

H. Ren, Z. Jiang, Q. Wu, Q. Li, Y. Yang. ... Influence of operational and design parameters on the performance of a PCM based heat exchanger for thermal energy storage - a review. *J. Energy Storage*, 20 (2018), pp. 497-519, 10.1016/j.est.2018.10.024. [View PDF](#) [View article](#) [View in Scopus](#) [Google Scholar](#)

DOI: 10.1016/j.icheatmasstransfer.2023.107127 Corpus ID: 264894805; Heat transfer efficiency enhancement of gyroid heat exchanger based on multidimensional gradient structure design @article{Chen2023HeatTE, title={Heat transfer efficiency enhancement of gyroid heat exchanger based on multidimensional gradient structure design}, author={Fei Chen and ...

It is well known that micro/nanomaterials exhibit many physical properties in the fields of heat transfer, energy conversion and storage, and also have great prospects in nanoelectronics, sensors ...

A portion of the recovered thermal energy is utilized to offer cooling power to the user through an absorption chiller and thermal energy through a heat exchanger. The residue is stored in a box-type phase-changing energy storage heat bank to reconcile the thermal energy disparity between system output and user demand.

Ying Jiang, Nan Guo, Feilong Dong, Haiming Xie, Jun Liu. Article 108809 [View PDF](#). Article preview. ... Latent heat thermal energy storage in a shell-tube design: Impact of metal foam inserts in the heat transfer fluid side ... Natural convection heat transfer analysis of a nano-encapsulated phase change material (NEPCM) confined in a porous ...

The heat transfer coefficient of a heat exchanger is easily affected by the heat flow rate (corresponding to the load rate of compression/power generation) while working on the off-design condition. Therefore, based on the heat transfer equation in, this section establishes an off-design model of heat exchanger in charge and discharge process.

1. Birmingham Centre for Energy Storage, University of Birmingham, Birmingham B15 2TT, UK 2. Grantham Research Institute on Climate Change and the Environment (GRI), London School of Economics and Political Science (LSE), London WC2A 2AE, UK 3. MOE Key Laboratory of Enhanced Heat Transfer and Energy Conservation, Beijing University of Technology, Beijing ...

DOI: 10.1016/j.est.2023.106785 Corpus ID: 256749600; Numerical investigation of a plate heat exchanger thermal energy storage system with phase change material @article{Taghavi2023NumericalIO, title={Numerical investigation of a plate heat exchanger thermal energy storage system with phase change material}, author={M M Taghavi and Minna ...

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 its energy storage and release performance. Paraffin 25 and water have been selected as the energy storage ...

The experimental results showed that the multi-ASHP unit employing fin-tube energy accumulator with serial energy storage method can achieve the longest heating period, which was 3.3%, 13.4%, and ...

4 Particle Technology in Thermochemical Energy Storage Materials. Thermochemical energy storage (TCES) stores heat by reversible sorption and/or chemical reactions. TCES has a very high energy density with a volumetric energy density ~2 times that of latent heat storage materials, and 8-10 times that of sensible heat storage materials 132 ...

Semantic Scholar extracted view of "Comparative study of thermally stratified tank using different heat transfer materials for concentrated solar power plant" by Tieliu Jiang et al. ... This work evaluates the influence of combining twisted fins in a triple-tube heat exchanger utilised for latent heat thermal energy storage (LHTES) in three ...

In this article, the influences of four T-shaped fins and three PCM layouts on the energy storage and heat transfer performances of a rectangular LHES unit were numerically investigated by means of the enthalpy-porous medium model, and comparisons were carried out with the unfinned cavity and the cavity with rectangular fins. ... Jiajie Jiang ...

DOI: 10.1016/j.energy.2020.118346 Corpus ID: 224886266; Effective waste heat recovery from industrial high-temperature granules: A Moving Bed Indirect Heat Exchanger with embedded agitation

Thermochemical energy storage (TCES) stores heat by reversible sorption and/or chemical reactions. TCES has a very high energy density with a volumetric energy density ~2 times that ...

With this aspect ratio, a staggered heat exchanger with an energy storage capacity of 1800 kJ was designed, as shown in Fig. 14. The total PCM volume was 0.01 m³ for different structures. During energy storage, the heat transfer fluid (HTF) whose temperature was higher than the melting point of paraffin entered the heat exchanger.

@article{Jiang2024ExperimentalAN, title={Experimental and numerical study on the attenuation and recovery characteristics of ground temperature during deep-buried pipe heat transfer}, author={Chao Jiang and Chao Li and Zilong Jia and Gaozhe Xing and Yanling Guan and Ruitao Yang and Jiale Wu}, journal={Energy and Buildings}, year={2024}, url ...

As the heat transfer fluid (HTF) moves through the solar field, it vaporizes and powers a steam turbine, which in turn drives a generator in the power block. The TES unit is a two-tank system with a heat exchanger

between the two tanks for storing hot and cold salts.

A two-stage absorption heat exchanger (AHE), which consists of two absorption heat pumps (AHP) and a plate heat exchanger (HEX), is designed and utilized in a pressure isolation station in Taian ...

In this review, by comparing with sensible heat storage and chemical heat storage, it is found that phase change heat storage is importance in renewable energy utilization, because of its simple ...

The medium and deep U-type borehole heat exchanger (MDUBHE) coupled with ground source heat pump systems has recently received extensive attention as a novel closed-loop geothermal energy ...

PCM based heat exchanger was also widely investigated in refrigeration systems. Vakilaltojjar et al. presented a semi-analytic solution model for flat plate type phase change heat accumulator, and pointed out that the thickness reduction of the PCM could improve the energy storage efficiency [8].As a continue work, Vyshak et al. numerically studied the heat ...

Abstract. Phase change materials (PCMs) are promising for storing thermal energy as latent heat, addressing power shortages. Growing demand for concentrated solar power systems has spurred the development of latent thermal energy storage, offering steady temperature release and compact heat exchanger designs. This study explores melting and ...

Semantic Scholar extracted view of "Energy storage performance improvement of phase change materials-based triplex-tube heat exchanger (TTHX) using liquid-solid interface-informed fin configurations" by B. Palmer et al. ... Philani Hlanze Aly Elhefny Zhiming Jiang Jie Cai H. Shabgard. Engineering, Environmental Science. Applied Energy. 2022; 12.

Fig. 10 presented the profiles of the temperature in cold storage heat exchanger with time. It could easily be found from Fig. 10 that there were four stages of the temperature variation in cold storage heat exchanger, namely (1) primary cooling stage, (2) freezing stage, (3) secondary cooling stage and (4) constant temperature stage. In the ...

Moving packed bed particle/SCO₂ heat exchanger (MPBE) is a critical equipment to integrate particle thermal energy storage technology with SCO₂ power cycle block in the next generation CSP plants.

Jiang [70] established a heat transfer model in packed bed, and used ANSYS software to simulate the TES characteristics of packed bed. And then the numerical simulation ...

DOI: 10.1016/J.ENCONMAN.2008.04.013 Corpus ID: 93397663; Heat transfer of high thermal energy storage with heat exchanger for solar trough power plant @article{Vaivudh2008HeatTO, title={Heat transfer of high thermal energy storage with heat exchanger for solar trough power plant}, author={Sarayooth Vaivudh



Jiang energy storage heat exchanger brand

and Wattanapong Rakwichian and Sirinuch Chindaruksa}, ...

The effects of nanoparticle concentrations and tree fin branching angles on the fluid dynamics, melting time, heat transfer, energy storage, and entropy generation characteristics were investigated. By employing tree fins, the melting time was respectively reduced by up to 60.20% and 36.05% compared to the finless case and the rectangular fins ...

Semantic Scholar extracted view of "Development of a modular heat exchanger with integrated latent heat energy store" by A. Abhat et al. ... Ligu Wang Lanxin Wang +5 authors Jin-yang Jiang. Engineering, Materials Science. ... In this study, a type of energy storage phase change low-temperature ... Expand. 2. Save.

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