

Does fractal-tree shaped finned double tube heat exchanger improve thermal performance?

Evaluation and optimization of thermal performance for a finned double tube latent heat thermal energy storage. Improving the energy discharging performance of a latent heat storage (LHS) unit using fractal-tree-shaped fins. Experimental Investigation of a Phase Change Material Charged Finned-Tube Heat Exchanger.

Can fins enhance thermal performance of shell-and-tube latent heat thermal energy storage unit?

Previous studies in literatures adequately emphasized that inserting fins into phase change material is among the most promising technique to augment thermal performance of shell-and-tube latent heat thermal energy storage unit.

What are the advantages and disadvantages of heat energy storage systems?

Heat energy storage systems offer the benefits of high energy storage efficiency and consistent temperature due to the use of phase change material (PCM); however, its disadvantage is that thermal energy storage takes longer to complete due to the material poor thermal conductivity.

What are heat-shrinkable tubes (HSTs)?

Heat-shrinkable tubes (HSTs) are polymer tubes that can be expanded at high temperature and then maintain the expanded diameters at low temperature 1, 2, 3. When reheated to the complete shrinkage temperatures (Ts), HSTs will shrink back to their original sizes 4, 5.

Can thermal energy storage improve energy production?

Some energy production processes, such as renewable energy generation and waste heat recovery, face the issues of mismatch between demand and supply. Thermal energy storage (TES) provides a promising solution to bridge this mismatch by storing and releasing heat or cold at given conditions, thus upgrading the system efficiency [2, 3].

Can heat pipe and phase change materials be used in energy storage?

Applications of combined/hybrid use of heat pipe and phase change materials in energy storage and cooling systems: A recent review. A review on phase change materials for thermal energy storage in buildings: Heating and hybrid applications. Experimental and model validation of a phase change material heat exchanger integrated into a real building.

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