

WIND TUNNEL SYSTEMS



Hampden[®]
ENGINEERING CORPORATION



WIND TUNNEL SYSTEMS

Explore All Areas of Wind Dynamics

H-6910 Wind Tunnel

The **Hampden MODEL H-6910** Wind Tunnel has been designed to provide the fundamental air flow facilities necessary to perform any of the **H-6910** Series Wind Tunnel Experiments. It can generate air speed of greater than 4400 ft/min. (50 mph) and has an 8" square test section. The unit is equipped with a bench with storage shelf and lockable drawer, instrumentation panel (w/o instruments), wind tunnel including an inlet cone, clear experiment section, outlet cone and screen, manual traverse unit, linear track with carrier, main AC circuit breaker, and variable frequency drive. The mobility of the **H-6910** makes it suitable for either a lecture hall demonstration or laboratory work.

The **H-6910-5** Manometer Package option utilized on the **Hampden H-6910** Wind Tunnel are well-type with precision bored wells. The instruments use a colored gauge oil that has a stable petroleum base with a carefully controlled specific gravity which gives a consistent, high visibility meniscus. The scales are clear, sharp, accurate, easy to read and feature a silkscreened legend on polished chrome plated brass which reflects the image of the meniscus. The scales are compensated to account for the specific gravity of the indicating fluid and "well drop".

The **H-6910-55** lift and drag option for the **Hampden H-6910** Wind Tunnel allows measurement of lift and drag forces on various shapes placed in the wind tunnels airstream.



Model H-6910-CDL
Wind Tunnel shown with
Model H-6910-5 Manometer
Package option
and **Model H-6910-55**
Lift and Drag option
Dimensions: 69"H x 96"W x 30"D
Weight: 1,000 lbs.

Standard Features

MODELS H-6910 and H-6910-12A provide the following standard features:

- Full visibility of test section
- Self-contained, fully mobile
- Low head-loss, aerodynamic flow straightener section
- Low area ratios of both convergent and divergent sections provide uniform and efficient flow
- An experimental manual is provided which reviews the background theory and provides procedures that can be performed with each piece of equipment
- Options available to allow full exploration of all areas of wind dynamics
- Optional full instrumentation for static and dynamic pressure
- Optional expansion to allow computer control and data acquisition

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Quick & Easy Setup of Wind Tunnel Experiments

H-6910-12A Wind Tunnel

The **Hampden MODEL H-6910-12A** Wind Tunnel has been designed to provide the fundamental air flow facilities necessary to perform any of the **H-6910-12A** Series Wind Tunnel Experiments. It can generate air speed 0 – 150 MPH (0 – 13,200ft/min) and has a 12" square test section. The unit is equipped with a bench, control panel, wind tunnel including an inlet cone, clear experiment section, outlet cone and screen, manual traverse unit, linear track with carrier, main AC circuit breaker, and variable frequency drive. The bench includes a shelf and is mounted on eight casters.

The manual traverse unit is mounted on the carrier that rides along the table rail which includes a scale calibrated in millimeters. The manual traverse unit is used to position an air probe in the experiment section and is capable of both linear and rotary positioning. The linear scale is 25 cm long with minor divisions of 0.2 cm and resolution of 0.02 cm if the vernier is used. The protractor is graduated in 2° steps over a full 360°. With the vernier, it has a resolution of 0.2° (the rotational range of the manual traverse unit is limited to 40° either direction centered around zero). Interchangeable mounting collets are provided for locking probes firmly in place without damaging them. The mobility of this unit makes it suitable for either a lecture hall demonstration or laboratory work.



MODEL H-6910-24-CDL Wind Tunnel (Shown with Control unit and close up of Race Car Option)
Dimensions: 9' High x 29'-8" Wide, 8' Deep

Fully equipped with: a bench, wind tunnel including an inlet cone, clear experiment section, outlet cone and screen, and CDL option.
Control Unit with: main AC circuit breaker, variable frequency drive. The bench is mounted on levelers and includes a storage shelf.

Experiments

Hampden offers a variety of experiments designed to be used with **MODELS H-6910 and H-6910-12 and H-6910-24** Wind Tunnels. All experimental setups are quickly attached/removed from the wind tunnel through the use of quick connect fasteners. Any electrical equipment (digital displays, power supplies, etc.) is easily mounted in factory drilled cutouts and the electrical connections are made by quick connect adapters.

Bernoulli's Equation Apparatus

Designed to investigate the validity of Bernoulli's Equation as it relates to pressure and velocity of a fluid along a streamline.

Free Jet/Flow in Bends Demonstrator

Free Jet Demonstrator is designed to investigate the characteristics of a free jet. *Flow in Bends Demonstrator* is designed to demonstrate the phenomena associated with fluid flow in bends.

Boundary Layer Demonstrator

Designed to investigate boundary layer phenomena.

Lift and Drag Force Demonstrator

Designed to investigate the force of drag on a body.

Pressure Wing and Rake

Consists of a NACA0020 Aerofoil section with nineteen pressure taps. Also provided is a Wake Survey Rake.

Probe Accessory Package

Probe Accessory Package consists of the following components:

- 1 - Kiel Probe
- 1 - Pitot-Static Pressure Probe
- 1 - Directional Probe - Three Dimensional
- 1 - Pressure Dividing Choke
- 3 - Universal Tee Connectors
- 1 - Storage Case

Pressure Cylinder

Consists of a 2" diameter cylinder with nineteen pressure taps finished flush with the outer surface.

Golf Ball Demonstrator

Designed to investigate the effect of a smooth surface vs. a rough surface.

Race Car Drafting Illustrator

Designed to measure the wind velocity and drag profiles.



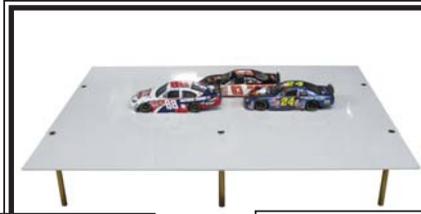
MODEL H-6910-12A-CDL Wind Tunnel
Dimensions: 73" High x 223" Wide, 40-1/2" Deep

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

WIND TUNNEL OPTIONS

Computer Data Logging

Models H-6910-CDL, H-6910-12A-CDL and H-6910-24-CDL add five differential pressure transducers, one air velocity transmitter, one rotary transducer, lift/drag input (for H-6910-55 or H-6910-12-55 option), angle of attack (for H-6910-71 or H-6910-12-71 option), and one fan speed input into the system. One interface package containing National Instruments I/O modules is provided for interfacing into a PC computer through the USB port. Templates for LabVIEW® control software are included. Computer and National Instruments LabVIEW® are included.



Various Options Including: **H-6910-24-55-JP** Jet Plane Experiment Option, **H-6910-24-RC** Race Car Demonstrator Option, **H-6910-24-55-GB** Golf Ball Experiment Option, **H-6910-24-CDL** Computer Data Logging Option and **H-6910-24-73** Flutter Wing Option.



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