

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 data should be included in a solar water pump design?

The specific data would be the size of the inlet and outlet that the water pipe would be connected to. Figure 14 a, b and c shows key dimensions of the three water pumps shown in Figure 13 and used in the solar water pumping systems used in Table 7. The designer should initially use pipe that is the same size as the inlets and outlets.

How do I sizing my solar water pumping system?

Some manufacturers provide sizing software online to assist individuals/communities to select the most appropriate solar water pumping system. This section of the guideline provides some examples. On that screen select: Sizing (in blue) and then "Advanced sizing by application" and select "solar water solutions".

What size water pipe should a solar water pumping system use?

The designer should initially use pipe that is the same size as the inlets and outlets. The designer then undertakes the frictional loss calculations for that size of water pipes using the known maximum water flow for that solar water pumping system.

How much water can a 200W Solar System provide?

Referring to Table 7a, the 200W solar system can provide 14 m<sup>3</sup> with a head of 20 metres using a tracking solar system. Using a stationary array frame this will produce  $0.77 \times 14 \text{ m}^3 = 10.78 \text{ m}^3$ . This system should meet the requirement of providing a minimum of 9 m<sup>3</sup> of water per day. From Figure 13 it can be seen that the pump to

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The results of the simulations were based on the experiments done on to a solar water installation system (collector with surface of 2.16 m<sup>2</sup>;, facing south with a tilt angle of 14°; ...

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