

Aerodynamic Analysis of Vehicles in the Wind Tunnel and Water Tunnel

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Abstract : The simulation in wind tunnel is used thoroughly to model real situations of drainages of air. Besides the automotive industry, a great number of applications can be numbered: dispersion of pollutant, studies of pedestrians comfort and dispersion of particles. This work had the objective of visualizing the characteristics aerodynamics of two automobiles in different ways. To accomplish that drainage of air a fan that generated a speed exists (measured with anemometer of hot thread) of 4,1m/s and 4,95m/s. To visualize the path of the air through the cars, in the wind tunnel, smoke was used, obtained with it burns of vegetable oil. For "to do smoke" vegetable oil was used, that was burned for a tension of 20 V generated by a thread of 2,5 mm. The cars were placed inside of the wind tunnel with the drainage of "air-smoke" and photographed, registering like this the path lines around them, in the 3 different speeds.

Keywords : aerodynamics, vehicle drag, vegetable oil, wind tunnel

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