

# Hydrology Demonstrators

Educational Training Equipment for the 21st Century

Bulletin 653D

## H-6530 Hydraulic Demonstration Channel

### Purpose

The Hampden **Model H-6530** Hydraulic Demonstration Channel is designed to investigate analytical applications of fluid mechanics to situations in which fluids can be treated as continuous media. The particular laws involved include conservation of mass, continuity, energy, and momentum. Application of these laws may be simplified in order to describe quantitatively the behavior of the fluid.

The basic hydraulic channel unit can be used to study many open channel flow phenomena including:

- Operation of a sluice gate (using the head gate assembly)
- Effect of positive & negative grade (slope) on the development of critical flow velocity.
- The parameters involved in the formation of a "hydraulic jump" in a straight channel.

### Description

This unit is fully self-contained and mobile. The operator is able to control all flow variables including motorized slope adjustment, movable tailgate, adjustable head gate, undershot gate, and flow rate.

### Specifications

#### Base Assembly:

- Three locking swivel and three fixed casters
- Electric motor with screw jack for slope adjustment
- Pivot Assembly



**MODEL H-6530 Hydraulic Demonstration Channel**

Dimensions: 80"H x 144"W x 30"D

Shipping Weight: 1500 lbs

#### Working Channel:

- Clear Acrylic, 1/2" thick
- Length 144", width 6" I.D., height 12" I.D.
- Feed and return channel sub-base are manufactured of stainless steel.
- Brass inserts at 6" intervals along the length of channel base.
- **MODEL H-6530-10-6** Pipe Flow Set

#### Reservoir:

- Stainless steel tank with drain valve and pump connections
- Working channel support fixture

#### Pump:

- 3/4 HP delivers 95 gpm @ 25 ft. head
- Piping is PVC
- Flow control controlled by two bronze valves
- Orifice plates fitted in the supply piping

#### Control Panel:

- Main circuit breaker with ground fault protection
- Pump motor-starter switch
- Slope motor starter switch with raise and lower pushbuttons
- Slope indicator
- Handwheel for headgate operation

### Services Required

#### Electrical:

- 120/208V AC 60Hz, three-phase

#### Mechanical:

- Water
- Drain



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All Hampden units are available for operation at any voltage or frequency

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## Optional Accessories

- MODEL H-6530-11-6 SAF Stilling Basin
  - MODEL H-6530-12-6 Pipe Drop Inlet
  - MODEL H-6530-13-6 Hydraulic Jump Basin
  - MODEL H-6530-14-6 Sluice Gate with Pressure Taps
  - MODEL H-6530-15-6 Weir, V-Notch
  - MODEL H-6530-16-6 Weir, Broad Crest
  - MODEL H-6530-17-6 Spillway Section
  - MODEL H-6530-18-6 Inclined Slope
  - MODEL H-6530-19-6 Contraction/Expansion Section
  - MODEL H-6530-20-6 Wave Generator
  - MODEL H-6530-21 Venturi Meter
  - MODEL H-6530-22 Flow Nozzle Pipe Section
  - MODEL H-6530-23-6 Gauge Carrier
  - MODEL H-6530-24 Pitot Tube\*
  - MODEL H-6927-10 Digital Differential Pressure Manometer
  - MODEL H-6530-26 Reynold's Experiment Apparatus\*
  - MODEL H-6530-27 Hook & Point Gauges for precise measurement of water surface elevation\*
  - MODEL H-6530-31-6 Weir, crump
- \*Requires H-6530-23-6



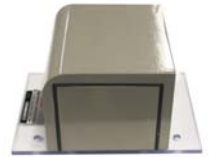
H-6530-13-6



H-6530-14-6



H-6530-15-6



H-6530-16-6



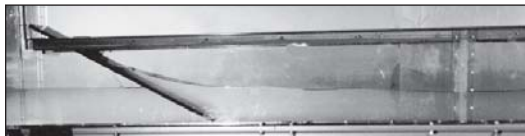
H-6530-17-6



H-6530-23-6



H-6530-19-6



Experiment Result of H-6530-20-6



H-6530-23-6



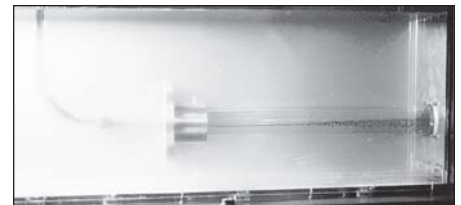
H-6530-10-6



H-6530-20-6



H-6530-26



Experiment Result of H-6530-26

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