

## SolarTech Power Solutions

# Structure of solar water pump inverter motor



## Overview

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What are the components of a solar water pumping system?

A solar water pumping system consists of three major components: the solar array, pump controller and electric water pump (motor and pump) as shown in Figure 1. Note: Motor and pump are typically directly connected by one shaft and viewed as one unit, however occasionally belts or gears may be used to interconnect the two shafts.

How do you design a solar water pumping system?

When designing a solar pumping system, the designer must match the individual components together. A solar water pumping system consists of three major components: the solar array, pump controller and electric water pump (motor and pump) as shown in Figure 1.

Can a solar photovoltaic inverter drive a water pump?

This paper describes the design and development of a solar photovoltaic (PV) inverter which is used to drive a water pump for irrigation purposes. The inverter output is fed to a three phase ac induction motor which drives the pump.

How a solar water pump works?

Solar water pumps are driven by either dc motors or ac motors. The dc voltage generated by the solar PV arrays are inverted, filtered and fed to an induction motor. The block diagram of a solar water pump is as shown below. Fig 1. Block Diagram of a 3 phase Solar Water Pump.

How to choose a solar water pumping system?

The type of solar water pumping system: borehole/well (submerged), floating or surface will depend on the water source. If the source is a borehole (proposed or existing) or deep well, then a submersible pump that fits the borehole or well should be selected. If the water source is a river, then a

surface pump should usually be selected.

What are the different types of water pumped using solar energy?

The water pumped using solar energy can be broadly classified into solar thermal water-pumping system (STWPS), 19 SPWPS, and solar PV/T (Hybrid) systems. 20 - 22 From the literature, the classification of the solar energy-based water-pumping system is consolidated and illustrated in Figure 2.

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