

Discharge Coefficients for Baffle-Sluice Gates

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Abstract: In this work, the discharge coefficients of four well-defined operation stages of baffle-sluice gates are presented and modeled using the individual contributions of weir and sluice flow components. Existing empirical relationships proved effective to model the discharge. The presence of submerged baffles has an insignificant effect on the module discharge. One of the most important differences, compared with the constant value recommended in the literature, was found in the case of the submerged discharge coefficient, which grew linearly with the bottom opening. Other differences in the discharge coefficient were also found for the sluice gate flow; however, they did not significantly affect the magnitude of the discharge coefficients. The study is useful for refining the design of baffle-sluice irrigation module.

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