

## H-6970 Hydrokinetics Demonstrator

### Purpose

The **Model H-6970** Hydrokinetics Demonstrator is designed to demonstrate characteristics of turbulent and laminar flow, significance of Reynold's Numbers, flow around objects, velocity distribution in duct flow, formation of shock waves by an air foil, two dimensional flows, the Karman Street Vortex, diffuser performance and the conditions at enlargement and contraction passage.

### Description

The Hydrokinetics Demonstrator allows the teacher and student to perform experiments using what is probably the most flexible method of flow visualization ever devised. In this technique, small bubbles of hydrogen are produced in water by electrolysis at a fine wire cathode. By careful illumination, the paths traced out by these bubbles, as they are carried along by the flow, can be observed.

In addition to providing means for observing many features of incompressible flow, the Hampden **Model H-6970** Hydrokinetics Demonstrator can also be used to mathematically model a wide range of compressible fluid flow behavior. To do this, the well known analogy between compressible and open channel flows is employed.

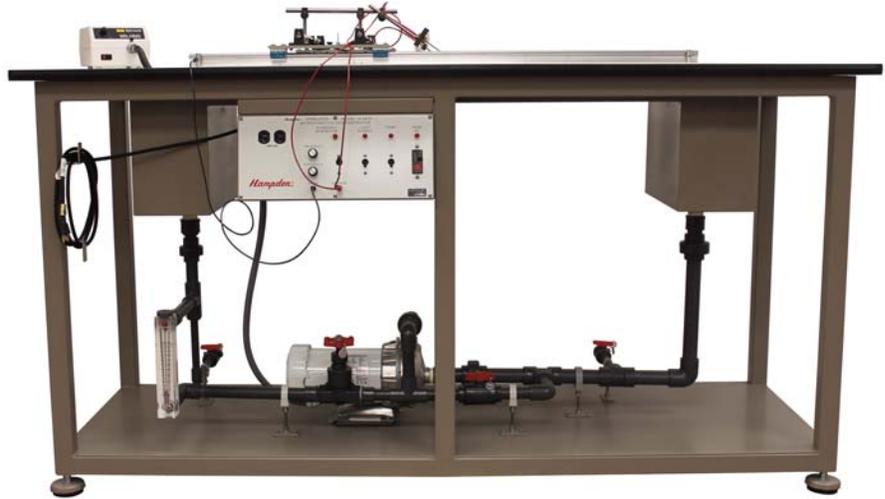
### Specifications:

#### Table:

1.50" sq. mechanical steel tubing welded together and finished in instrument tan texture. Cross members are provided along with mounting uprights and levelers.

#### Channel Working Section:

Stainless steel construction incorporating inlet and outlet tanks. The working section is 48" l x 18" w x 2.5" d. The outlet tank consists of a level control weir, drain ball valve and pump primary feed convection. The total water capacity is 12 gallons.



**MODEL H-6970-CDL** Hydrokinetics Demonstrator w/Computer Visual Data Logging option  
Dimensions: 40"H x 82"W x 30"D  
Weight: 750 lbs.

#### Hydrogen Bubble Pulse Indicator:

This unit is enclosed in a steel enclosure with DC power supply output terminals for the anode and cathode.

The generator produces pulses with variable "OFF" period duration. This duration is controlled by a selector switch. A generator is provided with a main electromagnetic circuit protector power switch with pilot light. The cathode consists of a fine stainless steel wire supported in tension by a cathode holder that can be positioned on either an X or Y axis. The anode is the channel discharge weir.

#### Pump:

Consists of a centrifugal pump with starter switch providing a flow of 18 GPM maximum. A hand valve is used to control the flow along with its associated flowmeter.

#### Hook and Point Gauge

This measures the height of water in the channel for flow measurement.

#### Panel Main:

1-pole ground fault interrupter circuit breaker with pilot light.

#### Light Source:

This unit consists of the housing complete with reflector, a polished light guide of plastic for below the fluid surface illumination, and is mounted on an X-Y axis track.

#### Accessories:

Provided is one precision level gauge and a set of models.

### Services Required

120V AC - 1 $\phi$  - 60Hz

### Options

#### Digital Ultrasonic Height Gauge

Measures the height of the water in the channel for flow. Consists of a transmitter, bracket, and a digital indicator. Specify **H-6970-U**.

### Computer Visual Data Logging

This unit is available with Computer Visual Data Logging to allow remote monitoring of the process by a digital video camera.

Specify **MODEL H-6970-CDL**



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

**Hampden**  
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