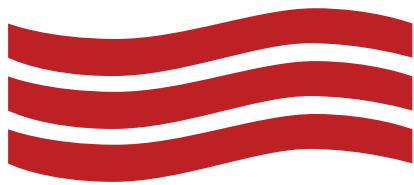


# AIRFOIL



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**REMOVABLE CORE  
HALF CHEVRON GRILLE  
RC-3AR45**



## REMOVABLE CORE HALF CHEVRON GRILLE **RC-3AR45**

### PRODUCT DESCRIPTION AND APPLICATION

Airfoil's Removable Core Half Chevron Grille (RC-3AR45), proudly Australian Made and designed, is meticulously crafted from the finest aluminium extruded profiles. Customisable to any size, this grille features larger 45mm blades pitched at 45 degrees, offering optimal airflow management. The Half Chevron's commercial-grade blades, spaced at 25mm intervals, provide a total free area of approximately 70%, making it ideal for wall-mounted return or air transfer applications.

The Removable Core Half Chevron blades are securely housed within its welded channelled removable core center. Held in place by a series of aluminium tubed 25mm spacers fixed at each end of the inner removable core using an industrial strength rivet system, ensuring durability and longevity.

The RC-3AR45 boasts a sleek and aesthetically pleasing 25mm frame. The inner removable core is effortlessly clicked into the 50mm outer frame, allowing for easy installation and access. Equipped with an optional Opposed Blade Damper (OBD), the grille enables precise air balancing and commissioning.

Available in our standard white range, the RC-3AR45 is also offered in our Natural Anodised silver finish or can be custom powder-coated to any desired colour upon request. Rigorously tested to meet Australian standards, Airfoil's Removable Core Half Chevron Grille (RC-3AR45) is ideal for various commercial return or exhaust air transfer applications.

## REMOVABLE CORE HALF CHEVRON GRILLE RC-3AR45

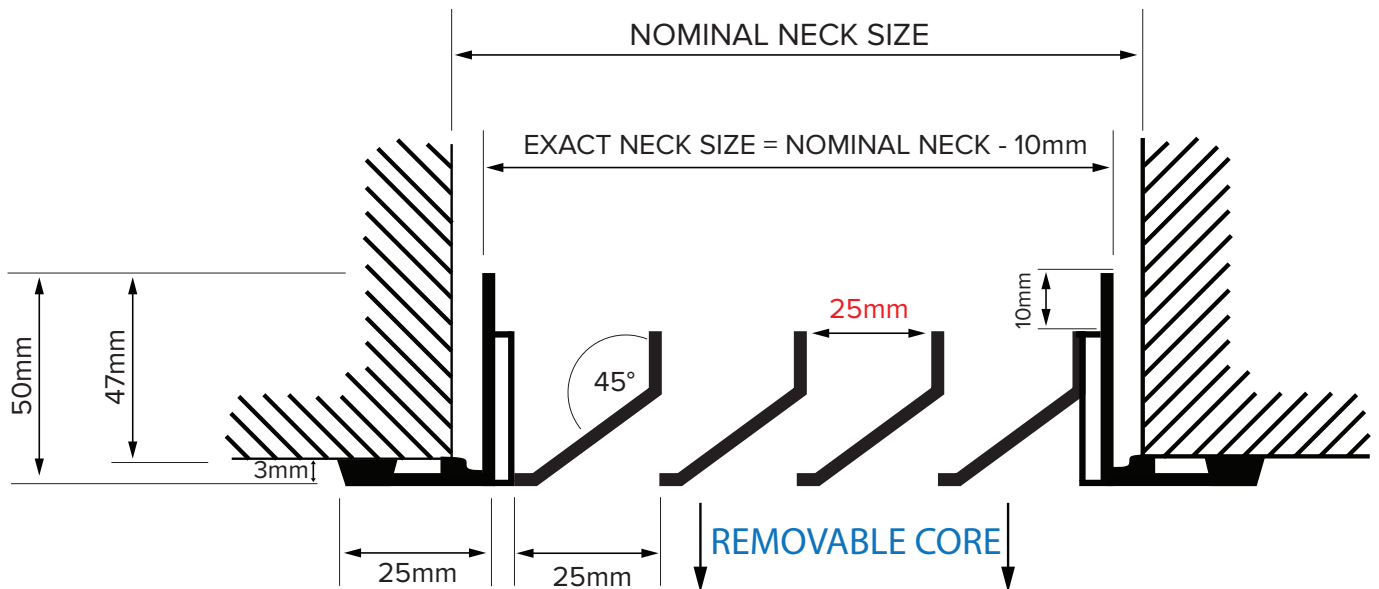
### PRODUCT SPECIFICATIONS AND INFORMATION

- **Product ordering code – RC-3AR45**
- Australian Made and Designed
- Aluminium Construction
- Manufactured to any size
- Removable core for easy installation and access
- Order by **blade width first** and then by **height**
- Larger 45mm and 45 degree pitch blades
- 25mm aluminium tubed blade spacing
- 70% Free Area
- 25mm outer frame size
- 50mm deep frame
- Blades held in a fixed position via commercial rivet system
- Optional Opposed Blade Damper (OBD) for air balancing
- Wall mounted return air
- Available in standard white powder-coated range
- Available in our Natural Anodised Silver
- Can be powder-coated to any colour on request
- Product suitable for commercial use return or exhaust air transfer applications
- Airfoil tested information available
- **The following metric performance data has been derived from exhaustive testing in elaborate laboratories of acoustic and vibrational engineers Louis A. Challis and Associates Proprietary Limited. Darling Street, Sydney 2000**



## REMOVABLE CORE HALF CHEVRON GRILLE RC-3AR45

### CROSS SECTIONAL DIAGRAM



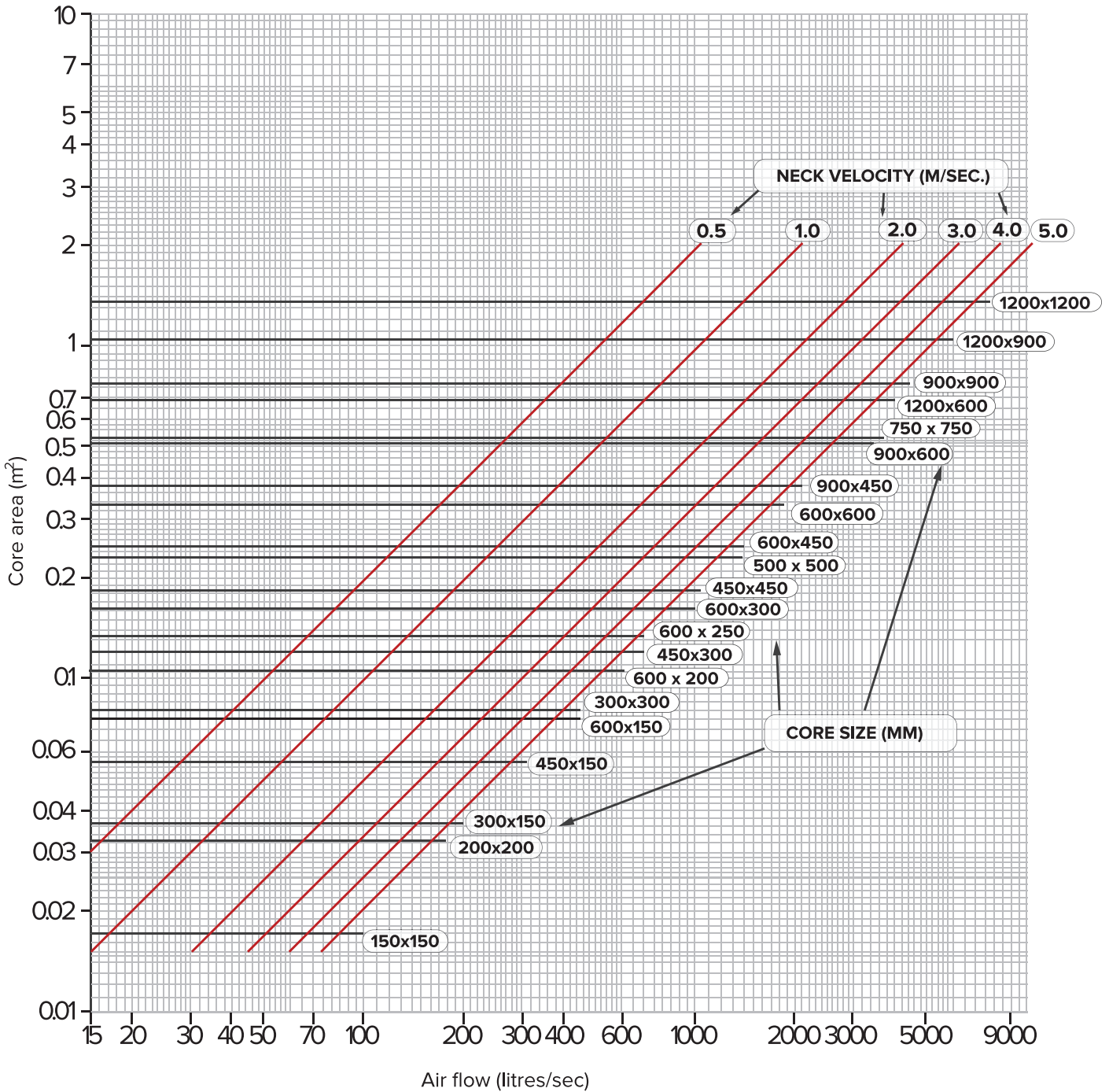
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## REMOVABLE CORE HALF CHEVRON GRILLE RC-3AR45

### PERFORMANCE DATA

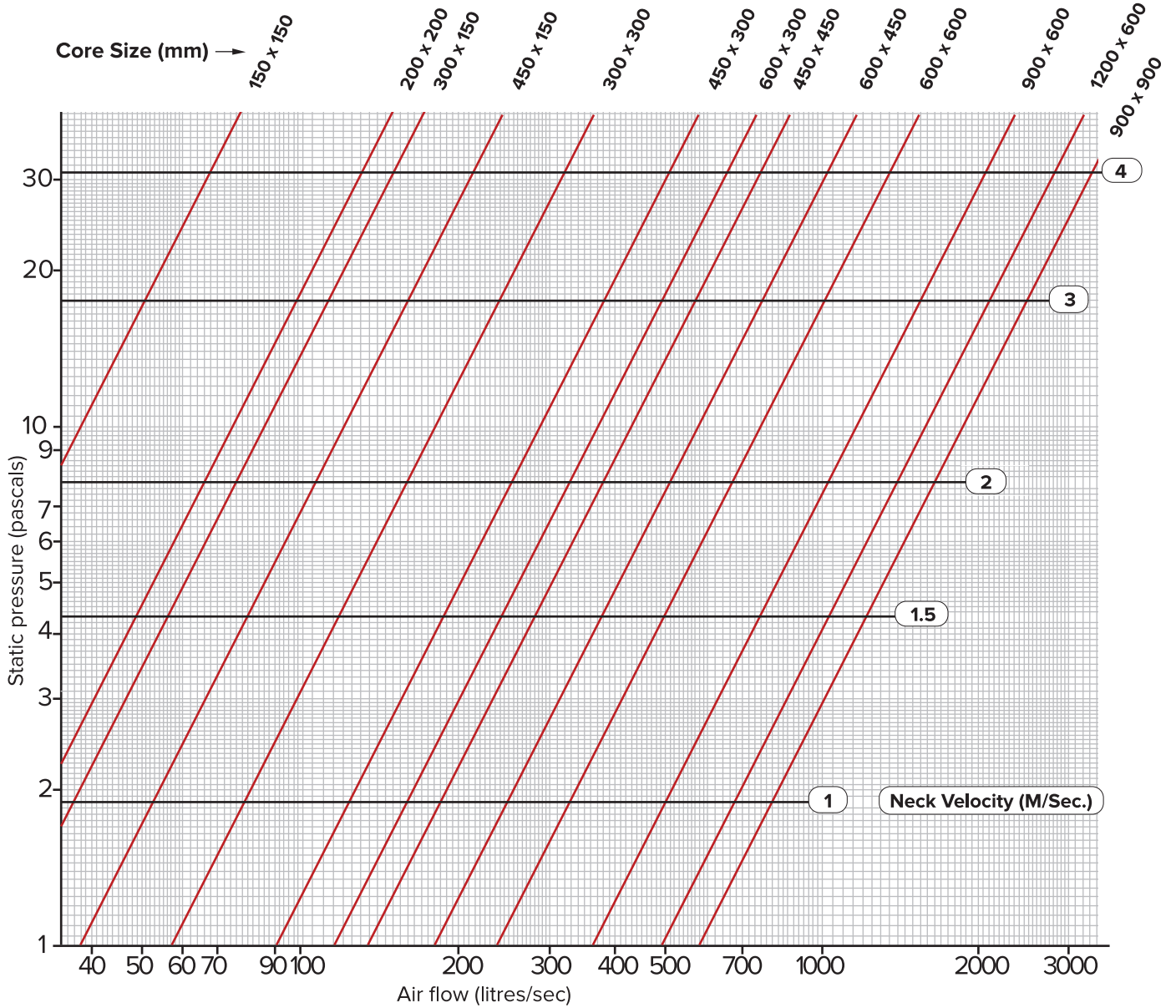
AIRFLOW VS CORE AREA FOR VARIOUS NECK SIZES



## REMOVABLE CORE HALF CHEVRON GRILLE RC-3AR45

### PERFORMANCE DATA

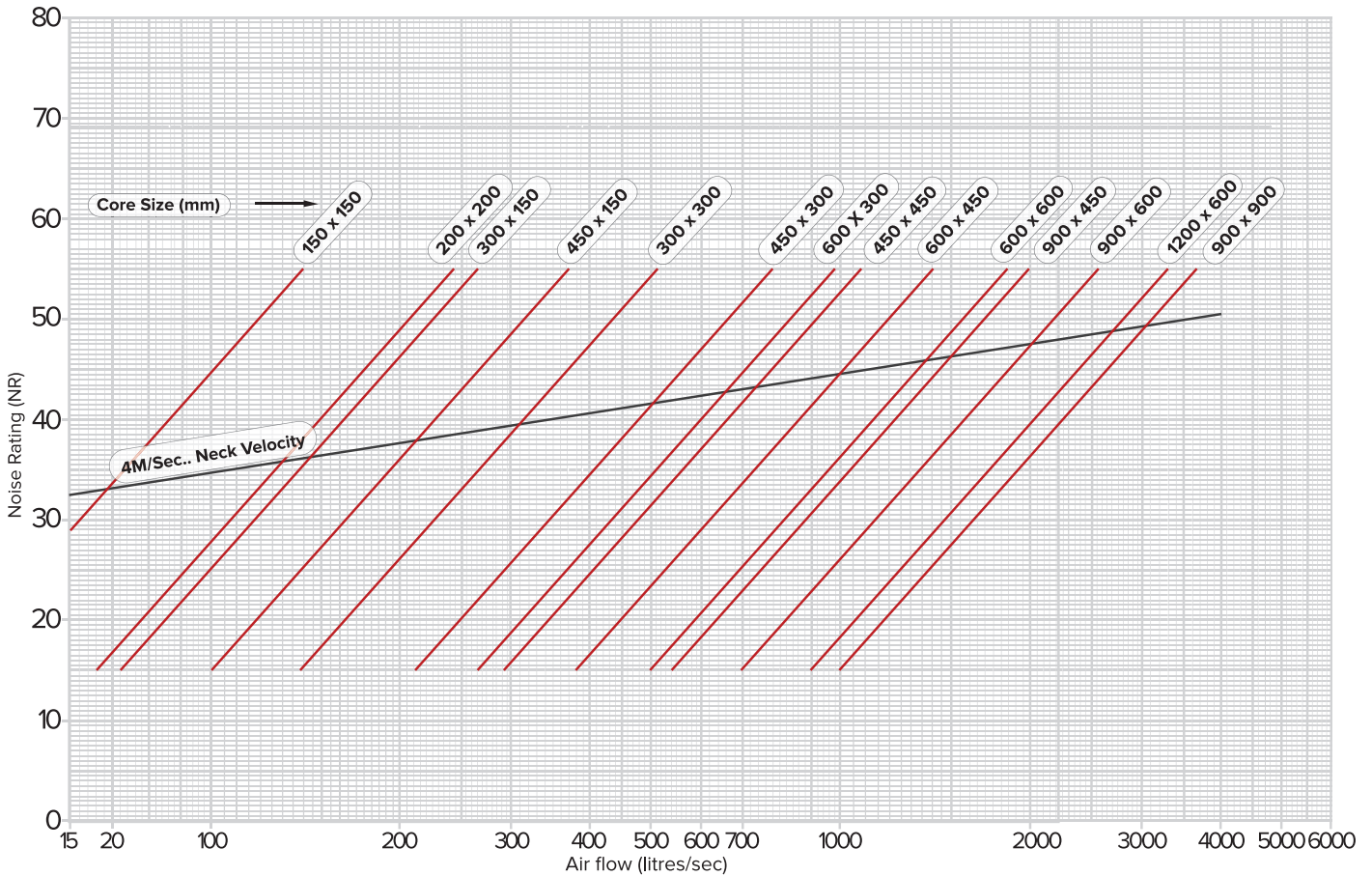
#### STATIC PRESSURE VS AIRFLOW FOR VARIOUS CORE SIZES



## REMOVABLE CORE HALF CHEVRON GRILLE RC-3AR45

### PERFORMANCE DATA

#### NOISE LEVEL VS AIRFLOW FOR VARIOUS CORE SIZES



Selection and performance data have been derived from testing in the laboratories of acoustic and vibration engineers Louis A. Challis & Associates Pty. Ltd. , 246-248 Dowling, Street, Kings Cross, Sydney 2000.

## Measurement Procedures for Return Air Grilles – (RC-3AR45)

### 1. Sound pressure level measurements

Sound pressure levels in the chamber were measured using the following equipment:

- Microphone – Bruel & Kjaer 4144
- Preamplifier - Bruel & Kjaer 2619
- Power supply - Bruel & Kjaer 2807
- Rotating boom – (1m radius, 1 min. cycle)
- Precision Laboratory sound level meter HP8052A
- Precision Octave Filter Set– H P8055A
- Integrating voltmeter– Nebula type 1
- Sound Power calibrator– Challis/Torin type 1

The microphone was mounted on a rotating boom which was used to provide space average in the chamber while the integrating voltmeter provided a time average of the sound pressure level. Averaging times ranging between 10 seconds and 100 seconds were used. This system was referenced level checked before and after each series of measurements using a reference source, Bruel & Kjaer type 4230, and system drift did not exceed 0.1 dB.

Equipment was calibrated in the Challis laboratory which currently holds N.A.T.A. certificates for compliance with AS1259 and ASZ41.

The volume of the reverberation is such as to allow measurements to be made with a high accuracy down to the 63Hz octave band. The accuracy claimed for the measurements of sound pressure level is +/-2 dB at 60Hz, +/- 1.5dB at 125Hz and 8kHz; and +/-1.0dB in octave bands from 250Hz to 4kHz.

The background noise levels due to external noise and system noise were measured at each test air flow and where necessary, corrections for background noise have been applied to the measured sound pressure levels.

In some cases, at the lowest air flows, the measured levels of regenerated noise at 63Hz and in the higher frequency bands were indistinguishable from the system noise level, and in these cases the sound power levels have been quoted as being 10dB below the measured value.

The background and their system noise level in the chamber was typically as follows:-

#### Sound Pressure Levels in dB (re 2x10<sup>-5</sup> Pascals)

Octave Band Centre Frequency (Hz)	63	125	250	500	1K	2K	4K	8K
Typical Air System Noise	45	36	27	20	16	14	8	9

The system allowed accurate measurements for the determination of NR figures down to NR 15.

### 2. Air flow measurements

Each unit was tested at three air flows, using either of two fan configurations:-

#### (a). Air flow is less than 1400 litres per second

These flows were provided by means of axial a series of axle fans or a large centrifugal fan. The desired airflows were measured by means of an ASTM triple nozzle system, installed in an acoustic plenum box incorporating an air straightening grid. The nozzle box was installed in the 600 mm x 600mm ductwork leading to the reverberation chamber, and provided air flows of an overall accuracy of better than +/- 5%.

#### (b). Air flows greater than 1400 litres per second

These flows were provided by means of the centrifugal fan, with air flows measured by means of a series of orifice plates installed in the 600 mm diameter inlet duct leading to the fan. This system is capable of measuring air flows over the range of 500 litres per second to 10,000 litres per second with an overall accuracy of +/- 5%.

### 3. Static pressure drop measurements

The static pressure drop across the test item was measured from a tapping point in the discharge duct of approximately 500 mm upstream of the unit, using an Inclined Manometer. This reads in steps of five Pascals (0.02”WG) and provides an overall accuracy of +/- 2.5 Pascals.