

Climatic Wind Tunnel

Solar Simulation



Visteon European Testing Operations comprises a powerful climatic vehicle wind tunnel, a unique laser lab for airflow measurements and a large size climatic lab with modern test rigs. The facilities are located directly at the Kerpen motorway junction between Aachen and Cologne.

The sophisticated Climatic Wind Tunnel with a 4-wheel dyno supports vehicle testing in a wide range of thermal and road load conditions for "real life testing" under well defined stable environmental conditions. State-of-the-art technical equipment enables precise temperature stability during testing and allows fast changes of thermal conditions with a movable full daylight spectrum solar simulation.

Climatic Wind Tunnel

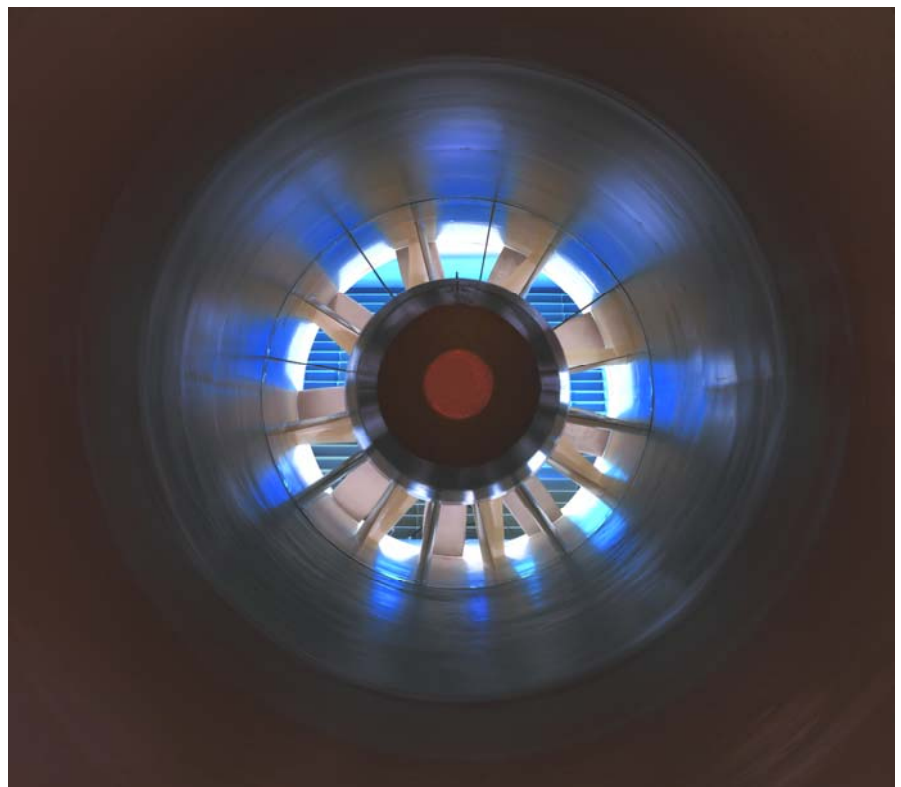
- Air velocity up to 225 km/h
- Executes tests in a temperature range from -40 to $+55$ °C
- Flexible solar simulation system enables reproduction of any worldwide sun conditions
- 4-wheel dynamometer with a unique adjustable wheelbase can absorb up to 235 kW

Climatic Chamber

- Static testing and function testing on a 2-wheel dynamometer
- Preconditioning of up to three cars
- Executes tests in a temperature range from -40 to $+55$ °C

Vehicle Instrumentation and Prototyping

- Instrumentation of vehicles for climatic wind tunnel testing and road testing
- Separate work spaces for enhanced confidentiality
- CAN bus interfaces



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Climatic Wind Tunnel

Solar Simulation Main Features



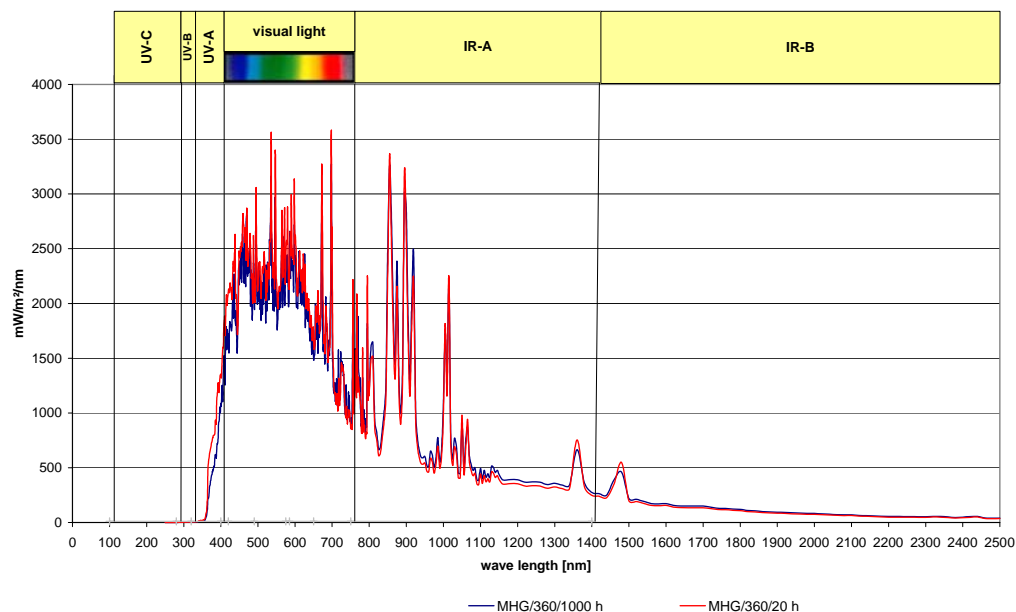
Climatic Wind Tunnel with solar simulation system

Vehicle dimensions	5.7 m * 2.4 m * 2.8 m (L x W x H max.)
Capacity	1 Vehicle, passenger car up to light commercial vehicles
Air Velocity	0 – 165 km/h (4.65 m ² nozzle) 0 – 200 km/h (3.00 m ² nozzle) 0 – 225 km/h (2.25 m ² nozzle)
Air Temperature	-40 to +55 °C
Air Humidity	10 to 90% relative humidity
Data acquisition	300-channel data acquisition
Dynamometer	Front, rear or 4-wheel drive, up to 235 kW power absorption

Solar Simulator

Intensity range	300 to 1200 W/m ²
Operation air temp.	+20 to +49 °C
Radiation target area	3 x 8 m ² (nominal at 1.3 m from floor)
Uniformity	At 1.3 m high: ±6% At 2.2 m high: ±12 %
Lamp type	Metalhalogenid, 4000 W
Applied filter	Neoceram, 3 mm thickness
Spectral range	360 to 3000 nm
Colour temperature	About 6000 K
Manufacturer	K. H. Steuernagel Lichttechnik GmbH

Spectral distribution



Typical radiation spectrum for lamp MGH 4000W m. 360nm filter

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