

Contact: Jodi Tinson  
Frank Matyok

## **Stellantis Invests \$29.5 Million in Innovative Wind Tunnel Technology to Enhance EV Aerodynamics**

- \$29.5 million investment expands capability of world-class Stellantis wind tunnel with Moving Ground Plane (MGP) technology to reduce drag and boost EV range
- Introduces capability to measure and reduce airflow resistance from wheels and tires, which account for up to 10% of total real-world aerodynamic drag
- Helps improve aerodynamics of Stellantis brand vehicles sold worldwide, a critical factor in increasing EV driving range
- Improved EV aerodynamics may lead to potential battery-size reductions, benefitting vehicle efficiency and design
- Upgrade complements AI's role in Stellantis product development; affords greater precision and additional automation, which can increase speed to market
- MGP technology will be a key enabler in the development of Stellantis BEVs, a cornerstone of the company's Dare Forward 2030 strategic plan

October 23, 2024, Auburn Hills, Mich. - Stellantis unveiled its innovative Moving Ground Plane (MGP) technology – a \$29.5 million investment – at the company's research and technical center in Auburn Hills, Michigan.

The upgraded wind tunnel will be able to measure and reduce airflow resistance from wheels and tires, which can account for up to 10% of total real-world aerodynamic drag.

Optimizing aerodynamic efficiency is crucial in the effort to extend the driving range of electrified vehicles on a single charge. This enhancement directly contributes to improved efficiency, benefiting customers with longer EV ranges and potentially reducing battery sizes, which in turn could lead to cost and weight savings.

"Range is a core consideration for customers who are transitioning to cleaner mobility through battery power," said Mark Champine, senior vice president and head of North America engineering technical centers. "That's what makes this investment so critical. By reducing drag, we improve electric-vehicle range and, ultimately, the overall customer driving experience."

The upgrade to the company's innovative aero-acoustic wind tunnel simulates real-world travel while allowing test vehicles to remain static. Belts suspended by cushions of air enable wheel movement at all four corners, while a fifth belt runs longitudinally beneath the vehicle, mimicking on-road travel conditions.

This realistic simulation allows for more precise testing and aerodynamic improvements.

"For EVs, a range increase enabled by improved aerodynamics can lead to potential battery-size reductions," said Champine. "This has positive implications from more efficient packaging-to-weight savings that, in the end, will enhance the customer experience."

The investment in MGP technology will benefit multiple Stellantis brands, regardless of where they are sold or how they are powered, and will gain from aerodynamic optimization.

The upgraded wind tunnel also provides a valuable complement to virtual development tools.

"This apparatus is a great addition to virtual tools, which may not account for factors such as tire deformation that can

compromise aerodynamics,” said Champine. “With this technology we can replicate such conditions and capture real-time data to explore solutions.”

The new facility also adds vital automation capability. Changes to wheelbase and track testing, which can take as much as two hours in conventional wind tunnels, can now be done in minutes.

The combined outcome of real-time data collection and increased automation: increased speed to market.

While Stellantis uses MGP technology at other facilities around the world, those sites are focused on smaller vehicle platforms. The upgraded Auburn Hills facility will be capable of accommodating larger vehicles, particularly those based on the STLA Large and STLA Frame platforms.

MGP technology is a key enabler in the development of BEVs, as outlined in the company’s [Dare Forward 2030](#) strategic plan, and will account for 50% of Stellantis U.S. sales and 100% of European sales by 2030. Globally, Stellantis aims to offer more than 75 BEVs by that time, accounting for 5 million vehicles sold annually.

The investment underscores Stellantis’ commitment to becoming carbon net-zero by 2038 as part of its leadership in climate-change mitigation.

The upgraded facility is part of an estimated \$85 million commitment included in the 2019 UAW contract. It includes a new annex for staging test vehicles and a new outbuilding to support the MGP system, which uses high-pressure compressed air to drive the wheel and center belts at speeds up to 140 mph. The entire process is carefully controlled by electromechanical actuators.

The measuring platform and turntable that comprise the heart of the MGP equipment weighs 137 tons, rests on a concrete foundation and are supported by a specially designed steel frame.

The wind tunnel, capable of generating wind speeds of more than 160 mph, has been in continuous operation since 2002.

Stellantis has a long history of aerodynamic leadership:

- In 1929, a company led by aviation pioneer Orville Wright built one of the auto industry’s first wind tunnels, for Chrysler Corporation
- The Chrysler AirFlow, introduced in 1934, was the world’s first vehicle designed with the aid of a wind tunnel
- The Mercury Redstone Rocket used by Alan Shepherd and Gus Grissom for the first two NASA space flights was designed by Chrysler
- The Citroen CX, launched in 1974 at the Paris Auto Salon, featured a coefficient of drag of 0.29. CX is the French acronym for coefficient of drag
- Roof flap mandated by NASCAR to apply downforce in emergency situations was developed in the Auburn Hills wind tunnel
- The 2025 Ram 1500 full-size pickup and Chrysler Pacifica minivan lead their segments with best-in-class coefficient of drag – 0.357 and 0.300, respectively

### **Stellantis North America**

Stellantis (NYSE: STLA) is one of the world’s leading automakers, aiming to provide clean, safe and affordable freedom of mobility for all. In North America, it’s best known for producing and selling vehicles in a portfolio of iconic, innovative and award-winning brands, including Jeep®, Chrysler, Dodge//SRT, Ram, Alfa Romeo and Fiat. Stellantis is executing its [Dare Forward 2030](#), a bold strategic plan that paves the way to achieve the ambitious target of becoming a carbon net zero mobility tech company by 2038, while creating added value for all stakeholders.

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