HJ Solar Energy

Energy storage heating tube

Energy storage heating tube

Energy, Exergy and Economic (3E) analysis of evacuated tube heat ...

Energy, Exergy and Economic (3E) analysis of evacuated tube heat pipe solar collector to promote storage energy under North African climate

Experimental investigation of melting and solidification

In this study the impact of novel directional flow annular fins on the charging and discharging process in a vertical shell and tube latent heat thermal energy storage system ...

Thermodynamic and economic performance analysis of ...

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Improving a shell-tube latent heat thermal energy storage unit for

The phase transition heat transfer during the melting and solidification processes of phase change materials (PCMs) was modeled in a shell-

tube thermal energy storage unit. ...

A shell-tube latent heat thermal energy storage: Influence of metal

Enhancing heat transfer in latent heat thermal energy storage systems is of utmost importance to facilitate the efficient absorption and release of thermal energy. The ...

Experimental and numerical research on thermal performance of ...

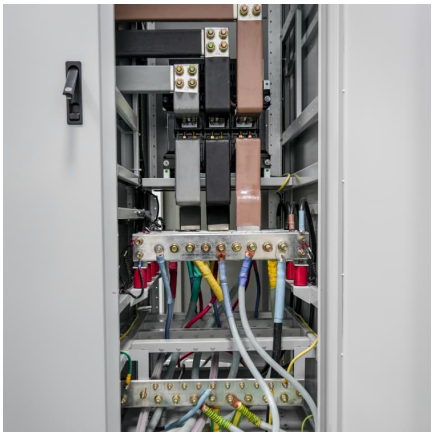
This study experimentally and numerically investigates the thermal performance of a novel spiral-tube heat exchanger latent heat thermal energy storage unit. The shell side of ...

Design and optimization of a vertical shell-and-tube latent heat

Latent heat thermal energy storage (LHTES) has the advantages of small temperature fluctuation, high energy density, large storage capacity, and constant temperature ...

Numerical investigation of a shell-and-tube latent heat thermal energy

The present study aims at investigating numerically the thermal performance of a shell-and-tube phase change material (PCM) storage system for distric...



A comprehensive study on melting enhancement by changing tube

In this study, the paraffin wax's melting dynamics in a multi-tube latent heat thermal energy storage system are investigated. The performance of ten ...

Optimum design of a horizontal shell-and-tube latent heat thermal

This paper concerns the optimum design of horizontal shell-and-tube latent heat thermal energy storage (LHTES) units that use symmetric splitter plates to structure non ...

Impact of tube shapes on the energy storage and thermal ...

This study suggests a novel polygonal tube LHTES system that combines the fins and tube wall into a single structure in order to increase the heat storage power, improve the system's heat ...

Simulation study on the effect of fins on the heat transfer ...

This paper analyzed the liquid phase distribution, temperature field, melting rate and heat storage about finless horizontal dual-inner-tube latent thermal energy storage heat ...

A novel thermal storage integrated evacuated tube heat pipe ...

Abstract This study aims to present a novel thermal energy storage integrated evacuated tube heat pipe solar air heater suitable for high-temperature applications. A new ...

An experimental and numerical study on the energy storage and ...

In this study, we have established an experimental platform featuring a shell and tube heat exchanger (STHE) combined with phase change material (PCM) to investigate ...

Melting characteristics of a longitudinally finned-tube horizontal

This study aims to analyze the effect of fin geometry on the thermal performance of longitudinally finned-tube horizontal latent heat thermal energy storage (LHTES) systems. ...

[Paraffin Wax As A Phase Change Material For Thermal ...]

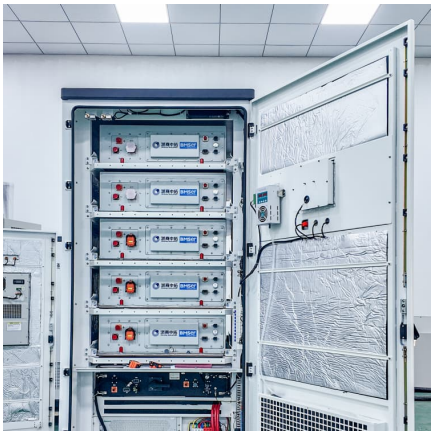
A simple tube-in-tube heat exchanger system can be used for energy storage with reasonable charging and discharging times. The melting was more at the top and nearer to the inner tube.

Synergistic improvement of melting rate and heat storage ...

14 ????· [Elsevier] Synergistic improvement of melting rate and heat storage capacity by a rotation-based method for shell-and-tube latent thermal energy storage Copy

Thermal energy storage, heat transfer, and thermodynamic ...

The contribution of this study is the proposal of a synergistic composite enhancement strategy involving tree fins and nanomaterials to improve the low thermal ...



Optimum Placement of Heating Tubes in a Multi-Tube Latent ...

Utilizing phase change materials in thermal energy storage systems is commonly considered as an alternative solution for the effective use of energy. This study presents ...

Numerical analysis and optimization of the heat transfer ...

Abstract This study investigates the impact of enhancing the convective heat transfer on the Heat Transfer Fluid (HTF) side by passive flow manipulation on the melting and ...

Parametric study of thermal energy storage in shell and tube heat

This paper presents the development of a novel heat exchanger design incorporating optimized "I"-shaped copper (Cu) fins to enhance thermal performance and ...

Experimental Study on Thermal Performance of PCM ...

Latent heat thermal energy storage systems play a crucial role in aligning energy supply with demand, enhancing the efficiency of energy ...

Performance study of a thermochemical energy storage reactor ...

Thermochemical energy storage (TCES) provides a promising solution to addressing the mismatch between solar thermal production and heating demands in buildings. ...

Thermal storage performance of a novel shell-and-tube latent heat

This study presents a numerical analysis of the melting process in a shell-and-tube latent heat thermal energy storage (LHTES) system, featuring a twisted elliptical inner ...

Comparative performance analysis of microchannel flat tube heat

Open thermochemical energy storage (TCES) systems are usually for air heating and need a design evaluation for their connection with domestic central hot water ...

CFD modeling of a thermal energy storage based heat pipe evacuated tube

A numerical study on the combined effect of dispersed nanoparticles and embedded heat pipes on melting and solidification of a shell and tube latent heat thermal ...

Experimental investigation of energy storage/discharge ...

The performance of latent thermal storage units in solar water heating systems depends not only on the system structural sizes but also critically on their operation modes. ...

Performance analysis and multi-objective optimization of a ...

This study presents a novel triplex-tube latent heat storage unit with a rotating middle tube and coupled V-fin to improve heat transfer efficiency through active rotation. The ...

Synergistic improvement of melting rate and heat storage ...

34 ????· Synergistic improvement of melting rate and heat storage capacity by a rotation-based method for shell-and-tube latent thermal energy storage

Enhancing the charging performance of a triplex-tube thermal energy

This study explores the enhancement of charging performance in a triplex-tube latent heat thermal energy storage system (TTHX) by integrating longitudinal fins and alumina ...

Heat transfer enhancement in shell and tube Latent Heat Thermal Energy

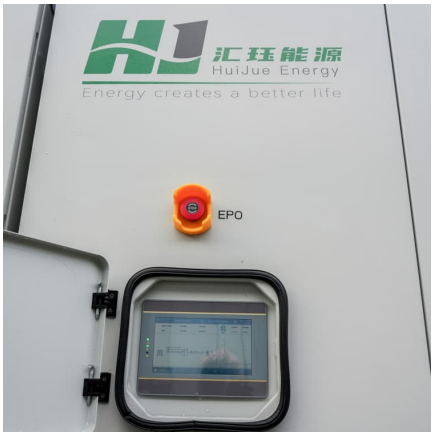
This study presents a novel three-dimensional (3D) numerical investigation of a finned diamond-shaped multi-tube latent heat thermal energy storage (LHTES) unit for low ...

Thermal energy simulation of the building with heating tube ...

A large part of energy consumption around the world is spent on buildings. Improving and optimizing the thermal performance of buildings can reduce en...

Effect of heating tube arrangement on nano-enhanced thermal ...

Improvement of thermal performance of energy storage leads to energy savings and reduction of carbon emissions. In this study, the effect of tube arrangement on the performance of thermal ...



Thermal performance and design analysis of U-tube based vacuum tube

Heat energy storage plays an essential role--integrating energy storage materials with U-tube and heat pipes-based collectors to boost their thermal efficiency.

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