

IAA Mobility 2021: Efficient thermal management by Brose increases range of electric vehicles



Brose's system for efficient climate control increases the range of electric vehicles.

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Air conditioning in electric cars typically reduces their range. Interior climate control and the battery consume the most power next to the vehicle drive system. Brose is presenting an integrated system for thermal management at the International Motor Show (IAA) in Munich that actively controls the distribution of heat inside the vehicle. This significantly increases the efficiency of electric cars, without compromising on comfort.

"Currently around a third of motorists worldwide say they are reluctant to buy an electric vehicle because they are concerned the range is too short.* For this reason we have expanded our expertise in electric climate compressors to include complete thermal subsystems", says Raymond Mutz, Executive Vice President Drives Brose Group. The systems are designed specifically for battery-electric vehicles, which do not have a combustion engine to produce heat. They control heat exchange between outside air, the AC system, battery and other components. "This is how we make sure, for example, that waste heat from charging the battery is not lost in winter but used to heat the interior instead", says Mutz. This makes the vehicles much more efficient on the road – and extends their range by up to 15 percent, thus adding up to 60 kilometers to a basic range of 400 kilometers. "We hope to make an important contribution to the acceptance of e-mobility with our thermal management system", Mutz explains. Alternatively, the increase

in efficiency makes it possible to use smaller batteries, which cuts costs and weight. For the development of this concept, Brose is also working together with a German premium manufacturer.

Maintenance-free modules for easy assembly

Brose supplies the new thermal systems as compact, pre-tested modules that are easy to install and include all necessary components from the heat pump to the coolant distributor. The modules are especially efficient thanks to perfect harmonization of all components. The system is optionally equipped with a hermetically separated refrigerant circuit. It is delivered pre-filled and maintenance-free by Brose, which eliminates the need to handle potentially hazardous refrigerant at the manufacturers's assembly line or in the shop. This lowers costs and speeds up production. What's more, the modules can also use natural refrigerants such as propane for greater sustainability.

Quiet battery cooling during charging

Unlike vehicles with internal combustion engines, the cooling fan is mainly active when battery-electric cars are stationary: it keeps the battery the right temperature while it charges. Brose developed a radial fan for the new thermal management system in which the air flows to the side. This design not only makes operation much more efficient, it also runs quieter than conventional systems.

Brose at the IAA

Brose will be presenting the innovative system for thermal management and other solutions for electrified mobility such as new drives for e-scooters and delivery drones at the IAA Mobility in Munich from 7 to 12 September in Hall B1, Stand B60. Interested visitors can try out an e-bike equipped with the Brose drive on a test track in the Hofgarten at Odeonsplatz at Stand HG500.

*Source: leaseplan Mobility Insights Report 2021



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