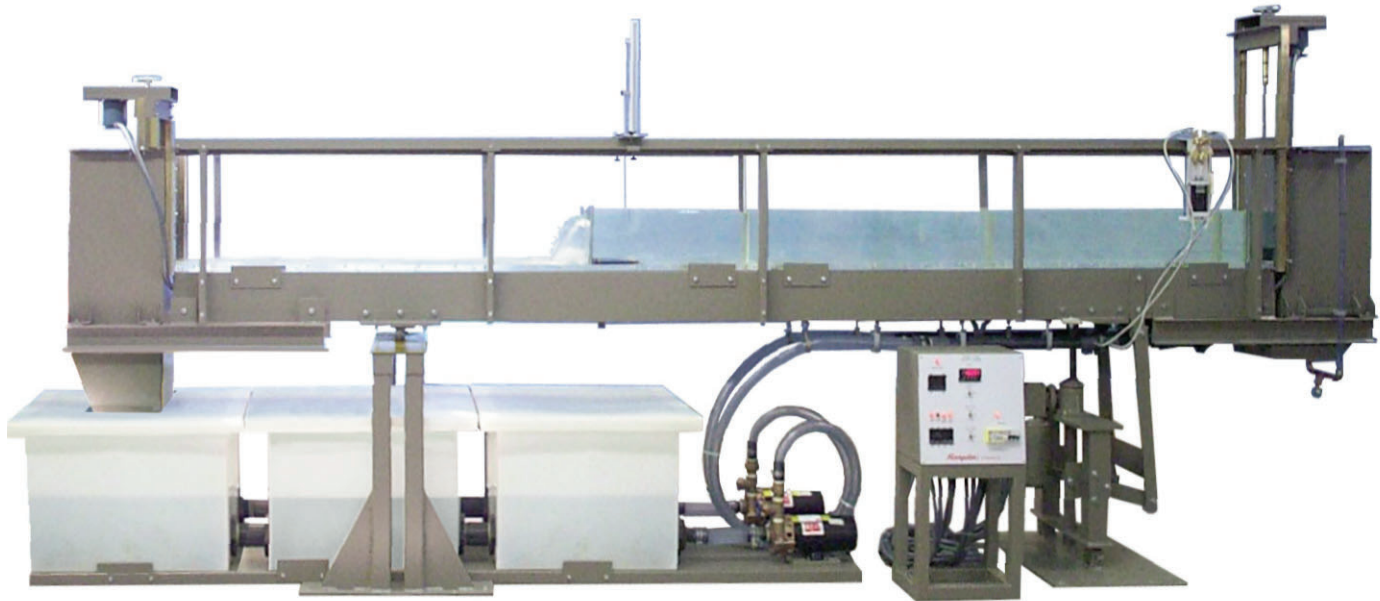


# Hydrology Demonstrators

Educational Training Equipment for the 21st Century

Bulletin 653-1E

## H-6531 Hydraulic Demonstration Channel



### Purpose

The Hampden **Model H-6531** Hydraulic Demonstration Channel has been developed 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.

### Description

This unit is self-contained, mobile, designed for instructor and student use. The operator will be able to control all flow variables, including slope adjustment, movable tailgate, adjustable head tank, undershot gate, and flow control.

### Experiments

Experiments include the following:

- Using the Straight Channel
- Using the Pitot Tube
- Using the Hook and Point Gauge
- Using the Pipe Flow Set
- Using the V-Notch Weir
- Using the Broad Crest Weir
- Using the Spillway Section
- Using the Sudden Contraction/Expansion
- Using the Venturi
- Using the Flow Nozzle Pipe
- Using the Reynolds Experiment

### Specifications

#### Base Assembly:

- 11-gauge furniture stock steel finished in instrument tan texture with four swivel casters, two with locks.
- Electric motor with screw jack for slope adjustment
- Pivot assembly

#### Working Channel:

- Clear Plexiglas™, 1/2" thick
- Length 192", width 12" I.D., height 18" I.D.
- Feed and return channel sub-base are manufactured of stainless steel.
- Mid-section Plexiglas™ flanges join both channels at the center
- Anodized aluminum angles serve as instrument rails and channel top side wall stiffeners
- Brass inserts at 6" intervals along the length of channel base, 2 per interval.
- H-6531-10-12 Pipe Flow Set



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

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# Hydrology Demonstrator

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## Specifications *(continued)*

### Reservoir:

- Stainless steel tank with drain valve and pump connections
- 11 and 14-gauge furniture stock steel covers and support frames finished in instrument tan texture
- Working channel support fixture

### Pumps:

- ¾ HP open drip proof coupled to a bronze pump. Pump delivers 95 gpm @ 25 ft. head (2 req'd).
- Piping is PVC
- Flow control controlled by two bronze valves
- Orifice plates fitted in the supply piping

### Control Panel:

- 14-gauge furniture stock steel case finished in instrument tan texture
- 11-gauge furniture stock steel panel finished in instrument white enamel
- Main circuit breaker with ground fault protection
- Pump motor-starter switch (2 req'd)
- Slope motor starter switch with raise and lower pushbuttons
- Spirit level slope indicator
- Headgate motor and motor starter with raise/lower pushbuttons
- Tailgate motor and motor starter with raise/lower pushbuttons

### Nomenclature:

- 3-ply brown-white core engraving stock secured to the panel with stainless steel self-tapping screws

### Electrical:

- 120V AC 60Hz, single-phase

### Mechanical:

- Water
- Drain

## Optional Accessories

<b>H-6531-11-12</b>	SAF Stilling Basin
<b>H-6531-12-12</b>	Pipe Drop Inlet
<b>H-6531-13-12</b>	Hydraulic Jump Basin
<b>H-6531-14-12</b>	Sluice Gate w/Pressure Taps
<b>H-6531-15-12</b>	Weir, V-Notch
<b>H-6531-16-12</b>	Weir, Broad Crest
<b>H-6531-17-12</b>	Spillway Section
<b>H-6531-18-12</b>	Inclined Slope
<b>H-6531-19-12</b>	Contraction/Expansion Section
<b>H-6531-20-12</b>	Wave Generator
<b>H-6531-21</b>	Venturi Meter
<b>H-6531-22</b>	Flow Nozzle Pipe Section
<b>H-6531-23-12</b>	Gauge Carrier
<b>H-6531-24</b>	Pitot Tube*
<b>H-6531-26</b>	Reynold's Experiment Apparatus*
<b>H-6530-27</b>	Hook & Point Gauges for precise measurement of water surface elevation*
<b>H-6927-10</b>	Digital Differential Pressure Manometer

\*Requires **H-6531-23-12**

## Computer Data Logging

This feature adds differential pressure transducers, and one rotary transducer into the system. One National Instruments interface package is provided for interfacing into a PC compatible computer through the USB port.

Computer is included. I/O programming and Data Acquisition Software is included, (LaBVIEW) templates included.

Specify **MODEL H-6531-CDL**

## Computer Data Logging and Control

This feature adds the CDL option plus the ability to control the flow and channel position.

Specify **MODEL H-6531-CDLC**

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