

Wójtowicz, P., Kotowski, A. Model Testing of Conical Vortex Flow Hydrodynamic Regulators. *Ochrona Srodowiska* 2008, Vol. 30, No. 3, pp. 37–44.

Abstract: Upon analysis of the state-of-the-art in the field of vortex flow hydrodynamic devices, a model testing technology has been developed for conical vortex flow regulators designed for application mainly in water and wastewater treatment systems. Presented are examples of results referring to the effect of the geometrical parameters of the conical vortex chamber (spatial orientation, diameter of inlet connector pipe, diameter of outlet opening, spray cone angle) on the flow characteristics of the regulator. It has been demonstrated that the functional relations examined enable a rational choice of the construction parameters for a conical regulator and that the inclusion of an additional operational parameter, namely the spray cone angle, upgrades the accuracy of the quantitative description of the discharge coefficient for the conical flow regulators examined. With the empirical formulae derived for the purpose of the study it is possible to establish how the construction parameters of hydrodynamic conical regulators affect the value of the discharge coefficient. And this enables an optimal choice of these parameters (because of the throttling effect) for practical use, particularly in environmental engineering.

Keywords: Hydraulics, model testing, liquid flow, flow throttling, conical regulator.