

# FCEVs: Gearing up for a new phase in thermal management

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**FCEVs are being considered as alternatives for medium and heavy commercial vehicles, and government initiatives are further driving the growth of FCEV adoption.**

*While battery-electric vehicles (BEVs) are set to rule the light-vehicle scene, fuel cell electric vehicles (FCEVs) are starting to carve a decent niche. While absolute volumes will be dwarfed in comparison with BEVs, S&P Global Mobility predicts substantial 33% annual growth in FCEV demand from 2023 to 2029.*



Source: Getty Images/ gchutka

BEVs are favored for light vehicles due to strict emission regulations and fuel efficiency targets in major automotive markets, but they are not universal replacements for internal combustion engine (ICE). Automakers are exploring alternatives such as FCEVs, especially for medium and heavy commercial vehicles. Additionally, initiatives such as the US Inflation Reduction Act and China's long-term hydrogen strategy are also shaking up the FCEV industry.

### **Navigating the niche**

S&P Global Mobility estimates that the total demand for FCEVs in 2023, including both light vehicles and medium-heavy commercial vehicles (MHCVs), will amount to just 0.02 million units, with a projected annual growth rate of 33% over the next seven years.

Japan and Korea lead the charge in FCEVs in the light-vehicle market, thanks to government backing and industry interest. Meanwhile, North America is revving up FCEV production, with big players such as Ford and Daimler Truck leading the way and Hyundai's truck division dipping a toe in the US waters.

Accompanying this increase of interest in FCEVs, there are mounting opportunities for specialized component supply, chiefly in the area of [thermal management](#) due to the unique thermal management requirements of FCEVs. Demand for fuel-cell thermal components (FCTCs) may be currently low but will rise in lockstep with the FCEV market. As one would expect, Japan and Korea currently lead the way in components for FCEVs in the light-vehicle market, but they will lose that lead to Europe by 2029.

S&P Global Mobility estimates that Greater China dominates MHCV FCTC demand. By 2029, North America will surge owing to FCEV production by the likes of Ford, Daimler Truck, Paccar, Stellantis and Volvo. Between 2023 and 2029, European MHCV FCTC demand is set to rise at a 59% compound annual growth rate (CAGR), driven by Daimler Truck and Volvo's FCEV presence.

### **Emerging players**

[Toyota](#) and Hyundai are the FCEV market leaders for light vehicles, but Stellantis and Renault-Nissan-Mitsubishi are gearing up to steal the show. In the MHCV arena, Dongfeng, King Long, and Hyundai hold sway, but expect Daimler Truck, Volvo, Paccar, and Ford to take the wheel soon.

Collaboration is key in this race, with major OEMs teaming up on FCEV innovation. But the main beneficiaries? Thermal component suppliers. Suppliers of components for ICE, such as heat exchangers, electric cooling fans, and electric heaters, need only minor technical modifications to serve the niche propulsion sector of FCEVs. Legacy suppliers such as Denso and Mahle are also providing their partners with FCTC solutions. For FCEV-specific components, such as humidifiers and

ion-exchangers, the technical know-how and economy of scope allow de-risking by not being limited to the automotive industry.

The FCEV market is starting to motor, and S&P Global Mobility's Forecast Suite has the inside track offering a comprehensive view of FCTCs, the encompassing technology, supply chains, and the broader fuel-cell ecosystem for both passenger and commercial vehicles over a seven-year forecast period. To learn more, visit [S&P Fuel Cell Thermal Component Forecast](#).

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