ANALYSIS OF THE SPANWISE EFFECT BEHIND A CYLINDRICAL BODY

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ABSTRACT

The study of the flow around the cylinder is still a focus of research in various aspects. In this case, the flow around an electrically heated cylinder with a diameter Ød=10 mm is investigated at low velocities (mainly in the laminar range). In the literature, the wall temperature Tw is used in many places to characterize such flows. This is usually considered constant, because experimental tests are mainly performed with electrically heated rods of small diameter (max ~2 mm). Since in our case the rod diameter is a multiple of this, the question arises whether the two-dimensional nature of the flow behind the cylinder is preserved. The spanwise effect behind a transversely placed heated cylinder was investigated. The results obtained provide a good basis for designing further measurement options.

Keywords: cylinder, spanwise, numerical simulation, PIV