

Press release

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Innovative components for fuel cell cooling

- MAHLE develops new coating for fuel cell coolers
- Technology combines maximum operational safety with high cooling performance and enables long service life
- Environmentally friendly by eliminating heavy metals
- New development promotes suitability of fuel cell vehicles for the mass market

MAHLE has developed an innovative internal coating for fuel cell coolers that combines maximum operational safety with high cooling performance and enables long fuel cell service life. The new coating does not require heavy metals or other environmentally harmful chemicals. The technology group is thus promoting the suitability of fuel cell vehicles for the mass market.

The new internal coating is an extremely thin ceramic skin on the internal aluminum surface of the cooler. It ensures that the coolant remains essentially free of damaging ions, and thus maintains its nonconductive characteristics over the long term. For the design of operationally safe cooling circuits for fuel cells, the coolant used must be nonconductive because it makes contact with current-carrying components inside in the fuel cell. Conductive coolant would produce undesirable leakage currents.



Expertise: MAHLE engineers working on a fuel cell with cooling system at the Stuttgart H2 test center

The system uses deionized, high-purity water with additives. If this fluid were to make contact with the aluminum surface of

the cooler, it would pick up traces of the material and become electrically conductive again. The new coating from MAHLE prevents this from happening.

One crucial aspect is that the highly durable coating does not prevent the transfer of heat within the component.

MAHLE traditionally has strong expertise in the areas of coatings, fluid management, thermal management, filtration, and electronics. The Stuttgart-based technology group already has around 100 employees working on hydrogen-related projects at its Stuttgart locations alone. MAHLE has been a series supplier of components for fuel cell vehicles for more than ten years and operates a hydrogen test center spanning 1,400 square meters in Stuttgart. As a member of the Hydrogen Council, it also campaigns at political level for the promotion of hydrogen technology.

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About MAHLE

MAHLE is a leading international development partner and supplier to the automotive industry. The technology group is now broadly positioned in the areas of powertrain technology and thermal management with a clear focus on future topics relating to mobility. As part of its dual strategy, MAHLE is working both on the intelligent combustion engine for the use of hydrogen and other nonfossil fuels and on technologies that will help the fuel cell and e-mobility achieve broad acceptance in the markets. The product portfolio of the company, which was founded in 1920, addresses all the crucial aspects of the powertrain and air conditioning technology. Half of all vehicles in the world now contain MAHLE components. #weshapefuturemobility

In 2020, MAHLE generated sales of approximately EUR 9.8 billion and is represented in over 30 countries with more than 72,000 employees in 160 production locations and 12 major research and development centers. (Last revised: 2020-12-31)