

## ContainerPower Energy Solutions

**Does the water cooling system  
of the battery cabinet have a  
radiator**



## Overview

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The battery liquid cooling system drives coolant through the system via a water pump, then uses a heat-exchange unit to absorb the battery's heat, and finally vents that heat to the atmosphere through the radiator, thereby cooling the power battery. How does a liquid cooling system work?

Liquid cooling systems employ a coolant, typically a specialized fluid with high heat-transfer properties, that circulates through a network of cooling channels or plates surrounding the battery cells.

How does a liquid cooling system improve battery performance?

By effectively managing battery temperatures, liquid cooling systems contribute to: Improved battery efficiency: Reduced heat loss leads to higher energy efficiency and longer range. Longer battery lifespan: Preventing overheating prolongs the lifespan of the battery cells.

How does a radiator coolant system work?

Within this system, heat from the battery coolant loop is transferred to a refrigerant through a chiller (shown in green in the schematic). The refrigerant then passes through the liquid condenser (L-CON), which is cooled by the coolant in the radiator coolant loop (shown in blue in the schematic).

How does battery cooling work?

Efficient cooling relies on a direct or indirect process. In a direct approach, liquid contact might touch battery cells. In an indirect format, thermal interfaces exist between cells and cooling plates. Both methods optimize temperature by moving heat into a fluid or air stream. That fluid then leaves the battery zone.

How does an EV battery cooling system work?

An EV battery cooling system works by transferring heat away from battery cells. This lowers the overall temperature and prevents thermal runaway.

Components like coolant channels, pumps, and heat exchangers work together to reduce excess heat. This is essential for battery stability, charging efficiency, and reliable performance.

Why do batteries need a cooling system?

Batteries heat up naturally when charging or discharging. Elevated temperatures can harm battery components, reduce efficiency, and even create safety hazards. Proper cooling addresses these issues by regulating temperatures within optimal ranges and protecting the chemistry inside.

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