METEOROLOGICAL REVOLVING WIND TUNNEL WITH SIMULATED ATMOSPHERIC BOUNDARY LAYER

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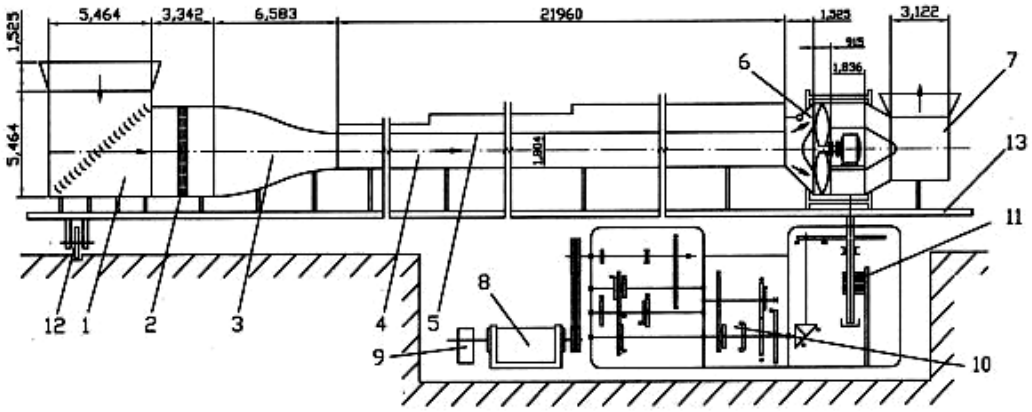
Meteorological wind tunnels are special mechanical devices used for simulating simultaneously the dynamic atmospheric boundary layer and the thermal atmospheric boundary layer by taking into account Earth's rotation. These are very important elements for atmospheric boundary phenomena modelling.The multitude of factors that appears in the study of the dispersion phenomenon developed in the atmospheric boundary layer make analytical mathematical modeling almost impossible while simplified numerical models give sometimes unsatisfying results. Thus the physical modeling of the phenomenon in dynamic and thermal boundary layer wind tunnels is necessary.



1. Air inlet; 2. Net; 3. Decreasing cross-section; 4. Experimental zone; 5. Roof (experimental zone); 6. Axial fan; 7. Air outlet; 8. Electric engine; 9. Frequency modifier; 10. Mechanical transmission; 11. Shaft; 12. Tunnel wheel; 13. Tunnel plate.

Open circuit dynamic and thermal boundary layer revolving wind tunnel

The paper describes the methods used by a research team of the "Aerodynamics and Wind Engineering Laboratory" (A.W.E.L.) of the Technical University of Civil Engineering Bucharest (T.U.C.E.B) in association with specialists from the "Meteorology and Hydrology Department", University of Bucharest, for conceiving and designing of such revolving wind tunnels. The possible tests that can be accomplished in this type of devices are also described.

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