



MODERNIZATION SOLAR

Energy storage refrigeration system structure





Overview

What is a general refrigeration unit?

For general cold storage systems, refrigeration plays a very important role in the system, so the refrigeration unit is an important part of the cold storage system. The general refrigeration units are inter-wall heat transfer chillers and heat return chillers. For most studies mainly absorption chillers, pulse tube chillers and Stirling chillers.

How does a cold storage system work?

The cold energy, generated from the produced condensate in cold storages, is utilized to cool the air and pre-cool the products. This paper investigates the energy, exergy, and economic performance of both the charge and discharge processes of the energy storage system, as well as the overall integrated system.

How effective is a refrigeration system?

Experimental results showed the system transferred 97 % of stored energy, maintaining safe temperatures for 72 min (vs. 3 min without it), proving its effectiveness for enhancing refrigeration reliability and energy management.

What is exergy efficiency in a refrigeration system?

The whole system means the combination of the refrigeration system and the energy storage unit. Exergy efficiency increases with the increase of air volumetric flow rate. This exergy increase is almost stopped in large air volume flow rates. The maximum percentage of exergy increase is about 5 %. Fig. 9.



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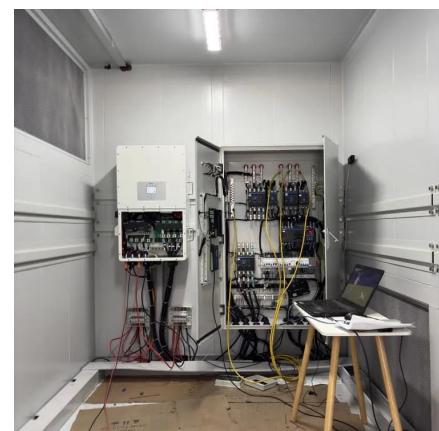
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Feb 7, 2024 · Keywords: Refrigeration system, Thermal energy storage, Phase-change materials, Dynamic modelling, 1. Introduction
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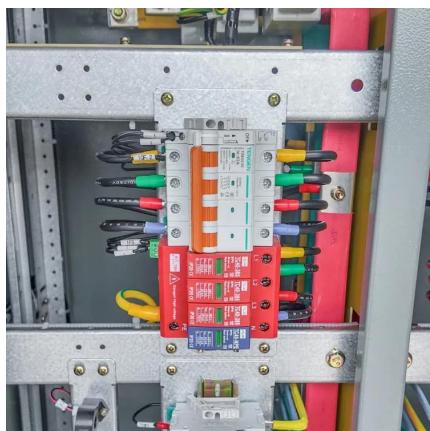
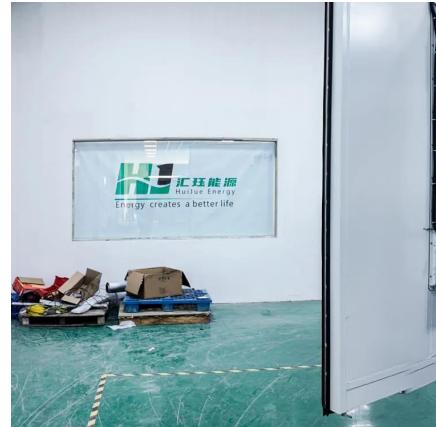
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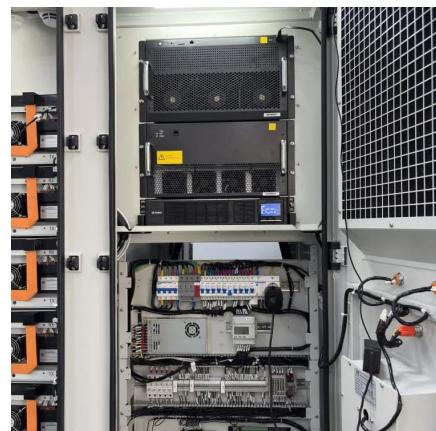


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