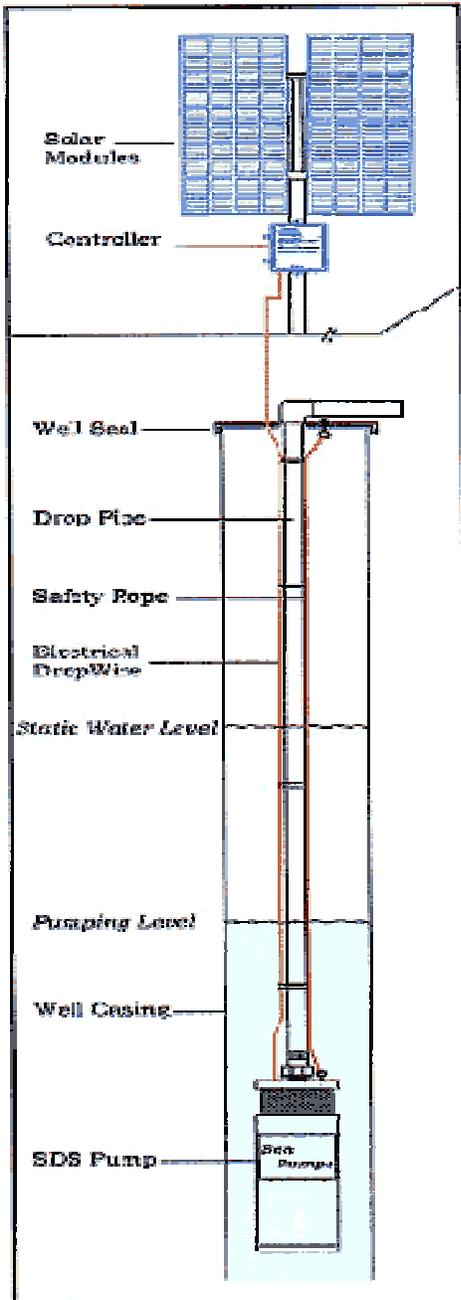


Solar Water Pump For Irrigation



Solar Water Pump Made in CANADA & USA



Armstrong Water Pump Made in Canada



Sun Pump Made in USA



Applications:

- Remote Villages, Homes, Cabins and Hunting Lodges
- Irrigation for remote orchards, gardens, and greenhouses
- Wildlife watering at wild game parks and farms
- Fish pond water level maintenance and aeration
- Swimming pool circulation & filtration pumps
- Surface water pumping for landscaping streams and waterfalls
- Cattle, Livestock watering systems

How do I choose a Solar Pump and the Solar Panels to power it?

SELECTING THE SOLAR WATER PUMP

Solar water pumps can be used with ponds, streams, or wells (generally 4-6 inch well casings). If the water level is lower than 20 feet and the solar pump will need to lift more than that, a submersible solar pump will work great and can lift vertical distances of up to 700 feet. Surface solar pumps can use suction to draw water vertically about 10-20 feet. However, once they have lifted that relatively small amount, surface solar pumps can then push water great distances, like 200 feet or more!

SELECTING THE SOLAR PANELS

The solar panels powering the solar water pump are sold separately. Each manufacturer provides a graph or table showing how many watts of solar panels are needed to produce the desired water flow. Once you have selected the appropriate type and size of solar pump, use that graph to calculate the correct watts of solar panels.

The solar pump and the amount of solar panels needed both depend on how many gallons per day (GPD) or gallons per minute (GPM) you want to pump and the vertical head the pump needs to overcome. Call us to get friendly, technical advice to help you design your Solar Water Pumping System.

Should I use Batteries with my Solar Water Pumping System?

Most solar water pumps run directly off solar panels (PV direct) and do not require batteries. Using batteries may complicate an otherwise straight forward application. Instead of storing electricity in batteries to run the solar pump at non-sunny times, most people prefer to store the water in a holding tank. This results in the same effect, water when you need it, with less cost and less complexity.

SOLAR WATER PUMPS



Solar water pumps are used throughout the world for a number of innovative applications. If you are in a remote area and the cost of running traditional water piping is cost prohibitive, a solar water pump may be the right solution for your water supply needs. Additionally, if you are looking to install a [Solar Water Heaters](#) system in your home, you will want to use the right solar water pump. Solar water pumping systems are used to pump water for livestock, crop irrigation, and even for simple domestic water supply where a home or town is remote and off the water pipeline.

Solar Water Pumps

Submersible Solar Pumps lift up to 650 feet and fit in a 4" or larger well casing and are used when the water supply is more than 20 feet from the surface. They can operate directly off solar panels, batteries, or in some cases, an AC power source.

Surface Solar Pumps are good for applications with shallow wells, ponds, streams or storage tanks. They are best if the water supply is 20 feet or less from the surface.

Linear Current Boosters For Pumps (LCBs) allow the pump motor to run longer during the day by translating additional voltage to necessary current during periods of low sun.

We offer Pump Accessories such as filters, valves, and strainers, as well as dry run and float switches and a small selection of submersible wire.

SUBMERSIBLE SOLAR PUMPS



The Shurflo or Sun Pumps solar water pumps shown on our website have a maximum depth capability of 230 ft and a flow rate of up to 5 gallons per minute. Any of our submersible pumps will fit in a 4" or larger well casing and can operate directly off solar panels, batteries or in some cases an AC power source.

For submersible pumps that can lift up to 650 feet or can provide as much as 15,000 gallons per day, please call us at 416-698-3477 to have a system sized and quoted to meet your needs.

1. Where do solar pumping systems work?

Solar pumping systems work anywhere the sun shines. The majority of the continental U.S. enjoys plenty of sun to operate a pumping system economically. The intensity of light varies greatly throughout the day. Morning and afternoon sunlight is less intense because it is entering the earth's atmosphere at a high angle and passing through a greater cross section of atmosphere, which reflects and absorbs a portion of the light.

We measure sun intensity in equivalent full sun hours. One hour of full sun is roughly

equivalent to the sunlight on a clear summer day at noon.

These light or isolation levels also vary seasonally. Fortunately, most needs for water correspond with the sunniest seasons of the year - spring, summer and fall. One of the advantages of providing additional sources of water for livestock use is increased forage utilization. On large tracts some areas are not fully utilized because they are too far from water. As you know, livestock will only travel so far between feed and water.

Small to medium solar electric pumping systems are easily portable. By mounting the solar system on an axle or trailer, a system can be moved from well to well. This increases the economic return of a system by increasing the seasons of use. It may also correspond with the rotation of grazing areas.

2. Economics of Solar Water Pumping

The economy and reliability of solar electric power make it an excellent choice for remote water pumping. Cattle ranchers in the Western US, Canada, Mexico, and Australia are enthusiastic solar pump users. Their water sources are spread over many miles of rangeland where power lines are few and refueling and maintenance costs are substantial.

If your water source is 1/3 mile or more from the power line, solar is a favorable economic choice. This fact is reinforced by a number of Rural Electric Cooperatives across the US These Co-ops actively advocate the use of solar pumps, as the cost to extend new lines is subsidized by other rate payers.

A solar pump minimizes future costs and uncertainties. The fuel is free. Moving parts are reduced to as few as one. A few spare parts can assure you many years of reliable water supply at near-zero operating costs.

3. Fixed VS. Tracking Mount Structure

Fixed Mount structures are less expensive and tolerate higher wind loading. By fixing the modules due south, less water is pumped than a tracking system which orients the modules towards the sun as it arcs across the southern sky.

Tracking mount structures keep the modules at a 90 degree angle to the sun all day long. This provides more power to the pump over a longer period of the day, which produces 20 to 40 percent more water daily in the summertime. A solar pump minimizes future costs and uncertainties. The fuel is free. Moving parts are reduced

to as few as one. A few spare parts can assure you many years of reliable water supply at near-zero operating costs.

4. Windmills: Yesterday's Answer to Remote Water Delivery



There are still thousands of windmill water pumping units standing in the Western US. Regrettably, many are inoperable. These pumpers were very valuable for remote (off grid) sites, with the proper minimum wind conditions, when manpower was plentiful and cheap. Windmills, though potentially long lasting, need dedicated maintenance. The down hole leathers require inspection and high

winds can cause mechanical damage to the blades. Parts for these mills are expensive and sometimes hard to find.

Solar water pumping systems have many advantages over windmill water pumpers. Though the initial cost of solar powered systems can be similar to that of windmill (however, in many cases far less) the life time costs are much lower. Windmills must be used where there is a steady, constant wind for maximum results while solar pumps operate anywhere the sun shines. Solar pumping systems can be installed in less than a day by an individual or small crew and can be portable, while windmills (because of the need to erect a tower) can take a larger crew a much longer time to install. Windmills are secured to the ground and are stationary. Solar powered water pumping systems are the modern day upgraded version of the windmill which uses natural resources to deliver water in off grid locations.

6. Sizing a Solar Water Pumping System

When sizing a solar water pumping system, there are many variables to take into consideration. Most important of these are the following: Identify how much water is needed per day. This variable may given in (GPD) gallons per day or (LPD) liters per day. In most situations it is common practice that systems provide optimally three days of water storage. The reason for this is to have enough stored water in case of cloudy conditions which may exist for more than 1 or 2 days. Weather can play a crucial role in determining the output of your application. Finally, it is important to know the distance from the pumping level to the top of the tank or discharge point. This pumping level is referred to as the static water level or standing water level in the well when the pump is not running

SURFACE SOLAR PUMPS



Installed at ground level to lift water from shallow water sources such as shallow wells, ponds, streams or storage tanks. Surface pumps can also be used to provide pressurized water for irrigation or home water systems.



Flow light Booster Pump



Solar Force Piston Pump



Solar Slow pump



Suncentric Centrifugal Pump



Shurflo Surface Pump

CENTRIFUGAL PUMP



This pump uses solar electric power to pump as much as 50,000 GPD from shallow sources. Can lift to 90 feet at lower flow rates. Most commonly operated directly off solar panels - no electronic pump controller is required. Centrifugal pumps are very susceptible to low light conditions so it is a good idea to use a solar tracker to maintain optimum flow through the entire solar day. It can also be operated off batteries in applications where constant pressure is required, a storage tank is not feasible or if batteries are present for another application.

APPLICATIONS: Non-pressurized or low pressure irrigation, Domestic water, Pond management, Solar water heating, Hydronic space heating, Swimming Pools

Custom Built Water Level Sensor/
Pump Controller