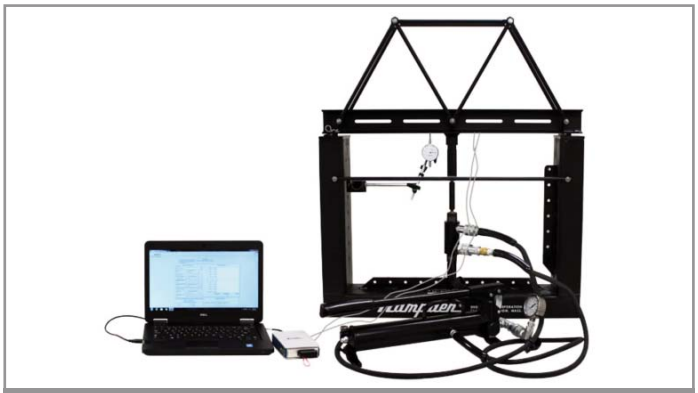
MECHANICAL ENGINEERING



STRUCTURAL

FLUID MECHANICS

HEAT MASS & TRANSFER

THERMODYNAMICS

ISO 9001:2015

Hampden® ENGINEERING CORPORATION

MADE IN U.S.A.

Mechanical Engineering *is one of the broadest engineering disciplines. Mechanical Engineers research, develop, design, manufacture, and test tools, engines, machines, and other mechanical devices. They work in many industries, and their work varies by industry and function. Some specialties include: energy systems, applied mechanics, automotive design, manufacturing, materials, plant engineering and maintenance, pressure vessels and piping, heating, refrigeration, and air-conditioning systems.* ***HAMPDEN ENGINEERING*** *offers numerous trainers and demonstrators that can provide the future Mechanical Engineer with the knowledge needed to succeed in this broad field.*

Thermodynamics

Thermodynamics is the science of the relationship between heat, work, and systems that analyze energy processes. The energy processes that convert heat energy from available sources such as chemical fuels into mechanical work are the major concern of this engineering science. Thermodynamics consists of a number of analytical and theoretical methods which may be applied to machines for energy conversion. HAMPDEN ENGINEERING offers several models that demonstrate the laws of thermodynamics.

The Hampden **Model H-6830** Educational Mechanical Heat Pump demonstrates the principle that heat will move from a high temperature to a lower temperature as first proposed by Lord Kelvin over 100 years ago. The Hampden **Model H-6830** Educational Mechanical Heat Pump is known as a water to air system.

See back cover for other models available in Thermodynamics

Heat Mass and Transfer

Heat Transfer occurs when there is a temperature difference between a system and surroundings. Heat transfer changes the internal energy of the system. Heat is transferred by conduction, convection, and radiation, which may occur separately or in combination. HAMPDEN ENGINEERING offers several trainers that demonstrate the laws and variables of Heat Mass and Transfer.

The Hampden **Model H-6860** Conduction Heat Transfer Demonstrator is designed to allow students to investigate the fundamental aspects of conduction heat transfer. Heat is conducted through test sections to a heatsink. The temperature profile of the test section is monitored with thermocouples and displayed on a digital panel meter. With the unit, students are able to verify Fourier's law of heat conduction and are able to determine experimentally the many variables of interest in conduction heat transfer.

See back cover for other models available in Heat Mass and Transfer

Hampden Engineering Corporation

MECHANICAL ENGINEERING SYSTEMS

Hampden Offers a Complete Line of Demonstrators, Trainers, and Systems for all categories within Mechanical Engineering

Fluid Mechanics

Fluid Mechanics is the study of the properties of gases and liquids. Fluid flow can be either laminar, characterized by parallel flow lines or layers that do not intersect, or turbulent, where the speed of the fluid causes it to continuously undergo changes in both magnitude and direction. HAMPDEN ENGINEERING offers numerous models that can provide a better understanding of laminar and turbulent flow.

The **Model H-6960** Laminar Flow Analysis Demonstrator allows students to do experiments of two-dimensional problems associated with laminar flow. A dye injection system allows the flow patterns to be seen more vividly and easier to videotape or photograph. Experiments that may be conducted include: Determining Flow Velocity with and without using the Weir and Transition Flow Velocity. Lexan® shapes are provided to assist the student in assembling flow pattern experiments.

See back cover for other models that demonstrate Fluid Mechanics

Structural Engineering

Structural Engineering involves the design of all types of structures including: buildings, bridges, towers, and dams. The design of the beams, columns, trusses, frames, and foundations of these structures must withstand the forces of their own weight as well as the natural forces of wind, snow, and earthquakes. HAMPDEN ENGINEERING offers several models that can provide students with a better understanding of Structural Engineering.

The Hampden **Model H-6310** Hydraulic Tension Testing Machine is a hydraulic tensile testing machine with a screw-type operating cylinder which gives completely smooth and step-less loading. The cylinder is operated by means of a crank which is designed so that only light hand power is required to obtain maximum load. The pedagogic design of the machine means that the student can observe what is happening throughout the entire procedure. The convenient size and the sturdy structure make the Hampden **Model H-6310** a highly reliable and risk-free machine. The power is read on a large and clearly visible indicating instrument which is graduated in kN (kilo Newton). The instrument is provided with a maximum-value indicator which shows the power at failure on the test rod. The extension is measured by means of a gauge which has a reading accuracy of 0.01 mm.

See back cover for other models available in Structural Engineering

Standard Products ... Designed to Meet Your Growing Needs!

MECHANICAL ENGINEERING PROGRAM OVERVIEW

Thermodynamics

H-6671 Two-Stage Air Compressor Trainer

H-6710 Refrigeration Demonstrator

H-6715 Refrigeration Cycle Demonstrator

H-6720 Refrigeration Unit

H-6820 Dual Heat Pump Demonstrator

H-6830 Educational Mechanical Heat Pump

H-6840 Educational Thermo-Electric Pump

H-6898 Thermal Radiation Trainer

H-6899A Thermal Radiation Demonstrator

H-ACD-1-CDL Air Conditioning Demonstrator

H-ACD-2A-CDL Recirculating Air Conditioning Demonstrator

Heat Mass and Transfer

H-6850-20 Double-Pipe Heat Exchanger

H-6850-21 Concentric Tube Heat Exchanger

H-6852 Modular Heat Exchanger Demonstrator

H-6856 Cross-Flow Heat Exchanger

H-6857 Water Flow Heat Transfer Demonstrator

H-6860 Conduction Heat Transfer Demonstrator

H-6862A Thermo Conduction Demonstrator

H-6879-CDL Nucleate Boiling Heat Transfer Demonstrator w/Computer Data Acquisition

H-6882-CDL Convection Heat Transfer Demonstrator w/CDL

Fluid Mechanics

H-6640 Air Flow Unit

H-6740 Air Ventilation System Trainer

H-6910 Wind Tunnel

H-6920 Pipe Friction Demonstrator

H-6925-CDL Fluid Circuit Demonstrator w/CDL option

H-6950 Flow Measurement Unit

H-6960 Laminar Flow Analysis Demonstrator

H-6970 Hydrokinetics Demonstrator

H-6980 Series/Parallel Pump Test Demonstrator

H-6981 Centrifugal Pump Demonstrator

H-6985 Waterhammer Demonstrator

Structural Engineering

H-6310 Hydraulic Tension Testing Machine

H-6311 Torsion Test Demonstrator

H-6320 Structures Test System

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