

What is a heat pipe solar collector?

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Huang et al. [2005, Solar Energy 78] studied a heat-pipe enhanced solar-assisted heat pump water heater (HPSAHP), which combined heat pump and HPSC. HPSAHP can thus achieve high-energy ...

Download: Download high-res image (654KB) Download: Download full-size image Fig. 1. Heat-pipe-based absorption-evaporation decoupled ISSG device (Decoupled-ISSG device) for ...

Abstract In this study, the aim is to investigate the application of pulsating heat pipes (PHPs) as a heat transfer tool in a solar water heater (SWH). For this purpose, an extra-long ...

This study seeks to optimize the performance of an integrated collector-storage solar air heater (ICSSAH) based on lap joint-type (LJT) flat micro-heat pipe arrays (FMHPAs) and latent ...

A particular type of distilled water production system consists of a typical solar still and a heat pipe heat exchanger was constructed for recovering heat from the exhaust of an indirect gas ...

Based on the energy transfer mechanism, a model for a solar heating system is established in the current study. In addition, heat pipe-oriented solar collectors

In solar desalination technologies, heat pipe as efficient heat transfer mediums could be employed to transfer absorbed and/or stored thermal energy. The objective of this study is to ...

Another important application of solar energy is in thermal heating systems. Solar thermal collectors capture the sun's thermal energy and use it to heat water, air, or other liquids. ...

A simple steam generation system based on the proposed flat looped heat pipe was developed, demonstrating the high efficiency and potential of the proposed flat looped heat pipe for medium ...

A loop-type heat pipe was fabricated and tested to transport high-temperature thermal energy from a solar receiver in a CSP application. The purpose of the heat pipe in this study was to ...

Abstract Heat pipes and thermosyphons--devices of high effective thermal conductivity--have been studied for many years for enhancing the performance of solid, liquid and ...

The core aim of this investigation is to simulate the melting of paraffin within a solar heat pipe unit combined with thermal storage unit, while taki...

The review begins by covering the fundamental concept and working principle of heat pipes. Heat pipes are sealed copper tubes with an inner wick structure and a small amount of working ...

The experimental investigation utilized four identical 30-liter evacuated tube solar water heaters, each equipped with three evacuated tube solar collectors. Furthermore, this study examines ...

A thermosyphon is a heat transfer device that utilizes the phase transition of a working fluid, such as water, to transfer heat from the evaporator to the condenser without requiring a wick [1]. ...

While a small tube thickness may promote a better dissipation of the heat in the tube, and thus a better inductor-to-salt heat exchange, the whole thickness of the tube may be affected by ...

This paper presents the construction of a heat pipe for a solar collectors. Using finite element simulation, the internal temperature distribution of the heat pipe and its affecting elements are investigated.

This paper presents a comparative study of the experimental analysis of two heat pipe solar collectors with different numbers of heat pipes ...

This study presents the experimental and thermodynamic evaluation of a solar thermochemical refrigeration system (STRS) powered by evacuated tube solar collectors with heat ...

The influence of input parameters (i.e., solar radiation, ambient temperature, wind speed, atmospheric emissivity, radiator length, and heat pipe resistance) on the system performance ...

TL;DR: In this article, the authors proposed a container enclosure structure capable of dissipating heat via use of heat pipes, which is compact in structure and low in energy consumption; radiation and ...

This article offers a numerical research into the melting within heat pipe-integrated evacuated tube solar collector, integrating advanced thermal enh...

Faster Heat Dissipation: The use of heat pipes allows for rapid heat transfer, which is critical for maintaining the performance and safety of energy storage systems.

An ultra-thin micro heat pipe (UTHP), as a novel heat pipe with a flat shape that is highly suitable for application with high power and limited heat dissipation space, has been extensively ...

Heat pipe is known as a passive device that can be served as a medium for heat transfer, which can be employed to transfer heat from the heat source (high temperature environment or evaporator) to the ...

The study intends to analyze the thermal performance of a novel solar air heater based on heat pipe vacuum

tube solar collector and finned-tube heat exchanger. The solar collector has ...

High-Temperature Molten Salt Tanks and Pipes ... Overview Concentrated solar power (CSP) plants can become cheaper if they become more efficient, but this will require operating the plants at higher ...

Highlights o A new micro heat pipe array based battery heat dissipation system is proposed. o Temperature tests are conducted on battery packs at 1C rate charge-discharge cycle. o ...

A heat dissipation structure for photovoltaic inverters that eliminates the need for heat conduction media by using a D-shaped heat pipe directly attached to the inverter, with the plane face ...

The major focus is on construction and thermal performances of solar collectors integrated with heat pipe used for water heating (domestic and Industrial purpose), air/space heating, ...

This book provides a practical study of modern heat pipe engineering, discussing how it can be optimized for use on a wider scale. An introduction to operational and design principles, this book ...

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