

Performance Evaluation of a Piano Key Weir

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Abstract : The Piano Key Weir (PKW) is a particular shape of labyrinth weir, using up- and/or downstream overhangs. The horizontal rectangular labyrinth shape allows to multiply the crest length for a given weir width. With the increasing demand of power, it is becoming greatly essential to increase the storage capacity of existing dams without neglecting their safety. The present aims at comparing the performance of piano key weirs in respect to the normal sharp-crested weirs. The discharge v/s head data for the piano key weir and normal sharp-crested weir obtained from the experimental study were compared and analysed using regression analysis. Piano key weir was found to perform doubly w.r.t a normal weir. The flow profiles show the parabolic nature of flow and the nappe interference in the inlet keys.

Keywords : crest length, flow profile, labyrinth weir, normal weir, nappe interference, overhangs, piano key weir

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