

## A-Core Container

# Marshall Islands Solar Pump Inverter System Design



## Overview

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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.

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.

What does a solar water pump manufacturer/supplier do?

solar water pump manufacture/supplier will have tables or computer software which specify the flow from the solar water pumping system for various heads and solar irradiation. The “solar water pump designer” shall be capable of: Using the manufacturers data sheets or software to select the most appropriate solar water pumping system.

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.

How to install a solar pumping system?

The installation of the electrical components should be performed according to all applicable standards and the manufacturer’s instructions. Many solar

pumping system packages will include solar modules with interconnecting cables/ connectors set up for 'plug and play' by using plug and socket connectors.

What types of valves are used in solar water pumping systems?

If a solar water pumping system is installed with poly pipe, then the main valves that will exist in the system generally will include a foot valve (or non-return valve) and gate valves. Tables 8 and 9 provides typical K values for gate valves and foot valves that are common in solar water pumping systems.

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