Hydrology Trainers

Educational Training Equipment for the 21st Century

Bulletin 654B

H-6540

Water Hydraulics System

Description

The Hampden Water Hydraulics System consists of a Mobile Hydraulics Bench **Model H-6540-10** and a complete line of basic to advanced demonstration & experimentation equipment. Each unit has been designed to fully demonstrate specific working properties of hydraulic theory.

The Hampden **Model H-6540-10** Water Hydraulic Bench is constructed of code gauge steel with stainless steel tanks and includes the following:

- Motor
- Self-priming centrifugal pump
- Motor control
- Dump valve
- Drain valve
- Needle valve
- Stepped volumetric tank
- Sump tank
- Supply outlet
- Remote pressure gauge
- Sight glass with scale
- Calibrated measuring cylinder

MODEL H-6540-10
Mobile Hydraulics Bench
Dimensions: 52"W x 39"H x 34-1/2"D
Shipping Weight: 591 lbs.

MODEL H-6540-21
Flowmeter Demonstrator Module
Dinemsions: 36"H x 36"W x 22"D
Shipping Weight: 236 lbs.

Hydraulic Theory	Model
Calibration of Industrial Pressure Gauges	**H-6540-11**
Measure the Static Thrust Exerted by a Fluid on a Submerged Surface	**H-6540-12**
Characteristics of Flow Over Rectangular and Vee Weirs	**H-6540-13**
Factors Affecting the Stability of a Floating Body	**H-6540-14**
Circumstances to Which Bernoulli's Theorem May be Applied	**H-6540-15**
The Force Developed by a Jet of Water Impinging Upon a Stationary Object	**H-6540-16**
Calibration of Orifices	**H-6540-17**
Calibration of Orifices with Five Additional Orifices	**H-6540-17a**
Equations Applicable to Laminar and Turbulent Pipe Flow (Shown)	**H-6540-18**
Characteristics of Flow in an Open Channel (Shown on back)	**H-6540-19**
The Nature of Laminar and Turbulent Flow	**H-6540-20**
Operating Characteristics of Three Types of Flowmeters (Shown)	**H-6540-21**
Losses in Pipe Network	**H-6540-22**
Free and Forced Vortices	**H-6540-23**
Hydraulic Ram	**H-6540-24**
Pelton Turbine Demonstrator	**H-6540-25**
Series/Parallel Pump Set	**H-6540-26**
Centrifugal Pump Set	**H-6540-27**
Francis Turbine Demonstrator	**H-6540-28**

MODEL H-6540-18
Energy Loss in Pipes Demonstrator
Dimensions: 20"W x 42"H
Shipping Weight: 160 lbs.

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

Hampden® ENGINEERING CORPORATION

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H-6540

Water Hydraulics System

Demonstration and Experimentation Equipment

MODEL H-6540-11
Dead Weight Pressure Gauge Module consists of a precision-machined piston and cylinder, base mounted, with leveling feet, spirit level and weight set.

MODEL H-6540-12
Hydrostatic Pressure Module consists of a clear Lexan tank with base, leveling feet, spirit level, fill port and drain cock. A quadrant with balance beam, pivot, adjustable counter balance weight, beam level indicator and weight balance hanger. (calibrated weights not included)

MODEL H-6540-13
Weir Set consists of two stainless steel weir plates, one vee notch and one rectangular notch.

MODEL H-6540-14
Metacentric Height Module consists of a plastic floating pontoon with mast, adjustable mast weight, plumb bob, lateral adjustable weight, and scale bar.

MODEL H-6540-15
Bernoulli's Theorem Demonstration Apparatus consists of a base with leveling feet, venturi with pressure taps, head tube traverse tap, and a needle valve. An eight tube manometer is provided with hand pump.

MODEL H-6540-16
Impact of a Jet Module consists of a clear plastic cylinder with leveling feet and spirit level. Included is a nozzle, target plate with stem and counterbalanced compression spring, weight paw (weights not included) and scale.

MODEL H-6540-17
Orifice Calibration Apparatus consists of a base with leveling feet, spirit level, clear plastic tank with inlet pipe, adjustable overflow pipe, orifice fixture with "O" ring, backboard assembly with paper clips, needle support with eight adjustable needles, two orifice plates and a tank level scale. The orifice diameters are 3.0 mm and 6.0 mm.

MODEL H-6540-17a
Same as **H-6540-17** with five (5) additional orifice plates.

MODEL H-6540-18
Energy Loss in Pipes consists of a base with leveling feet, spirit level, constant head tank, test pipe with two pressure taps, needle valve, water manometer, air pump and measuring cylinder.

MODEL H-6540-19
Flow Visualization Channel consists of a base with inlet tank, adjustable feet, clear plastic channel, undershot weir, overshot weir, and dye injection system. Unit comes with broad crested weir, narrow crested weir, two aerofoils, and two cylinders.

MODEL H-6540-20
Reynold's Demonstration Apparatus consists of a base with adjustable feet, spirit level, head tank with supports and overflow, needle valve, bellmouth entry, and dye injection system.

MODEL H-6540-21
Flowmeter Demonstration Module consists of a base with leveler feet, venturi, flowmeter, orifice plate, needle valve, an eight tube manometer.

MODEL H-6540-22
Losses in Bends Apparatus consists of a metal frame with inlet, sweep bend, expansion-contraction section, short bend, 90° elbow, pressure gauge, gate valve, miter bend, needle valve, and one twelve tube manometer. This unit includes twelve pressure taps.

MODEL H-6540-23
Free and Forced Vortices Apparatus consists of a base with leveler feet, models for test and hydrogen bubble flow generator.

MODEL H-6540-24
Hydraulic Ram Apparatus for determining flow pressure characteristics and efficiency.

MODEL H-6540-25
Pelton Turbine Demonstrator consists of a base channel, pelton turbine, friction dynamometer and spear valve with pressure gauge. Turbine speed is measured using HT-100K Tachometer, purchased separately.

MODEL H-6540-26
Series-Parallel Pump consists of one centrifugal pump with 1/4 HP motor, pressure gauges and associated hardware and piping. It is used in conjunction with the H-6540-10 bench pump.

MODEL H-6540-27
Centrifugal Pump consists of one centrifugal pump with 1/4 HP motor, pressure gauges, associated hardware and variable speed pump drive.

MODEL H-6540-28
Francis Turbine Demonstrator consists of a base channel, francis turbine, friction dynamometer and spear valve with pressure gauge. Turbine speed is measured using HT-100K Tachometer, purchased separately.

MODEL H-6540-19
Characteristics of Flow in an Open Channel
Dimensions: 33-3/4"W x 32-1/2"H x 14"D
Shipping Weight: 144 lbs.

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

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