EQACC SOLAR

Double-pass solar system

Overview

The Sun is the star in our solar system that beams solar energy towards the Earth, shining it during the day. The researcher discovered different ways to enhance the use of solar radiation to meet daily need because they are aware of how a. The Sun is the star in our solar system that beams solar energy towards the Earth, shining it during the day. The researcher discovered different ways to enhance the use of solar radiation to meet daily need because they are aware of how abundant it is. The thermal performance of double pass solar collector (DPSC) is higher compared to flat plate solar collector (FPSC) when comparing their thermal efficiencies. There have been several studies done on the experimental and theoretical analysis of DPSC, where different kind of tests have been carried out on different aspects. This paper aims to reviews recent development (5 years) on double pass solar collector (DPSC) where it highlights the improvement methods, functioning parameters, materials used, and design configurations. By reviewing experimenta.

••Adding phase change material (PCM), can enhance thermal efficiency for double pass solar collector.••Fins can increase convective heat transfer.••Porous media can accelerate the performance of double pass solar collector.••Adding tubular on absorber can helps to increase the heat efficiency.••.

Double pass solar collectorFin designPhase change materialPorous media.

Renewable energy is known as unconventional energy where the sources filled by natural processes such as solar energy, wind energy, biomass energy and hydroelectric power. Energy shortages and pollution have increased global concerns to find alternative solutions to today's needs, which is why this has become a priority in sustainable development [[1], [2], [3]]. With the completion of the Paris Agreement, the world must achieve 45% emission reductions by 2030 and reach net zero by 2050 [4]. Although the world is going through a crisis during the Covid-19 pandemic in 2020, non-conventional energies such as solar and wind continued to grow effectively. The overall air pollution index (API) indicates a “good” and “moderate” air quality status [5]. Solar energy is known to be an inexhaustibility.

Ghrithlahre et al. (2022) mentioned the working and construction details mainly for the conventional SAH design, it consists of frame, glass cover, absorber plate, insulation, inlet and outlet airflow [[35], [36], [37]]. These are

the basic requirements to build solar collector (Fig. 2). SAH is a heat exchanger that converts solar radiation into heat using water, air and nanofluids as heat medium transfer [16].•i.black absorber plate to absorb solar radiation.•ii.glazing cover transparent to transfer radiation to absorber.

How to improve the performance of double pass solar collector?

Porous media can accelerate the performance of double pass solar collector. Adding tubular on absorber can helps to increase the heat efficiency. New novelty double pass solar collector has been found for the last 5 years. The Sun is the star in our solar system that beams solar energy towards the Earth, shining it during the day.

What is a double pass solar air heater?

double- pass effect to capture and retain more of the sun’s energy. This type of solar air heater that is absorbed. The fins are arranged so that the air passing through the first set is heated by the sun’s energy and the n passes through the sec ond set of fins, where it is heated again. This.

Does double pass solar thermal collector have thermohydraulic performance?

Singh (2020) has carry out experimental and numerical investigations on thermohydraulic performance of double pass solar thermal collector with inline, staggered and hybrid fin configurations .

Is double pass solar collector better than flat plate solar collector?

The thermal performance of double pass solar collector (DPSC) is higher compared to flat plate solar collector (FPSC) when comparing their thermal efficiencies. There have been several studies done on the experimental and theoretical analysis of DPSC, where different kind of tests have been carried out on different aspects.

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Recent development on double pass solar thermal collector

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