



Noise Control Demonstration Unit B600



- *Supplied with a choice of two noise sources – a motor or a fan, clearly showing real-life relevance to air-conditioning or mechanical engineers*
- *Allows audible experimentation on the effect of the noise frequency on the effectiveness of attenuation methods*
- *Clear sample tubes allow students to visually see attenuation material*
- *Safe for use without ear protection as noise source is enclosed*
- *Comprehensive Installation, Operation and Maintenance Manual Provided*
- *Two year Warranty*



Introduction

Noise and vibration in buildings is generally caused by installed machinery and plant.

In many cases, a relatively low power noise source such as an air circulating fan can be transmitted through the structure to the extent that it becomes a major nuisance.

The effective isolation and attenuation of the source is often only achieved by a costly process of trial and error due to a lack of understanding of the fundamentals of sound and vibration.

The Hilton Noise Control and Demonstration unit B600 has been specifically designed to provide a practical and graphic illustration of the effectiveness of the main methods of noise and vibration control.

The unit is applicable for the teaching of students in:

- Sound and Vibration Engineering
- Mechanical Engineering
- Aeronautical Engineering
- Civil Engineering
- Architecture
- Environmental Engineering
- Building Services
- Plant Engineering
- Refrigeration and Air Conditioning

Description

The B600 consists of a glass reinforced plastic instrument panel and baseboard with controllable 240v AC and 12v DC power sources.

Either a 240v motor and gearbox with detachable eccentric rotor or a 12v DC fan may be fixed to resilient mounts attached to the baseboard. The mounts may be bypassed in order to demonstrate transmission of the noise through rigid mountings.

Variation of the supply voltage and motor speed allows investigation of the various modes of vibration of the motor and eccentric rotor and the effects of noise source frequency. The insertion of a large mass on the motor mounting further extends this investigation.

A rigid glass reinforced plastic enclosure may be placed over either of the noise sources both with and without an absorbent acoustic lining.

Openings in both ends of the box allow demonstration of the effects of small holes in the enclosure and the transmission of mechanical and aerodynamically generated noise along ducts.

Removable solid linings to the acoustically lined noise attenuation tubes graphically illustrate the effectiveness of this method of attenuation.

Two microphones are provided, one fixed adjacent to the noise source and the other mounted on a wand that may be moved around over the unit.

Each of the two microphones may be connected to dB A filter and amplifier that illuminates a bar display on the instrument panel. The bar display indicates relative loudness by progressively illuminating a larger number of bars for a louder noise. This allows relative loudness levels to be compared visually as well as subjectively.



Experimental Capabilities

The unit enables the following demonstrations to be carried out.

- Attenuation of a mechanical or aerodynamic noise source using a rigid enclosure and combining this with an absorbent acoustic lining.
- The rapid degeneration in effectiveness of the above enclosure method due to minor imperfections in construction.
- The transmission of noise along ducts and methods of attenuation using acoustic linings.
- The transmission of noise along solid paths and the methods of reduction by isolation.
- The effect of the noise frequency on the effectiveness of attenuation methods.
- Rigid body modes of vibration of a resiliently mounted source and the effects of mass variation of the resonant frequencies and modes of vibration.

Specification

DETAILED

B600 Noise Control Demonstration Unit

A self-contained unit for the demonstration of the methods of noise and vibration control. An integral 240v electric motor and gearbox together with a 12v fan unit provide two noise sources. Variable control of both voltage sources allows speed control of both motors.

Each of two microphones may be connected to a dBA filter and illuminated bar display to show relative loudness.

A rigid enclosure with acoustic lining may be placed over either noise source and attachments allow investigation of sound attenuation in ducts.

Resilient mountings and mount bypass equipment allows investigation of modes of vibration at various frequencies and transmission of noise through solids.

Operating Manual

A comprehensive operating manual includes:

- Notes on theory and principles
- Instructor's guide notes
- Suggested experimental procedures

Dimensions

Height 410mm Depth 600mm
Width 950mm Weight 35 kg

Services Required

Electrical

Either: **A.** 300W 220/240 Volts, 50Hz.
(With earth/ground)
or: **B.** 300W 110/120 Volts, 60Hz.
(With earth/ground)

Ordering Information

Order as: Noise Control Demonstration Unit B600

Electrical Specification

Either: **A:** 300W 220-240 Volts, Single Phase 50Hz
(With earth/ground).

OR

B: 300W 110-120 Volts, Single Phase 60Hz
(With earth/ground).

Language

Either: English, Spanish or French

Shipping Specification (Approx.)

Nett Weight: 35 kg
Gross Weight: 97 kg
Packing Case Size: 1.14 x 0.77 x 0.59m³
Packing Case Volume: 0.517 m³

Also Available on Request

- Further detailed specification
- Additional copies of instruction manual
- Recommended list of spares for 5 years operation

P.A.HILTON Ltd.

Horsebridge Mill, King's Somborne,
Stockbridge, Hampshire, SO20 6PX, England.

Telephone: National (01794) 388382
International +44 1794 388382

Fax: National (01794) 388129
International +44 1794 388129

E-mail: sales@p-a-hilton.co.uk
Website: www.p-a-hilton.co.uk

