

Hydrology Demonstrators

Educational Training Equipment for the 21st Century

Bulletin 653E

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

Reservoir:

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



MODEL H-6530 Hydraulic Demonstration Channel
Dimensions: 80"H x 144"W x 30"D
Shipping Weight: 1500 lbs

Working Channel:

- Clear Acrylic, ½" 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

Pump:

- ¾ 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

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-6530-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-6530-CDLC**



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

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Hydrology Demonstrators

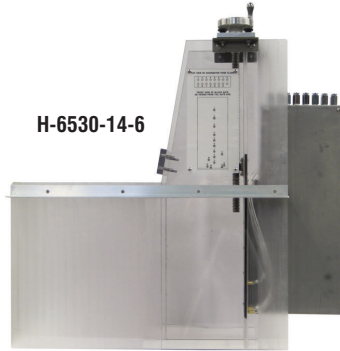
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Optional Accessories

- 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



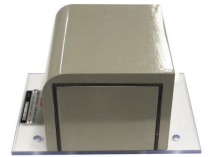
H-6530-13-6



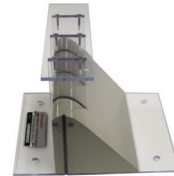
H-6530-14-6



H-6530-15-6



H-6530-16-6



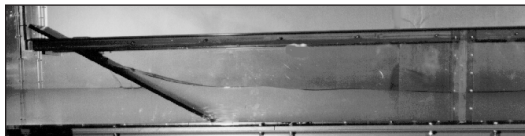
H-6530-17-6



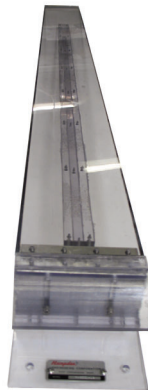
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H-6530-19-6



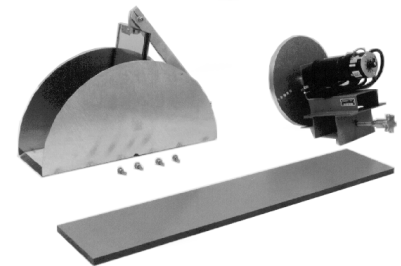
Experiment Result of H-6530-20-6



H-6530-10-6



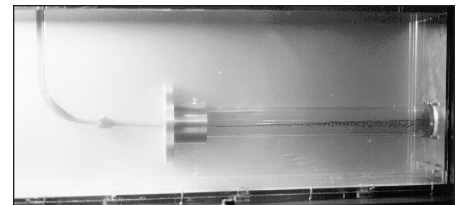
H-6530-10-6



H-6530-20-6



H-6530-26



Experiment Result of H-6530-26

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