

Vehicle Wind Tunnel



Description:

The vehicle wind tunnel with its subzero and tropical temperature capabilities allows for HVAC and engine cooling testing using a high horsepower dynamometer. The wind tunnel will accommodate front-wheel or rear-wheel drive. It is capable of simulating road driving conditions from idle speed to 160 km/hr.

Solar heat simulation and relative humidity control allow for both engine cooling and air conditioning test conditions within the tunnel. Subzero conditions enable engine warm-up and heater performance testing.





Vehicle Wind Tunnel

Capabilities:

HVAC and engine cooling

Data Acquisition:

Daytronic hardware with Autonet software provides data available in hard copy or electronic format

Thermally Insulated Chamber:

Nozzle is 3 m² adjustable to accommodate FWD or RWD vehicles

Three (3) direct-drive vane-axial air movers for high flow uniformity and low turbulence

Idle bypass arrangement delivers 0 km/hr of air at vehicle face, while maintaining environmental conditions

Solar Simulation:

0 to 1300 W/m² at 1 m above the floor; 3-zone infrared with an additional 1-zone portable unit to simulate side sunload

Dynamometer:

Eddy current automatic dynamometer, 1.22 m diameter single roll

Power:

149 kW absorption at 193 km/hr (1695 N-m torque)

Temperature Control:

-30° to 55°C

Rate of Change:

25° to -30°C within 120 min

0° to 55°C within 60 min

Humidity Control:

10% to 95% RH limited by 6°C dew point

Wind Speed Simulation:

Flow rate 0 to 160 km/hr

80 km/hr @ -30°C

100 km/hr @ -20°C

Work Space:

7.0 m x 15.0 m
x 3.5 m

Vehicle

Access Door:

2.56 m high x
3.04 m wide



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