DESIGN AND MEASUREMENT METHODS FOR SOIL PERMEABILITY COEFFICIENT WITH FALLING HEAD TEST

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Abstract

Coefficient of Soil permeability measuring devices have been fabricated with falling head method using the changes in water level parameters that are used to test the soil samples infiltration rate. The transducer used is a potentiometer that can alter gravity of the pendulum is connected to the water level changes into electrical quantities using a voltage divider principle. Data processing is done by using the Arduino Duemilanove which feature 10-bit ADC, the voltage reading of 1 mm per 5 digital numbers. Mechanical equipment used is a variation of the gear-gear that serves to alter gravity into the centrifugal force on the potentiometer. Range measurements are able to be done by 17 cm. Results of experiments with the method of this tester head falling to the conclusion that the test soil samples from kanor have a permeability coefficient of 5,7.10^{-5} cm / s. For the sand soil type k values obtained by 2,7.10^{-5} cm / s

Keyword: ADC, Arduino Duemilanove, permeability coefficient, data logger, falling head tester
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