

Experimental Study of Improvement Possibility of Discharge Uniformity in Two Baffle Neyrpic Moduls (Type XX2)

Abstract: Population growth during last few decades around the world and its increasing rates in the forthcoming years have made water supply to a variety of demands as municipality, industry, agriculture and environment, one of the major concerns of the practitioners. Agriculture sector as greatest consumer in this respect deserves most of the attention from researchers to improve performance of this sector. Irrigation flow canals are mostly utilized in the unsteady state due both to variability of crop consumption during growing season and the diversity of that cultivated plants. Thus, in order to improve the performance of irrigation networks, intake structures are designed such that they may serve as water delivery units in order that each canal receives a prescribed amount of water in a specified time interval while system is using in unsteady state flow conditions. Neyrpic modul is one of the intake structures used in the irrigation networks for water delivery purposes to their canals. Although the structure is in wide application over our country, its functionality is still shown to be a great deal different between various networks such that biases of fifty percent compared with nominal values are sometimes reported by their delivery discharges. In this research, reducing the impact of water level fluctuations on the discharges is taken to the account by making simple changes to the structure of Neyrpic modul used so that over delivery through canal may be prevented. Considering the existing shortages of water resources and last droughts encountered and with the aim of appropriate volumetric distribution of water, this work could be effective in saving us against excessive water consumption. In this study, conducted in hydraulic laboratory of water structures division of Tarbiat Modares university, Neyrpic modul of XX2-type borrowed from Neka plain irrigation network project was examined and investigated. After delineation of stage-discharge curves for the modul, changes occurred with five-increments of correction blade were experimented and stage-discharge curves for each mode of variation were depicted. The results indicated that valve discharges decline throughout the adjusting options compared with similar domestic productions. The maximum reduction corresponds to adjusting option number four with 4.5 percentages.

Keywords: irrigation network, intake valve, feed rate, blade adjustment



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**The Thesis Submitted for the Degree of M.Sc
(in the field of Water structures)**

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2014