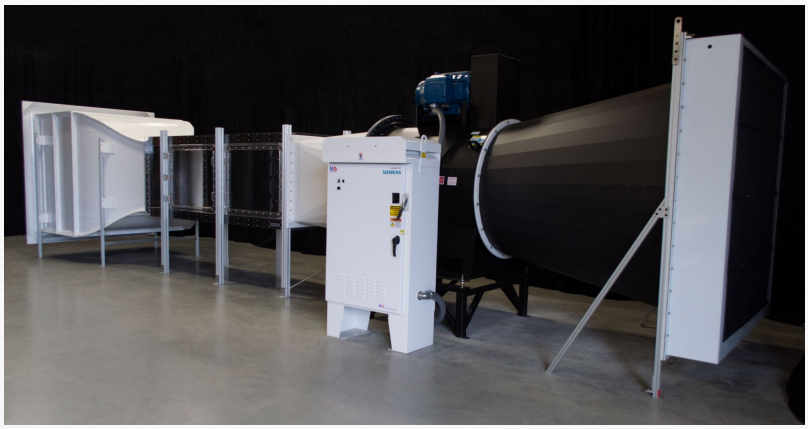
Reinventing Wind Tunnels for the Future of Transportation

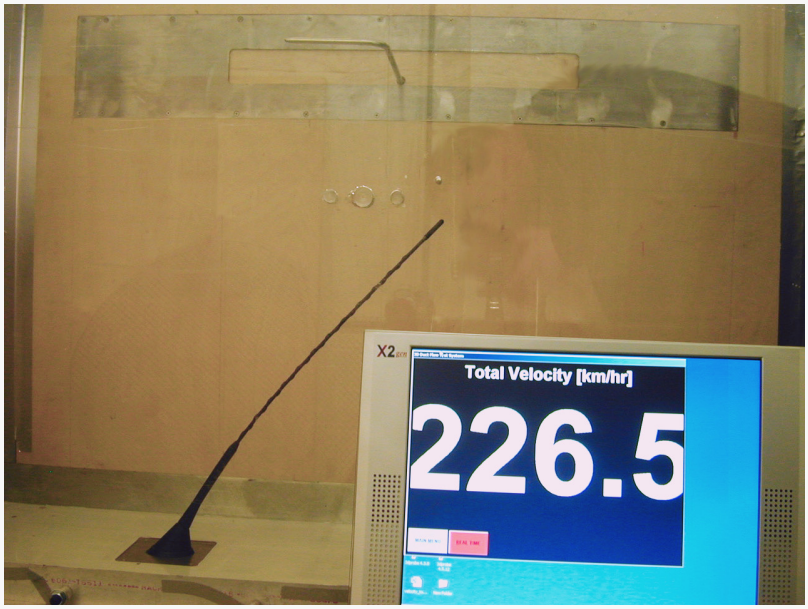
Custom wind tunnels designed and built by Airflow Sciences Corporation

LIVONIA, MICHIGAN, UNITED STATES, August 2, 2022 /EINPresswire.com/ -- Airflow Sciences Corporation, a fluid dynamics engineering company, has a history of combining cutting edge technology with fluid dynamics to solve a broad range of industrial challenges. As a manufacturer of customized test systems, the company anticipates a need for unconventional, innovative wind tunnels that blaze a trail for emerging technologies, and they want to be the ones to design them. They've already gotten started, and the journey is just beginning.

Wind tunnels are used in all sorts of product testing, traditionally for aerodynamic performance. A wind tunnel might be used to determine how a golf ball cuts through the air, how an airplane wing creates lift, or which body design yields the fastest race car. Beyond aerodynamics, they are also used to simulate crosswind effects on cars, trucks, and trains, or investigate wind factors in tall building design. It's no surprise that wind tunnels will also play a key role in the vehicles of the future.



This custom wind tunnel was recently designed and manufactured by Airflow Sciences. It includes all the standard wind tunnel features plus the ability to introduce water droplets to test vehicle components in various rain conditions.



Car antenna undergoing testing in Airflow Sciences' in-house wind tunnel.

The world of personal transportation is rapidly changing, with the rise of electric vehicles and smart cars, hands-free steering, and a wave of ride-sharing services. As we get closer to fully robotic driving, one has to wonder: will the next generations of commuters even need a driver's license?

Innovations to personal transportation also mean that change is happening behind the scenes – the industry is designing, testing, and manufacturing vehicles in whole new ways. The companies developing new vehicles in the methods of the past will be left behind by those who are throwing out the rules and changing the game completely.

The industry needs a new generation of wind tunnels to match the changing landscape of vehicle design and testing. This includes testing full vehicles in large wind tunnels but also testing subassemblies and instrumentation components in smaller wind tunnels. These subassemblies need to be able to operate in all weather conditions and minimize any degraded performance due to wind, dust, rain, and snow.

Airflow Sciences designs wind tunnels of all sizes and environmental influences for clients to perform in-house aerodynamic testing. One recently-completed tunnel includes the ability to introduce water droplets to test vehicle components in various rain conditions.

Many companies are developing new technologies so quickly that it becomes cumbersome to schedule testing at off-site wind tunnels for every new design iteration. Offsite tunnels mean traveling to the test site, setting up and tearing down instrumentation, large rental fees, scheduling restraints, and lack of flexibility. Alternatively, customized wind tunnels are in-house, available anytime, and tailored to the specific flow rates and data collection that design engineers need.

Airflow Sciences builds wind tunnels that push the limits of what is possible. Every wind tunnel produced is custom-designed to meet the user's specific technical needs.

- Rain simulation
- Systems integration
- Automatic data logging
- Viewing windows
- Customized flow rate
- Customized size, shape, and length
- Mounting hardware specific to the test sample

In a world where driverless testing is difficult alongside drivered vehicles, wind tunnel testing offers a unique way to fine-tune technology, improve machine learning, work out technological challenges, and prepare tomorrow's vehicles for the real world. At this rate, you might be ditching your keys sooner than you think.

About Airflow Sciences Corporation

Airflow Sciences Corporation is a fluid dynamics solutions company. They specialize in the design and optimization of equipment and processes involving flow, heat transfer, combustion, and mass transfer. Since 1975, the company has focused on testing and simulation of air, gas, liquid, or particulate flows. They also manufacture standard and custom test equipment, including wind tunnels, so customers can collect data accurately and efficiently. The primary CFD software, Azore®, is also available for those customers with in-house CFD personnel. Airflow Sciences is truly a one-stop place for flow solutions and optimization, serving a wide range of industries including HVAC, power, auto, rail, and food processing.

To learn more about customized wind tunnels or request a quote, contact Rob Mudry.

Rob Mudry
Airflow Sciences Corporation
+1 734-525-0300
robert.g.mudry@airflowsciences.com
