VENTILATION TRAINER
B500



Year 1
study

Features
- Safe and Suitable For Unsupervised Student Operation.
- Responds Rapidly to Control Changes.
- Negligible Operating and Maintenance Costs.

Related Laws/Applications
- Building Services
- Refrigeration and Air Conditioning
- Mechanical Engineering
- Plant Engineering
- Marine Engineering

Description
A realistically scaled ventilation training unit capable of enabling students to study both basic airflow and fluid mechanics as well as the more complex process of commissioning and balancing a multi-ducted air distribution system. The unit consists of a foreword curved variable speed centrifugal fan and integral control console together with a rectangular air intake and filter holder. The fan has a supply pressure of up to 890N/m2 and a flow rate of up to 0.8m3/s depending upon the blockage factor. The fan discharges directly into a 200mm dia. galvanised steel duct and this connects directly to the distribution ductwork. Sufficient components are supplied with the unit to enable parallel branch and line balancing experiments to be undertaken. A minimum of 6 air supply points are provided that may be balanced on the assembled unit to supply a range of airflows. A portable manometer, pitot static tube and hand held anemometer allow a large range of experiments to be undertaken.

Learning capabilities

- Examination of typical components, fabrication, installation and assembly techniques used in air handling systems.
- Investigation of pressure losses in bends, branches, changes of section and over straight lengths of duct, together with the variation in pressure drop with velocity.
- Determination of the ‘K’ factor for the pressure loss of the above components in each particular configuration.
- Investigation of the fan pressure and volume flow characteristics at various supply voltages.
- Examination of standard types of panel and bag filters and their pressure drop against face velocity.
- Measurement of air flow rate using pitot-static traverse, orifice pressure differential and anemometer methods.
- Balancing of air flow distribution in a series or two branch parallel distribution system using either main damper or fan speed flow control.

Technical Specification

- Fan Unit: Motor power 0.75kW (approx.) on load. Starting load is greater.
- Fan supply pressure of up to 890N/m2, flow rate of up to 0.8m3/s depending upon the blockage factor.
- Fan discharge directly into a 200mm dia. galvanised steel duct.
- Control Console: Analogue Voltmeter, analogue Ammeter, variable Transformer, combined miniature circuit breaker and Main Switch, Internally mounted.
- Epoxy coated steel frame housing the fan unit.
- Ductwork Galvanised steel.
- A combined vertical (Range 0-2000 N/m²) and inclined (Range 0-200 N/m²) manometer.
- Unit supplied with 305mm x 4mm diameter pitot static tube and spare fluid.
- A battery powered rotating vane anemometer with digital readout. Range approximately 0-30m/s.
- Internally fitted 30mA Residual Current Circuit Breaker gives high degree of protection to operator from electrical shock.
- All rotating components covered when filter and holder are in position.

Recommended Ancillaries

- B500B Duct Expansion kit
- B500C Duct Expansion kit
- B500D Duct Leak Testing Unit

What’s in the Box?

- 1 x B500
- 1 x Control console and stand
- 1 x duct, trunk, coupling kit and fasteners
- 3 x horizontal Air Supply Unit
- 3 x Circular Air Supply Unit
- 3 x Adjustment and Measuring Unit
- 1 x portable Manometer
- 1 x Pitot tube
- 1 x rotating Vane Anemometer
- 2 year spares
- Instruction manual
- Test sheet
- Packing List

Weights & Dimensions

- Weight: 32 kg
- Length: 1000-11000mm**
- Width: 3000-9000mm**
- Height: 2000mm
- ** Depending on Configuration

Essential Services

- 1.5kW Single Phase, 220-240 Volts, 50Hz (With earth/ground).
- 1.5kW Single Phase, 110-120 Volts, 60Hz (With earth/ground).

Ordering information

To order this product, please call PA Hilton quoting the following codes:
B500/230
B500/115

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS