# What are the patents for battery cooling systems

1. A cooling system for an electrified motor vehicle, comprising: a coolant circuit circulating coolant between a traction battery and either a battery radiator or a chiller; a refrigerant circuit circulating refrigerant between a compressor, a condenser and either a first

Valeo thermal management contribute to the performance of an EV. Discover our battery immersive cooling system to extend the range of your electric vehicles Skip to content Valeo EUR10.075 2.3466 % en fr ...

Dual phase battery cooling system PCT/US2016/052699 WO2017053318A1 (en) 2015-09-24 2016-09-20 Dual phase battery cooling system CN201680055233.9A CN108028441A (en) 2015-09-24 2016-09-20 Two-phase battery cooling

That"s where the cooling system comes in, acting like a refreshing ice-cold lemonade on a scorching day. The Heart of the Cool: EV Battery Cooling Systems Explained EV battery cooling systems come in ...

A significant part of Tesla"s business relies heavily on the durability and longevity of its battery packs, and in the spirit of disruptive innovation, the Silicon Valley-based company has ...

Tesla patented a "battery coolant jacket" describing a battery module with an integrated frame structure to hold battery cells which are surrounded and cooled directly by a ...

Battery thermal management system and method. Apr 23, 2020 - Joby Aero, Inc. The battery thermal management system includes a battery pack, a circulation subsystem, ...

grinvalds/iStock via Getty Images Tesla (NASDAQ:TSLA) lands a patent from the United States Patent and Trademark Office for electric drive unit cooling systems and methods.Just looked at a bar ...

Battery cooling. Abstract. A battery cooling system operates by pumping liquid through a cooling fluid circulation path. Because the battery cooling system pumps liquid, the...

Justia Patents Process Of Cell Operation US Patent for Battery system cooling Patent (Patent # 10,998,587) Battery system cooling Jan 12, 2018 - Proterra Inc ...

Yao et al. showed that the immersion cooling approach offered an excellent cooling effect during fast charging conditions of the battery pack. A 5 mm distance between the ...

BACKGROUND. For battery module systems, specifically those employed by electric vehicles, the batteries may need to be cooled to improve battery stability and workable ...

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At the forefront of automotive innovation and renewable energy, Europe is home to several leading companies specialising in battery liquid cooling solutions. Below is a list of the top 10 companies in Europe in this important field, which we hope will be useful to you.

Nowadays, considerable research efforts have been devoted to developing an advanced battery thermal management (BTM) system which can be categorized as several types such as: active or passive [6], series or parallel [7], heating or cooling [8], internal or external [9], air cooling or liquid cooling or phase change material (PCM) [10], or hybrid strategy combining multiple methods.

A battery includes a plurality of insulated cells electrically interconnected to each other and at least one liquid-circulating cooling plate to cool the battery. Batteries in accordance with the subject matters disclosed may also include a plurality of cooling plates, a ...

Justia Patents Three Or More Liquid Phases (e.g., Water-in-oil-in-water, W/o/w Emulsion) US Patent for Coolant for cooling systems in electric vehicles having fuel cells and/or batteries containing azole derivatives and additional corrosion protectants Patent (Patent # 11,248,155)

The present invention provides a battery pack thermal management assembly comprising (i) a plurality of batteries, where a first end portion of each battery includes both a first terminal and...

To optimize battery performance, manufacturers must carefully design and implement a battery cooling system that effectively maintains the battery temperature. Why Battery Cooling is Important Electric car battery ...

CROSS-REFERENCE TO RELATED APPLICATION This application claims the benefit under 35 USC 119(a) of Korean Patent Application No. 10-2021-0110485, filed on Aug. 20, 2021, the entire disclosure of which is incorporated herein by reference for all purposes. ...

Battery Thermal Management: Patents related to cooling systems, heat pumps, and other technologies aim to prevent overheating and improve performance and longevity, contributing to EV battery innovation.

5 is a perspective view of an alternative embodiment of a battery cooling system for EVs as set forth in the present disclosure; FIG. 6 is a cross-sectional view of the battery cooling system of FIG. 5 taken along line 6-6; FIG. 7 is a perspective view of an

A typical cylindrical cell in the 21700 format, for example, has a power dissipation of around 5% when operating at low load, but can exceed that figure considerably at higher loads, according to an expert in battery and cooling systems. A 100 ...

Yamaha is preparing to introduce the electric variant of its very popular sports bike, YZF R1. The company

has filed a patent for its battery pack cooling system, and the frame is very similar to R1. Let"s see what special features will be seen in the electric version of

apparatus for controlling temperature of coolant of battery system cooled by water and method thereof

Valeo has filed 617 patents in the EV propulsion cooling system segment. The company offers the best energy-efficient systems for electrified transportation and supports carbon neutrality with low ...

An immersion cooling system for a battery system includes a battery enclosure and G battery cell groups arranged in the battery enclosure. Each of the G battery cell groups include C battery cells, where G and C are integers greater than one. A plurality of dividers ...

Justia Patents US Patent Application for COOLING SYSTEM Patent Application (Application #20240006679) COOLING SYSTEM Oct 5, 2021 - RENAULT S.A.S A cooling system of a battery for an electric or hybrid vehicle includes a cooling device and a ...

"Immersion cooling paves the way for a whole new generation of battery systems," says Martin Berger, Head of Group Research and Advance Engineering at Mahle. In July 2020, the supplier had presented a new cooling capacitor that is also optimised for fast charging of electric vehicles.

Figure4. Experimental setup for testing liquid cooling system based trapezoidal battery pack 4. Results and Discussion 4.1 Thermal performance of trapezoidal battery pack without PCM Thermal ...

a BTMS combining a multi-stage Tesla valve with PCM. Utilizing microencapsulated PCM with liquid cooling, the system maintained the battery twice as warm as a conventional BTMS in an ambient temperature of -10 C. Under high-rate the ...

To reduce the air-conditioning cooling load caused by battery cooling, the present study proposes a secondary-loop liquid cooling system to pre-cool the battery. As shown in Figure 1, the water-cooling system first ...

A cold ambient battery chilling mode of an electric vehicle may be implemented if the vehicle battery is being charged when the ambient air temperature is low and a ...

The effectiveness of power battery refrigerant direct cooling systems of electric vehicles incorporating capillary wicks is directly determined by these wicks" transport performance. The Fries ...

Indirect cooling is similar to an internal combustion engine (ICE) cooling system because both circulate liquid coolant through cooling channels attached to the surface of the battery cell. Direct cooling: It is also called ...

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A battery powered blow dryer having a novel battery cooling feature to simultaneously cool the batteries and improve hair dryer performance. 14. A battery-operated hair dryer with battery cooling feature comprising: a case with a handle having; an air flow channel ...

The patent specifically relates to the air-cooled battery case, with the aim of making it as simple and efficient as possible to maximise the system"s cooling performance and minimise the number ...

Because the battery cooling system pumps liquid, the compression system that generates the cooling power does not require the use of a condenser. The compression system utilizes a compression wave. An evaporator of the cooling system operates in the critical flow regime in which the pressure in an evaporator tube will remain almost constant and then "jump" or "shock ...

An integrated battery cooling system is provided. The system includes a housing having a high-voltage battery and a secondary battery therein and having an inlet port and an outlet port formed on the outer side thereof to receive and discharge cooling water. A ...

Tesla has patented a battery pack design with a cooling system using plates to dissipate heat. It"s likely what is in Tesla"s current stationary energy storage products. While most legacy ...

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