



SHURflo AquaTIGER™ SS

Agua Tiger SS

This high quality SHURflo Stainless Steel pump is a centrifugal pump designed for general plumbing applications where a flooded intake is provided. Typical applications include livewell filling and circulation; liquid transfer, shower/ hot tub pump-out, fish box and high flow washdrawn systems.

Product Name and Description	Part Number	GPM	Price	Shipping Weight (lbs.)
Aqua TIGER SS 12V	80177	21	\$169.15	38.0



SHURflo Submersible Pump 9300

Submersible Pump 9300

Compact, powerful, easy to install and highly reliable, thousands in service. Diaphragm type positive displacement pump with unique watertight electrical connectors. Delivers up to 2 gpm. Can deliver water from 250 feet. Uses up to 100 watts of peak solar power.

Product Name and Description	Part Number	GPM	Price	Shipping Weight (lbs.)
Submersible Pump 9300	79850	2	\$745.00	6.0



WIND GENERATORS

The Perfect Compliment to Any Solar System

Electricity produced by wind generation can be used directly, as in water pumping applications, or it can be stored in batteries for household use when needed. Wind generators can be used alone, or they may be used as part of a hybrid system, in which their output is combined with that of photovoltaics, and/or a fossil fuel generator. Hybrid systems are especially useful for winter backup of home systems where cloudy weather and windy conditions occur simultaneously.

The most important decision when considering wind power is determining whether or not your chosen site has enough wind to generate the power for your needs, whether it is available consistently, and if it is available in the season that you need it. The power available from the wind varies as the cube of the wind speed. If the wind speed doubles, the power of the wind (ability to do work) increases 8 times. For example, a 10 mile per hour wind has one eighth the power of a 20 mile per hour wind. (10 x 10 x 10 = 1000 versus 20 x 20 x 20 = 8000).

One of the effects of the cube rule is that a site which has an average wind speed reflecting wide swings from very low to very

high velocity may have twice or more the energy potential of a site with the same average wind speed which experiences little variation. This is because the occasional high wind packs a lot of power into a short period of time. Of course, it is important that this occasional high wind come often enough to keep your batteries charged. If you are trying to provide smaller amounts of power consistently, you should use a generator that operates effectively at slower wind velocities.

Wind speed data is often available from local weather stations or airports, as well as the US Dept. of Commerce, National Climatic Center in Asheville, N.C. You can also do your own site analysis with an anemometer or totalizer and careful observation. Installation of generators should be close to the battery bank to minimize line loss, and 30 feet higher than obstructions within a 300 foot radius. The tower should be well grounded.



Southwest Windpower

Southwest Windpower

The AIR-X combines what has made AIR the world's number one selling small wind turbine with new technology previously found only in today's state-of-the-art mega-watt-class wind turbines. All of these features are primarily found within the body of the turbine. The new microprocessor based speed control results in increased performance, improved battery charging capability and the elimination of "flutter" noise from the machine. The controller allows for peak-power tracking of the wind by optimizing the alternators output on all points of the cubic curve and then efficiently delivers the energy to the battery. The turbine's smart controller allows it to actually control blade rotation speed thus eliminating the buzzing noise commonly found with the previous models in high winds. Furthermore, a new series of carbon-reinforced blades with a modified pitch angle further increases power production.

The new electronics are a considerable improvement over the previous models. To the customer this means:

Much Lower Noise: Previous AIR wind modules relied on their aero-elastic blade design for over speed protection in high winds, causing loud flutter noise in winds above 35 mph (16 m/s). AIR-X's circuit monitors the wind speed and slows the blades as it reaches its rated output preventing it from going into flutter. The result is a much quieter, neighbor friendly wind turbine. In high winds, the AIR-X will continue to produce power at a reduced level until the wind decreases, at which point maximum output will resume. Additionally, when the battery has reached its charged state, the AIR-X will slow to an almost complete stop. Only when the battery has dropped below its user adjustable voltage set point will it startup and resume charging.

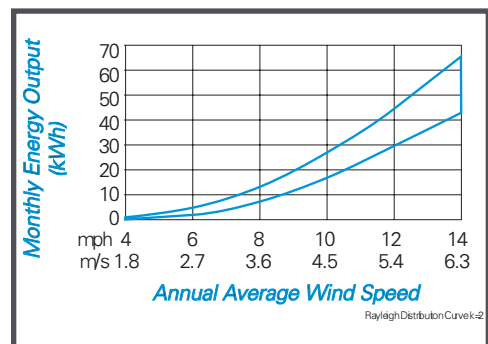
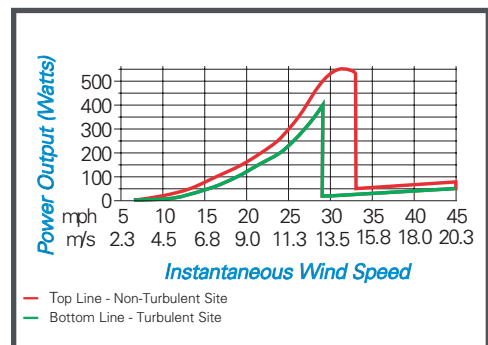
Improved battery charging: Previous AIR designs required 300-400 amp-hour battery banks so the trickle charge of the wind turbine could be adequately absorbed. The AIR-X's charge controller periodically stops charging, reads the battery voltage, compares it to the voltage setting and if the battery is charged, it completely shuts off all current going to the battery. This function is performed within a few milliseconds. The closer the battery is to reaching its full state of charge, the more often the AIR-X's circuit repeats this action. This means any size battery from 25 A/h or higher can be charged safely.

Lower stress design: AIR-X limits power on the input side of the electronics by controlling the torque from the blades. The power no longer has to be dissipated by the electronics resulting in lower heat stress on the circuit, bearings and other materials. Furthermore, stress on wind turbines occurs primarily in high winds. Under these conditions, the electronic stall design reduces the speed to 600 rpm, thereby significantly reducing turbine and tower loading.

The AIR-X is Southwest Windpower's most valuable venture to date. Thousands of hours of research, development and testing have gone into the design. We are confident you will love the improvements the AIR-X has to offer.



Product Name and Description	AIR-X			AIR-X Marine	
	12V	24V	48V	12V	24V
Part Number	76017	76018	76999	76997	76998
Price	\$649.00	\$649.00	\$855.00	\$875.00	\$875.00
Rated Power (Watts)	400				
At Rated Wind Speed	28.0				
Available System Voltages (Volts)	12	24	48	12	24
Controller	Microprocessor-based smart internal regulator with Peak Power Tracking				
Start Generator Speeds (MPH)	7				
Rotor Diameter (in.)	46.0				
Mount Tower Diameter (SCH 40) (in.)	1.5				
Blade Type	Carbon Fiber Composite				
Body	Cast Aluminum				
Shipping Weight (lbs.)	17.0				



Whisper Wind Generators

Whisper Wind generators are easily installed by the owner, require no scheduled maintenance and feature the highest power-to-weight ratio in the industry. Attractive design, sealed ball bearings throughout, protection to winds of 120 mph and high quality materials make the Whisper a reliable source of electricity from the wind for decades. With extra-large propeller diameters, Whisper wind generators are optimized for the low average wind speeds of locations where most people choose to live.

More Features:

- Unique "angle governing" (patented) is fool-proof and generates power in high winds while protecting itself.
- Brushless permanent magnet generator.
- Survival wind speed to 120 mph.
- 2 year warranty (5 year extended warranty optional, call for details).
- Optional high voltage transformer, low voltage transformer available for long cable runs for 1,000 watt units and higher.
- Red signal light on unit indicates charging, visible from ground.
- EZ wire system center standard with all Whisper units. Includes monitoring and diversion controller for both wind and optional PV input.



Product Name and Description	Whisper H40	Whisper H80	Whisper 175
Part Number (12V)	77090	77030	n/a
Part Number (24V)	77020	77040	77011
Part Number (48V)	77022	77042	77010
Price	\$1595.00	\$1995.00	\$5455.00
Price (12V)	\$1895.00	\$2365.00	n/a
Rated Power (Watts)	900	1000	3200
At Rated Wind Speed	28.0	28.0	28.0
Available System Voltages (Volts)	12, 24, 48	12, 24, 48	12, 24, 48
User Adjustable System Voltage (Volts)	Yes	Yes	Yes
Start Generator Speeds (MPH)	7.5	7.0	7.0
Rotor Diameter (in.)	84.0	120.0	180.0
Mount Tower Diameter (SCH 40) (in.)	2.5	2.5	5.0
Blade Type	Fiberglass, Carbon Fiber		
Number of Blades	3	3	2
Transformer avail. for long wire dist.	No	Yes	Yes
Shipping Weight (lbs.)	85.0	100.0	175.0

Wind Electric Water Pumping System

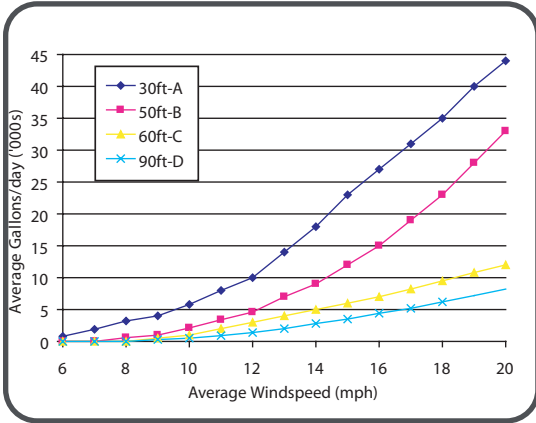
This revolutionary technology combines the wind capture capabilities of a modern high speed wind generator with the reliability of a standard 4 inch submersible pump. This system can pump nearly 3 times as much water as a mechanical windmill with the same rotor diameter. The wind generator can be placed up to 1000 feet away from the well. All models use the Whisper H80 high voltage wind generator with these new features:

- New 10 foot diameter blades in durable polypropylene carbon composite
- New patented, "Angle-Governor System" for constant, maintained peak water flow in the wide range of 22 to more than 50 mph.
- New outdoor rated rainproof electrical controller automatically connects the pump to the wind generator during sufficient wind and is suitable to mount on the tower. A separate "brake" system, or on-off control removes all electrical power from the controller and is lockable.
- New switch controlled cut-in wind speed provides improved matching of pumping system to water depth within each pump range.

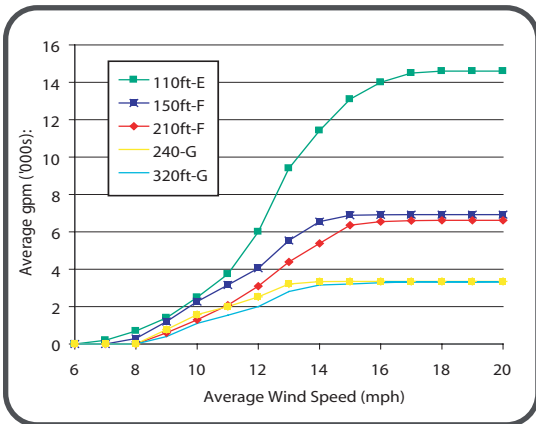
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
H80 Wind Generator - Including Controller	76089	\$1995.00	80.0

Wind Electric Water Pumps Available

1) For depths of 90ft (30m) or less Total Dynamic Head, use the H80 Water pumper wind turbine with an AY McDonald or Grundfos 3/4 hp Centrifugal water pump. Use the table and chart to select the model for your total head requirement:



2) For depths of 100ft (35m) or greater Total Dynamic Head, we suggest the H80 Water pumper turbine and the new "SQ Flex" series of pumps which are "helical rotor" positive displacement pumps, more efficient at depth. Use the table and chart to select the model for your total head requirement:



Wind Speed Avg. Pump Depth	9-12 MPH (4-5.5 M/S)	12+ MPH (5.5+ M/S)	Part Number	Pump Price
0-30ft (10m)	¾ hp 3 phase surface pump AY McDonald = PUMP A	¾ hp 3 phase surface pump AY McDonald = PUMP A	A: 80303	\$862.00
30-60ft (10-20m)	¾ hp 3 phase 12 stage centrifugal = PUMP C	¾ hp 3 phase 8 stage centrifugal = PUMP B	B: 80304	\$682.00
		Pending	C: 80305	\$687.00
60-90ft (20-25m)	11SQF series = PUMP E (refer below)	¾ hp 3 phase 15 stage centrifugal = PUMP D	D: 80306	\$745.00

Wind Speed Avg. Pump Depth	9-12 MPH (4-5.5 M/S)	12+ MPH (5.5+ M/S)	Part Number	Pump Price
90-120ft (30-40m)	11SQF-2 = PUMP E	11SQF-2 = PUMP E	E: 80307	\$1655.00
120-180ft (40-60m)	6SQF-2 = PUMP F	6SQF-2 = PUMP F	F: 80308	\$1655.00
180-270ft (60-90m)	3SQF-2 = PUMP G	6SQF-2 = PUMP F	F: 80308	\$1655.00
270-350ft (90-115m)	3SQF-2 = PUMP G	3-SQF-2 = PUMP G	G: 80309	\$1655.00

Accessories

Product Name and Description	Part Number	Price
24 Foot (7.8m)	77094	\$230.00
27 Foot (8.2m)	76216	\$139.00
30 Foot (9.6m)	77095	\$385.00
45 Foot (13.7m)	76217	\$440.00
50 Foot (16.7m)	77096	\$480.00
65 Foot (21.0m)	77097	\$620.00
80 Foot (26.2m)	77100	\$740.00
AIR 303/403 Stop Switch - allows you to "stop" the turbine	76020	\$18.00

To complete this basic system you will need:

- A tower kit
- Three conductor wire from wind generator to controller
- Subpump three conductor wire from controller to pump
- Splice Kit
- Tower pipe, 2.5 inch Schedule 40 (O.D. 2.875

- inches or 73mm), available from fence or water pipe supplier.
- Polyurethane or galvanized pipe from pump to tank.
- Safety rope (S/S) for pump raising/lowering.
- Pipe fittings.