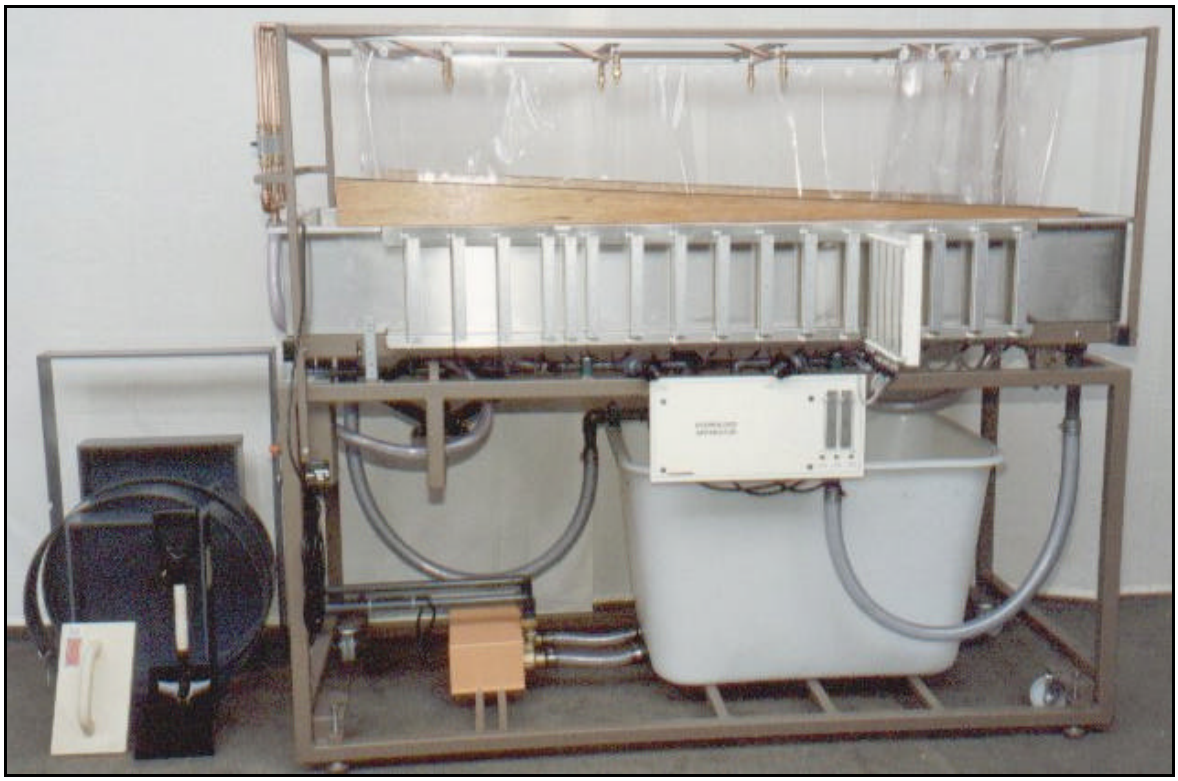
cussons
TECHNOLOGY

P6530

HYDROLOGY APPARATUS



EXPERIMENTAL CAPABILITIES

- Study of basin hydrological cycles
- Study of flood and runoff hydrographs
- Permeability analysis
- Effects of surface storage on hydraulics
- Study of ground water abstraction through one or two wells
- Simulated effects of civil constructions such as bridges and dams
- Fluvial process studies including
  - Sediment transportation
  - Erosion by water on hillsides
  - Erosion in meandering rivers

FEATURES

- Small scale three dimensional hydrology system
- Simulated rainfall and passing storms
- Stainless steel and polyester mesh permeable end-baffles and well liners
- Independently adjustable supply and catchment headers
- Two independently controlled wells
- Calibrated weirs for measurement of well flows and catchment flow
- Twenty-four pressure tappings and multitube manometer
- Impermeable elements for construction of models

INTRODUCTION

The Cussons P6530 Hydrology Apparatus is a free standing self contained unit which has been designed to allow students to study the principles of catchment rainfall and run off as functions

of time, to simulate multiple and moving storms, to examine the interaction of adjacent wells and to study elementary fluvial processes.

DESCRIPTION

The apparatus consists of a shallow water tight rectangular tank, approximately 2000 mm by 750 mm by 250 mm deep, which can be filled with a fine granular medium to form the experimental terrain. The tank is supported on a fabricated steel frame with mountings which allow adjustment of the inclination of the tank. Above the tank is a frame supporting an array of eight spray nozzles which are used to simulate rainfall. Valves control the number of spray nozzles in operation, enabling a moving storm to be simulated.

Permeable end baffles are used to contain the granular material within the central part of the tank, thus providing inlet and outlet header compartments. Adjustable overflow pipes in the header compartments allow the hydraulic gradient across the tank to be adjusted. The lower part of the steel support frame contains a sump tank and a water circulation system which can deliver the water supply to either header compartment or to the spray nozzles. The flow rate to the spray nozzles is measured by a variable area flow meter.

The central area of the tank has two 50 mm diameter outlets in the floor of the tank which can be fitted with porous tubes to represent wells. The offtakes from the wells are controlled by valves which discharge into flow channels fitted with low capacity 20ºV notch calibrated weirs. An identical low capacity, calibrated 20ºV notch weir system is also used to measure the outflow rate from the catchment area. An array of pressure tapping points in the tank floor are connected to a multitube manometer to enable the water table profile to be determined.

Profile gauges and impermeable elements are supplied to allow the easy construction of sheet piling, walls, structures, foundations, reservoirs, bridge pier and dams, etc.

Washed silica sand graded 0.2 mm to 1.0 mm should be used as the permeable medium which must either be ordered separately from Cussons (P6531) or supplied by the end user. Coarser material may be used.

TENDER SPECIFICATION

P6530 Hydrology Apparatus for the study of permeability, fluvial mechanics, ground water abstraction, flood hydrographs and rainfall/run off values. A small centrifugal circulating pump provides supply water to the overhead spray nozzles and end tanks. Located in the base of the upper tank are two wells and an array of pressure tappings, the latter being connected to a multitube manometer by flexible hoses. Rainwater flow is measured by rotameter and three calibrated low capacity notch weirs are used to measure wellwater abstraction and groundwater catchment flows.

P6531 Permeable Medium comprising 400 kg of washed and graded high silica sand containing particle sizes 0.2 mm to 1.0 mm.

SERVICES REQUIRED

Electrical	220/240V single phase 50Hz supply, or alternatively, 110V single phase 60Hz supply
Water	Fill with cold water
Drain	For periodic use

OVERALL DIMENSIONS

(Approximate and excluding permeable medium)

Length	2500 mm
Width	1000 mm
Height	1500 mm
Weight	500 kgs

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