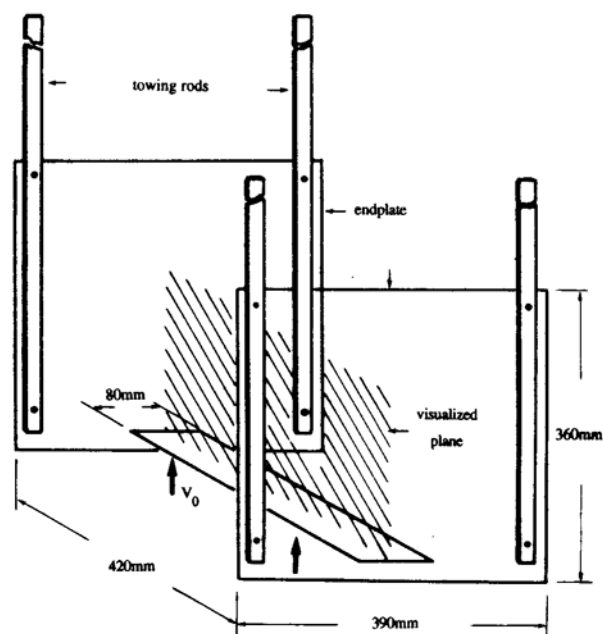
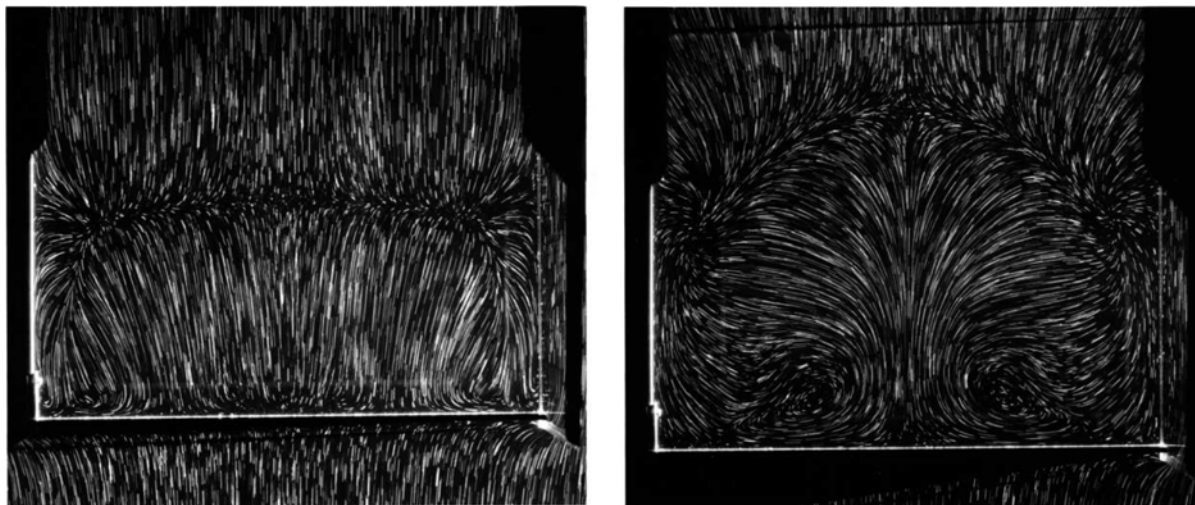


### 3. Setting up of Three-dimensional Endplate Effect on the Starting Wake of a Perpendicular Flat Plate

Coutanceau, M.<sup>1)</sup> and Ehrmann, P.<sup>1)</sup>

1) University of Poitiers, 40 Avenue du Reeteur Pineau, Poitiers, Cedex France 86022



Schematic of the experimental model arrangement.

A thin horizontal(5.2:1) flat plate equipped with endplates is towed uniformly, after an impulsive start, up-to-down in a vertical oil tank. The pictures, taken by an accompanying camera, show two successive spanwise views of the wake structure after the model has travelled along a distance of four and eight plate widths respectively, for a Reynolds number of 200. It is seen how the initial horizontal instream line which separates the reversed flow from the general current (running upwards) becomes with increasing time very incurved and how two perpendicular vortices form near the flat plate (on each photo, the upper parts of the vertical endplate traces are hidden by the forward towing rods).

More details of the way this very strong and complex 3-D endplate effect (however often ignored) sets in with time, as well as its sensivity to the model shape, are shown in Ehrmann thesis(Poitiers 1996).