**Orifice Plate And Flow Nozzle**

**Abstract**:

This study, considering need of fresh air in the air-conditioning system in a small residence, geometrical dimensions of a flow nozzle and an orifice plate were determined by theoretical equations in the literature. The measurement performances of designed flow meters were compared with numerical method using Computational Fluid Dynamics (CFD). The measured air flow rate is in the range of 80-300 m3 0.45≅/h and Reynolds numbers at the inlet of flow meters are 12,000-46,000. The β ratio of designed flow meters is chosen to be in order to avoid excessive increase of pressure drop. Three dimensional numerical models were created to control the accuracy of flow meters. The results from numerical solution show that permanent pressure loss in the orifice plate is 2.6 times greater than the flow nozzle. Lower pressure and energy loss occur in the flow nozzle compared to the orifice plate. In a system where continuous measurement for the purpose of velocity control of fans is carried out, it has been found that electric power consumption of the fans will increase by 4.85 W and 12.42 W, respectively, at the flow rates of 150 and 200 m3 /h for flow nozzle. Keywords:

flow nozzle, orifice plate, computational fluid dynamics (cfd), flow measurement, heat recovery ventilator