

# Three-phase mobile energy storage container for hotels





## Overview

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What is the capacity of a mobile thermal energy storage device?

**Conclusions** This paper presents a model-based design study on a modular mobile thermal energy storage device with a capacity of approximately 400 MJ, utilizing composite phase change material modules.

Can phase change material modules be used for mobile thermal energy storage?

Modular design of phase change material modules for mobile thermal energy storage. CFD modelling-based design and validation of a 400 MJ-scale novel M-TES device. Closed-loop hot air flow of up to 400 °C utilized achieving a full charge in 10 h. 97 % discharging efficiency with a mean rate and temperature of 10 kW and 195 °C.

What is mobile thermal energy storage (MTES)?

The challenges lie in the spatial and temporary mismatch of the heat demand and supply. Mobile thermal energy storage (M-TES) provides a potential solution to the challenges through for example, recovering the industrial waste heat to meet demands in remote and isolated communities.

How can modular storage and transportation improve energy transfer for mobile heating?

To heighten the efficiency of energy transfer for mobile heating, this research introduces the innovative concept of modular storage and transportation. This concept is brought to life through the development of a meticulously designed modular mobile phase-change energy storage compartment system.



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