<thead>
<tr>
<th>Inside Diameter of Pipe</th>
<th>Max Water Flow in GPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1”</td>
<td>1500</td>
</tr>
<tr>
<td>1 ½”</td>
<td>3600</td>
</tr>
<tr>
<td>2”</td>
<td>5400</td>
</tr>
<tr>
<td>3”</td>
<td>13,500</td>
</tr>
<tr>
<td>4”</td>
<td>21,000</td>
</tr>
</tbody>
</table>

Note: These formulas are only basic guidelines and can vary by application and design.
Selecting a pump can be confusing but it is critical that the proper pump is chosen to ensure longevity and trouble-free performance. Following are several things to keep in mind when selecting a pump:

**How much volume do you need?**

It takes approximately 36 gallons per minute to make a waterfall 1' wide x 1" deep (1" deep water is considered an average depth for residential applications). The first step in determining how much water you need is to multiply the width of the waterfall in feet x 36 = gallons per minute needed to make 1" thick water over your falls.

**Proper Water Pump Selection Is Important!**

Example:

A 3' wide waterfall would need 108 gallons per minute to be 1" thick

---

### Pump Comparison Chart

Use the information on this page to simplify selecting a pump for a given application. Selecting a pump involves a couple steps:

1. **Determine the flow needed:** multiply width (in feet) x 36 gpm = flow needed in gpm
2. **Determine the head pressure in feet** — Static Head + Friction Loss Head = Total Dynamic Head (TDH)

To find a pump go to the “MAX HEAD” column on the right side of this page. Find the foot of head column that is closest to your application (always round up to next column). Now scroll down that column looking for a pump that provides the gpm you determined you needed in step 1. If multiple pumps fit your application you can compare cost to operate, outlet size, etc. to finalize your selection.

<table>
<thead>
<tr>
<th>Part#</th>
<th>HP</th>
<th>AMPS</th>
<th>Volts</th>
<th>Cost for 24 hrs**</th>
<th>Outlet Size</th>
<th>Length</th>
<th>Dimension</th>
<th>Flow Rates @ Feet of Head</th>
<th>Max Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP3200</td>
<td>-</td>
<td>2.2</td>
<td>115</td>
<td>.56¢</td>
<td>1&quot;</td>
<td>30'</td>
<td>12&quot; 7&quot;</td>
<td>23 8 - - - - - 16'</td>
<td></td>
</tr>
<tr>
<td>EP4700</td>
<td>N/R</td>
<td>2.4</td>
<td>115</td>
<td>.60¢</td>
<td>1.5&quot;</td>
<td>20'</td>
<td>9&quot; 8&quot;</td>
<td>50 33 19 2 - - - 28'</td>
<td></td>
</tr>
<tr>
<td>EP6700</td>
<td>N/R</td>
<td>4.5</td>
<td>115</td>
<td>$1.12</td>
<td>20'</td>
<td>11&quot; 8&quot;</td>
<td>73 56 38 23 11 - 28'</td>
<td></td>
<td></td>
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<tr>
<td>EP9700</td>
<td>N/R</td>
<td>6.1</td>
<td>115</td>
<td>$1.51</td>
<td>30'</td>
<td>18&quot; 9&quot;</td>
<td>116 92 83 63 47 22 35'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS150</td>
<td>1/4</td>
<td>2.8</td>
<td>115</td>
<td>.70¢</td>
<td>2&quot;</td>
<td>20'</td>
<td>6&quot; 13&quot;</td>
<td>25 16 5 - - - - 18'</td>
<td></td>
</tr>
<tr>
<td>TS250</td>
<td>1/3</td>
<td>4.2</td>
<td>115</td>
<td>$1.04</td>
<td>1.5&quot;</td>
<td>20'</td>
<td>6&quot; 13&quot;</td>
<td>43 35 27 19 10 - - 30'</td>
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<tr>
<td>TS400</td>
<td>1/2</td>
<td>5.0</td>
<td>115</td>
<td>$1.24</td>
<td>20'</td>
<td>6&quot; 13&quot;</td>
<td>50 44 36 27 19 9 - 33'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TH150</td>
<td>1/4</td>
<td>2.6-3.1</td>
<td>115</td>
<td>.72¢</td>
<td>2&quot;</td>
<td>20'</td>
<td>10&quot; 15&quot;</td>
<td>46 35 23 10 - - 23'</td>
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</tr>
<tr>
<td>TH250</td>
<td>1/3</td>
<td>3.0-4.2</td>
<td>115</td>
<td>.99¢</td>
<td>20'</td>
<td>10&quot; 15&quot;</td>
<td>65 54 43 30 15 - 30'</td>
<td></td>
<td></td>
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<tr>
<td>TH400</td>
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<td>3.7-6.0</td>
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<td>$1.39</td>
<td>20'</td>
<td>10&quot; 17.5&quot;</td>
<td>83 73 60 46 34 20 36'</td>
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<td>TH750</td>
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<td>$2.36</td>
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<td>98 91 83 73 62 49 43'</td>
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<tr>
<td>TM9500</td>
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<td>$2.70</td>
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<td>12&quot; 19.5&quot;</td>
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<td>$2.98</td>
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<td>12&quot; 21&quot;</td>
<td>191 166 141 106 76 43 34'</td>
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<td>115</td>
<td>$2.73</td>
<td>20'</td>
<td>11&quot; 18&quot;</td>
<td>116 101 90 73 58 41 40'</td>
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<tr>
<td>TB8002</td>
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<td>20'</td>
<td>11&quot; 18&quot;</td>
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<td>TB12000</td>
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<td>230</td>
<td>$4.81</td>
<td>3&quot;</td>
<td>20'</td>
<td>12&quot; 21&quot;</td>
<td>- - - - - - 40'</td>
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<td>230</td>
<td>$7.20</td>
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<td>12&quot; 22.5&quot;</td>
<td>- - 211 203 191 178 72'</td>
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</tr>
<tr>
<td>ETP05N</td>
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<td>5.6</td>
<td>115</td>
<td>$1.27</td>
<td>20'</td>
<td>10&quot; 13&quot;</td>
<td>57 53 46 39 32 23 38'</td>
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<td></td>
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<tr>
<td>ETP10N</td>
<td>1</td>
<td>12</td>
<td>115</td>
<td>$2.98</td>
<td>20'</td>
<td>10&quot; 15&quot;</td>
<td>95 87 78 72 63 57 57'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Calculated at .09¢ per kilowatt hour**
Plastic pipe: friction loss (in feet of head) per 100' of pipe

Feet of head is typically measured in terms of vertical lift. However, the diameter and length of pipe can have a significant effect on the performance of the pump as well. (Especially if the pipe diameter is too small). A pump must have the power to not only push the water up to the vertical height of the waterfall, but to also overcome the friction loss created by the pipe. Total Dynamic Head is the feet of head (lift) added to the friction loss created by the pipe. In most small ponds, with short pipe runs, friction loss is not typically a problem. However, in a feature with long streams or high flow rates, friction loss can have a big impact on the performance of the pump. To determine the Total Dynamic head you would add the feet of head and the friction loss. The chart at the right lists the feet of head equivalent created by flow and pipe diameter. (Figures shown are based on a 100' length of pipe.)

Example
We are pumping 70 GPM (4200 GPH). The chart shows that 70 GPM through 100' of 2" pipe equals 7.76' of head while a 3" pipe only equals 1.13' of head. If your waterfall is 10' high and 100' away, you will have a total head of 17.76' using 2" pipe but only 11.13' using 3" pipe.

\[
\begin{align*}
10.00' & \text{ Vertical Lift} \\
+ & 7.76' \text{ Friction Loss} \\
= & 17.76' \text{ Total Dynamic Head}
\end{align*}
\]

As you can see, there is a big difference between 1½" and 2" pipe — almost 80% more space! This shows why using the correct size pipe is important to the output of your pump.

Pipe Comparison

Many people mistakenly think that there really isn't much difference between (for example) 1½" and 2" pipe or between 3" to 4" pipe. The chart to the right shows how many square inches of surface area are on the inside of flexible PVC pipe.
External Pumps

EasyPro offers a variety of external pumps in both non-priming and self-priming styles. External pumps offer several advantages over submersible pumps including reduced energy costs and longer average life span.

Non-priming pumps are best used in flooded suction applications. This means the pump sits below the water level it is pumping. Examples would be alongside of a fish tank or in a pump chamber buried alongside of a pond. These pumps can sit above the water level, however, a check valve must be used on the end of the suction line to keep the pump primed.

Self-priming pumps have the capability of purging some air from the suction line and priming themselves (after filling the pump with water the first time). These pumps can sit above the water level without a check valve in the suction line, however, using a check valve speeds up the priming process and ensures a quick flow when the pump is plugged in.

Following is a comparison chart between our most popular external pumps. Use this chart to help select which pump is best for your application. Start by finding the feet of head column on the right side of the chart. Look down the numbers under the feet of head in your application to find a pump that provides the amount of water needed.

<table>
<thead>
<tr>
<th>Low Head Pumps</th>
<th>Head</th>
<th>Max</th>
<th>Part #</th>
<th>Amps</th>
<th>Volts</th>
<th>24 hrs**</th>
<th>Pipe Size</th>
<th>Length</th>
<th>Priming</th>
<th>5'</th>
<th>10'</th>
<th>15'</th>
<th>20'</th>
<th>25'</th>
<th>30'</th>
<th>Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX3600</td>
<td>1.4</td>
<td>115</td>
<td>.34¢</td>
<td>2&quot;</td>
<td>8'</td>
<td>No</td>
<td>52</td>
<td>34</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12'</td>
<td></td>
</tr>
<tr>
<td>EX4500</td>
<td>2.7</td>
<td>115</td>
<td>.67¢</td>
<td>1 1/2&quot;</td>
<td>8'</td>
<td>No</td>
<td>67</td>
<td>56</td>
<td>41</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>21'</td>
<td></td>
</tr>
<tr>
<td>EX6100</td>
<td>3.1*</td>
<td>115/230</td>
<td>.77¢</td>
<td>1 1/2&quot;</td>
<td>8'</td>
<td>No</td>
<td>92</td>
<td>79</td>
<td>65</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>23'</td>
<td></td>
</tr>
<tr>
<td>EX8800</td>
<td>4.0*</td>
<td>115/230</td>
<td>.99¢</td>
<td>2&quot;</td>
<td>8'</td>
<td>No</td>
<td>130</td>
<td>108</td>
<td>84</td>
<td>48</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>23'</td>
<td></td>
</tr>
<tr>
<td>EXP3700</td>
<td>2.8*</td>
<td>115/230</td>
<td>.69¢</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>54</td>
<td>38</td>
<td>25</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>21'</td>
<td></td>
</tr>
<tr>
<td>EXP4900</td>
<td>3.4*</td>
<td>115/230</td>
<td>.84¢</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>73</td>
<td>60</td>
<td>46</td>
<td>23</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>21'</td>
<td></td>
</tr>
<tr>
<td>EXP6800</td>
<td>3.9*</td>
<td>115/230</td>
<td>.97¢</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>96</td>
<td>80</td>
<td>52</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>19'</td>
<td></td>
</tr>
<tr>
<td>EXP7800</td>
<td>5.0*</td>
<td>115/230</td>
<td>$1.24</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>118</td>
<td>101</td>
<td>81</td>
<td>53</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24'</td>
<td></td>
</tr>
<tr>
<td>EX6750-2</td>
<td>4.4</td>
<td>230</td>
<td>$2.18</td>
<td>1 1/2&quot;</td>
<td>8'</td>
<td>No</td>
<td>49</td>
<td>40</td>
<td>29</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>21'</td>
<td></td>
</tr>
<tr>
<td>EXP8700-2</td>
<td>3.7</td>
<td>230</td>
<td>$1.84</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>75</td>
<td>58</td>
<td>43</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>21'</td>
<td></td>
</tr>
</tbody>
</table>

*Maximum amps at 115v **Calculated at $.09 per kilowatt hour

<table>
<thead>
<tr>
<th>High Head Pumps</th>
<th>Head</th>
<th>Max</th>
<th>Part #</th>
<th>Amps</th>
<th>Volts</th>
<th>Cost for 24 hrs**</th>
<th>Outlet Pipe Size</th>
<th>Cord Length</th>
<th>Self Priming</th>
<th>Flow Rates @ Feet of Head</th>
<th>Max Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX8500</td>
<td>5.4</td>
<td>230</td>
<td>$2.68</td>
<td>1 1/2&quot;</td>
<td>8'</td>
<td>No</td>
<td>116</td>
<td>100</td>
<td>80</td>
<td>51</td>
<td>-</td>
</tr>
<tr>
<td>EX11000</td>
<td>8.6</td>
<td>230</td>
<td>$4.27</td>
<td>1 1/2&quot;</td>
<td>8'</td>
<td>No</td>
<td>-</td>
<td>143</td>
<td>125</td>
<td>106</td>
<td>80</td>
</tr>
<tr>
<td>EXP6300HP</td>
<td>8.7</td>
<td>230</td>
<td>$4.32</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>89</td>
<td>80</td>
<td>70</td>
<td>61</td>
<td>46</td>
</tr>
<tr>
<td>EXP9300HP</td>
<td>11.4</td>
<td>230</td>
<td>$5.66</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>-</td>
<td>121</td>
<td>114</td>
<td>100</td>
<td>86</td>
</tr>
<tr>
<td>EX6750-2</td>
<td>12.7</td>
<td>230</td>
<td>$6.30</td>
<td>1 1/2&quot;</td>
<td>8'</td>
<td>No</td>
<td>99</td>
<td>90</td>
<td>82</td>
<td>71</td>
<td>60</td>
</tr>
<tr>
<td>EXP8700-2</td>
<td>9.6</td>
<td>230</td>
<td>$4.77</td>
<td>2&quot;</td>
<td>8'</td>
<td>Yes</td>
<td>129</td>
<td>120</td>
<td>115</td>
<td>102</td>
<td>88</td>
</tr>
<tr>
<td>EX11200</td>
<td>9.6</td>
<td>230</td>
<td>$4.77</td>
<td>2&quot;</td>
<td>8'</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>138</td>
<td>122</td>
<td>102</td>
</tr>
<tr>
<td>EX13200</td>
<td>11.5</td>
<td>230</td>
<td>$5.71</td>
<td>2&quot;</td>
<td>8'</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>175</td>
<td>150</td>
<td>141</td>
</tr>
</tbody>
</table>

*Calculated at $.09 per kilowatt hour

Important Pump Info — Please read and understand this!!

The life of any pump is directly related to the operating conditions it works under. One of the most common causes of premature pump failure is LOW head. Pumps are designed to work under a certain amount of load. In low head applications not enough back pressure is put on the pump and it spins too freely. This causes the motors to run hot and shortens their life considerably.

In every plumbing system you should incorporate a valve somewhere in the discharge line. This valve can then be closed part way to simulate back pressure if not enough natural pressure is created.

Testing for Back Pressure - How do you know if your pump has enough back pressure? The best way to test this is through the electrical draw of the motor. Every pump has a label on it which shows the amp draw of the motor. If you have too little back pressure then the amp draw will be high. As you close the valve on the discharge line and increase pressure the amp draw will go down.

By using a simple device like the P3M meter for 115 volt applications you can easily “dial-in” the amp draw of the motor. When you are done, a pumps electric draw should be equal to or less than the amp draw listed on the pump label. You are then within the safe operating range of the motor. For 230 volt motors you can have your electrician test the running amp draw for you or purchase a 230 volt amp meter from a local electrical supply store.

This is the single most important thing you can do to ensure long life, particularly on larger motors!
Technical Resources - Standardized Quote Form

CUSTOMER: ____________________________

JOB NAME: ____________________________

DATE: ________________________________

---

POND SIZE

Length: ____________________

Width: ____________________

Depth: ____________________

Volume: ____________________

(length x width x depth x 7.5)

STREAMBED

Length: ____________________

Width: ____________________

WATERFALL

Height: ____________________

(above water level)

PIPE

Length: ____________________

---

WATERGARDEN

SIZING LINER

\[
\frac{\text{\(\text{____} \times 2\)}}{\text{depth}} + \frac{\text{\(\text{____}\)}}{\text{length}} + 2' = \text{____ long}
\]

\[
\frac{\text{\(\text{____} \times 2\)}}{\text{depth}} + \frac{\text{\(\text{____}\)}}{\text{width}} + 2' = \text{____ wide}
\]

PUMP SELECTION / HEAD HEIGHT

Vertical Rise: (above water level) = _______

Pipe Run: (1' of head per 10' of pipe) = _______

(Rise)_____ + (Run)____ = (Total Head)____

(Width of Spillway)____ x 1500 = ____ gph

OR

(Pond Volume)_______ gal x 2 = ____ gph

*Choose a pump recommended for this operating range*

FILTRATION

Skimmer Model: ____________________________

FilterFalls Model: ____________________________

*Refer to "Compatibility Charts" in Atlantic catalog*

*Select filters with proper flow range*

---

POND-FREE

STREAMBED VOLUME

\[
\frac{\text{\(\text{____} \times \text{____}\)}}{\text{length}} \times \frac{\text{\(\text{____}\)}}{\text{width}} \times .25 = \text{____ cu/ft}
\]

BASIN VOLUME (ECO-BLOX)

\[
\frac{\text{\(\text{____} \times 3\)}}{\text{length}} = \text{____ cu/ft needed for basin streambed cu/ft}
\]

ECO-BLOX (QUANTITY)

\[
\frac{\text{\(\text{____} \times 4.2\)}}{\text{basin cu/ft}} = \text{____ number of Eco-Blox per basin cu/ft}
\]

BASIN VOLUME (GRAVEL)

\[
\frac{\text{\(\text{____} \times 9\)}}{\text{streambed cu/ft}} = \text{____ cu/ft}
\]

To download your own

Form simply scan with your smart phone & link to this document

www.kenneyoutdoorsolutions.com