



AQUATIC ECO-SYSTEMS®



DESIGN • SERVICE • EQUIPMENT

THIRTY-NINTH EDITION MASTER CATALOG

Shop Online: PentairAES.com • Orders and Advice: 877.347.4788

SWEETWATER® HIGH-EFFICIENCY PUMPS



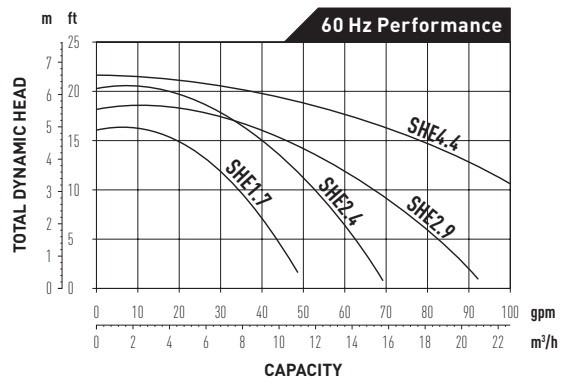
Low head, very quiet

- High-efficiency
- Stainless steel motor shafts
- Salt water compatible shaft sleeve and seal
- 1,725-rpm, thermally protected ODP motors
- Glass-filled polypropylene pump bodies
- 8' power cords and 1½" FNPT inlet/outlet (**SHE1.7** and **SHE2.4**)
- **SHE2.9** and **SHE4.4** have a 2" in/out with slip unions
- **SHE2.4-4.4** also available in 230V/50 Hz (add "-230")



MODEL	WATTS @ 10' HEAD	AMPS @ 115V	SHIP WT (LBS)	EACH
SHE1.7	170	1.5	24	\$614.29
SHE2.4	220	1.9	28	640.49
SHE2.9	290	2.9	31	677.29
SHE4.4	450	4.0	35	787.49

2-YEAR WARRANTY



Compare our **SHE2.9** to a typical hardware store water pump when run continuously.

BRAND	GPM @ 10' HEAD	WATTS	COST PER YEAR @10¢/KWH
SHE2.9	70	290	\$254
TYPICAL PUMP	70	900	788

Our pump saved over \$500/year. Which one is the bargain?

TECH TALK 75

Water Pump Efficiency and Redundancy

We know what you're thinking ... here they go again, talking about efficiency. Yes, and we'll keep doing it. The problem is that, in the US, electricity is so cheap, we all but ignore it. Then, when we get the power bill, we complain about how high it is!

Sound familiar?

Here is a note on energy efficiency from our 1981 Aeration Handbook and Catalog: "... one kilowatt-hour is equivalent to about two days of hard work by one man." A man's labor for 5¢ per day—that's cheap!

As efficiency relates to aquaculture, pumping and aeration are the two biggest consumers of electricity. After feed costs and labor, electricity is probably the next highest overhead expense. Be careful when selecting a pump. Do not compare them by horsepower alone. Often, a cheap pump has an undersized motor that must work very hard to do the job. This may be an appropriate pump selection for temporary or noncritical applications, but not where the lives of your animals are concerned. Often, pool type pumps, when used for low-pressure aquaculture applications; keep the motor in a continuous overload condition.

Operating an undersized motor in the duty range of its service factor is acceptable from the pump manufacturer's point of view, but not a fish farmer's point of view. It lowers the pump's cost (which looks good when you are comparing pumps), but increases energy consumption and operating temperature. Higher operating temperature shortens motor life.

We've painstakingly selected and tested all of our pumps for power consumption. We've illustrated ratings, specifications and power consumption clearly. We use the term "aquaculture duty," to indicate long-term reliability and efficiency in humid, industrial applications.

Multiple water pumps provide redundancy.

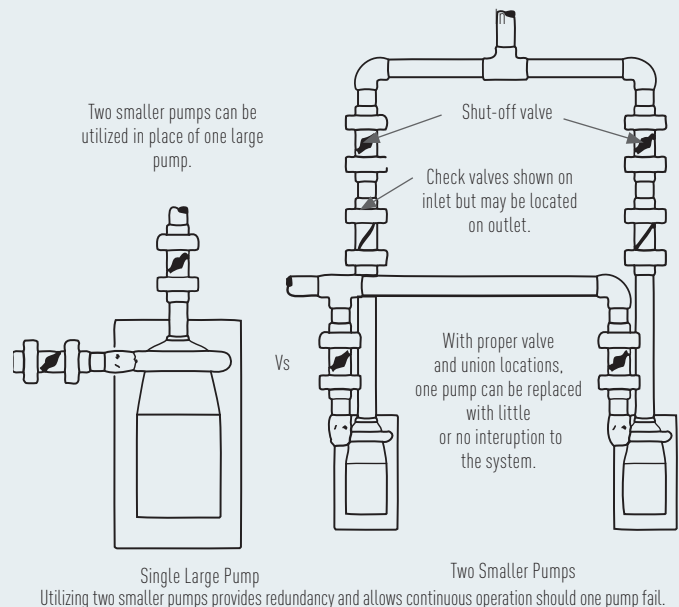
Bigger may not be better when it comes to pumping water. For example, to pump 300 gallons per minute (gpm) to a height of 20', you could use one large 300-gpm pump, two 150-gpm pumps, three 100-gpm pumps, four 75-gpm pumps, five 60-gpm pumps, etc. To determine which is best for your application, consider the following options.

Large pumps may only be available with 3-phase motors. If 3-phase power is not available, an expensive, power-robbing phase converter must be used, or multiple single-phase pumps. Even if one large pump can be used, another one must be available as a backup, if the pumping need is critical.

Consider multiple pumps. If one pump moves 100 gpm, two of the same pumps together will move 200 gpm, three will move 300 gpm, and so on. If less than 300 gpm is ever needed, multiple smaller pumps

will save electricity, as they can be individually turned on or off as needed (installing a check valve on each pump will prevent water from flowing back when that pump is not in use). Also, multiple pumps may be preferred, as then only a portion of the total water flow would be lost when one pump fails. The cost of having a small pump on hand for backup is much less than a large one. For a "ready-to-go" backup, extra pumps could be plumbed into the main line (put the pumps on separate circuit breakers) so that the reserve pump is ready when needed. Alternate the use of the pumps to keep them exercised.

Simplify the backup and spare parts inventory at your facility by using multiples of the same pump instead of several single-purpose pumps. Similar multiple redundancy can be used with air blowers, heaters, chillers, filters, etc.



110 MECHANICAL FILTRATION

Bead Filters

SWEETWATER BEAD FILTERS

Pentair Aquatic Eco-Systems Sweetwater® Bead Filters are specifically engineered to deliver both mechanical and biological filtration in one highly efficient package. Applications include koi ponds, public aquariums, zoos, hatcheries, research facilities, aquaponics, quarantine and environmental biological recovery systems. Robustly constructed heavy-duty fiberglass filter vessels are rated at maximum 50 PSI and designed to hold up to 4500 ft² of biological contact surface area in a small footprint.

Backwashes are accomplished with ease using a blower system. The blower aggressively agitates the debris collected in the media bed and suspends it in the water column to be backwashed. Water clarity monitoring during backwash cycles and the return stream is convenient using built-in sight glasses.

If separate mechanical filtration is provided upstream, pond size and fish capacity can be as much as double when the bead filter is used for biological filtration only. Pond volume and fish load capacity numbers are nominal and sizing requirements should be determined by daily feed rate.

Bead filters include filtration vessel mounted on a rigid plastic base, control valve with 2" union connections and filter bead media. Available models include a choice of 120V/60Hz blower or a 240V/50Hz blower. Ships Ground. One-year warranty.

Design Features

- Innovative flow control protects against friction loss by eliminating unnecessary flow restrictions inside the system allowing greater water flow
- Both an excellent mechanical and biological filter
- Clear sight glasses allow you to monitor filtered effluent and waste discharge streams
- Bottom mounted sludge drain discharges heavy solids without media interference
- Bypass function isolates beneficial bacteria and media without disturbing normal water flow. Ideal for medicating the aquatic environment without negatively impacting the beneficial bacteria.
- High-output blower fluidizes and pre-washes media prior to backwash, reducing the amount of water needed to clean the system, which increases biological efficiency.
- Removable diffuser inlet makes for easy cleaning



MAXIMUM SYSTEM SIZE GAL/LITERS	RECOMMENDED FLOW RATE (GPM)	BEAD MEDIA CAPACITY	FISH SUPPORTED (LBS)	INLET/OUTLET	DIMENSIONS		WITH 120V 60HZ BLOWER		WITH 240V 50HZ BLOWER	
					DIAMETER	HEIGHT	MODEL	EACH	MODEL	EACH
4,000/15,142	40 - 60	1.65 FT ³	75	2" / 1 1/2"	19"	38"	930080	\$1,550.00	930146	NEW \$1,550.00
8,000/30,283	60 - 90	3.30 FT ³	165	2"	24"	43"	930081	2,150.00	930147	NEW 2,150.00
12,000/45,425	90-110	4.95 FT ³	240	2"	30"	48"	930082	2,950.00	930148	NEW 2,950.00
24,000/90,850	100-125	9.90 FT ³	480	2"	36"	52"	930083	4,750.00	930149	NEW 4,750.00

Note: Model 930080 and 930146 will ship with 2" x 1 1/2" reducer bushings as option for 1 1/2" plumbing installation.

MODEL		EACH
AB1	FILTER BEAD MEDIA - 1.65 FT ³ , 55 LBS.	\$117.29
930135	1HP, 120V 60HZ BLOWER - FITS MODELS 930080 AND 930081	244.99
930142 NEW	1HP, 240V 50HZ BLOWER - FITS MODELS 930146 AND 930147	244.99
930137	1.5HP, 120V 60HZ BLOWER - FITS MODELS 930082 AND 930083	279.99
930143 NEW	1.5HP, 240V 50HZ BLOWER - FITS MODELS 930148 AND 930149	279.99