

AIRFOIL



GRILLES
DUCT
FITTINGS

making it happen sooner...



Quality
Endorsed
Company
ISO 9001
 SAI GLOBAL



**WEATHER PROOF LOUVRE
YLBS-50**



WEATHER PROOF LOUVRE YLBS-50

PRODUCT DESCRIPTION AND APPLICATION

Airfoil's Australian Made Weather Proof Louvre (YLBS-50) is crafted from premium aluminium extrusion, ensuring exceptional durability and weather resistance. Rigorously tested to provide optimal protection in outdoor environments, it effectively minimizes the entry of rainwater under normal climatic conditions.

Featuring a medium-sized 50mm blade spacing, the YLBS-50 is versatile for both intake and return air applications, offering an approximate free area of 55%. With a standard outer frame size of 32mm and an overall depth of 45mm, it provides reliable protection against the elements. The Weather Proof Louvre comes equipped with vermin mesh fitted to the rear of the grille, enhancing pest control management.

Manufactured to any required size, the Weather Proof Louvre is available in our standard Natural Anodised silver finish or can be custom powder-coated in any color upon request. This product is ideal for various outdoor commercial applications where weather protection is essential.

WEATHER PROOF LOUVRE YLBS-50

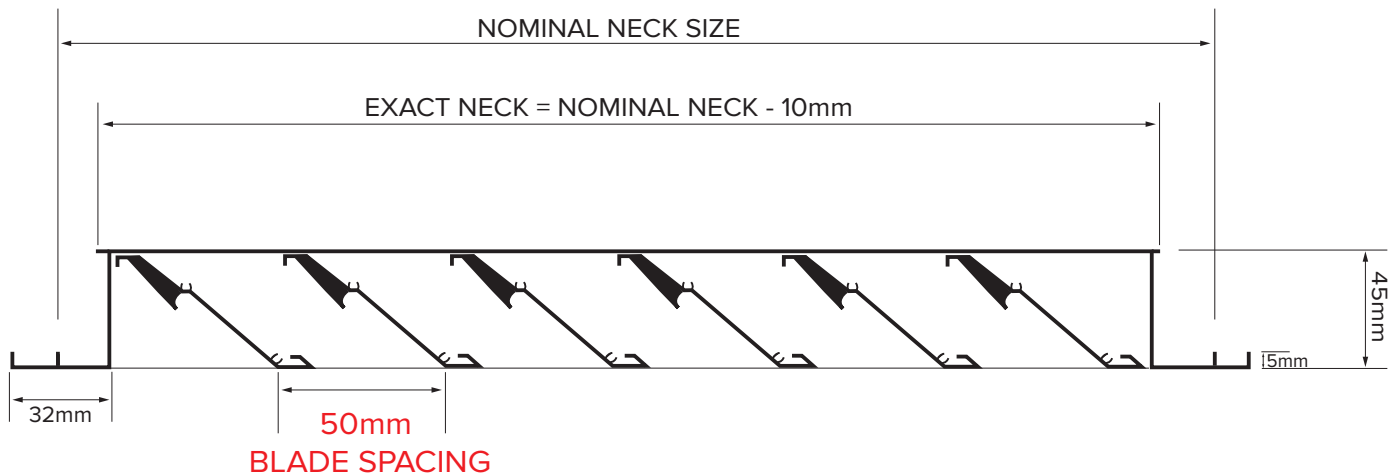
PRODUCT SPECIFICATIONS AND INFORMATION


- **Product ordering code – YLBS-50**
- Australian Made
- Aluminium Construction
- Manufactured to any size
- Order by blade length **first** then by height
- Suitable for both intake and return air applications
- Small 50mm blade spacing
- 32mm outer frame size
- 45mm overall deep frame
- 55% free area
- Designed to minimise the ingress of rainwater in all normal climactic conditions
- Standard vermin mesh fitted to the rear of the grille for pest control management purposes
- Comes standard in our Natural Anodised silver finish
- Special powder-coating colours available upon request
- Suitable for any outdoor commercial purpose where weather protection is paramount
- 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**



WEATHER PROOF LOUVRE YLBS-50

CROSS SECTIONAL DIAGRAM





DISCLAIMER:
All product designs, data sheets and specifications presented herein are the intellectual property of Airfoil Manufacturing Pty Ltd. These designs and specifications, including but not limited to diagrams, drawings, and performance data, are protected under Australian intellectual property laws. No part of these designs and specifications may be copied, reproduced, distributed, or transmitted in any form or by any means without the prior written permission of Airfoil Manufacturing Pty Ltd. Unauthorised use or reproduction of these materials may result in legal action under Australian copyright and intellectual property laws.

WEATHER PROOF LOUVRE YLBS-50

PERFORMANCE DATA

STATIC PRESSURE AT VARIOUS AIR QUANTITIES AND NECK AREAS

| Typical Sizes | 300 x 300 600 x 150 | 450 x 300 675 x 200 | 600 x 300 450 x 400 | 450 x 450 675 x 300 | 600 x 450 900 x 300 | 600 x 600 900 x 400 |
|-----------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Neck Area M ² (l/s) | 0.090 | 0.0135 | 0.180 | 0.203 | 0.270 | 0.360 |
| 100 | 10 | | | | | |
| 150 | 25 | 10 | | | | |
| 200 | 45 | 20 | 8 | | | |
| 300 | 110 | 48 | 20 | 15 | 7 | |
| 400 | 200 | 80 | 38 | 27 | 15 | 7 |
| 500 | | 130 | 60 | 45 | 25 | 16 |
| 600 | | 200 | 85 | 65 | 40 | 28 |
| 1000 | | | 250 | 175 | 95 | 55 |
| 1500 | | | | 325 | 250 | 120 |
| 2000 | | | | | | 240 |

STATIC PRESSURE = PA

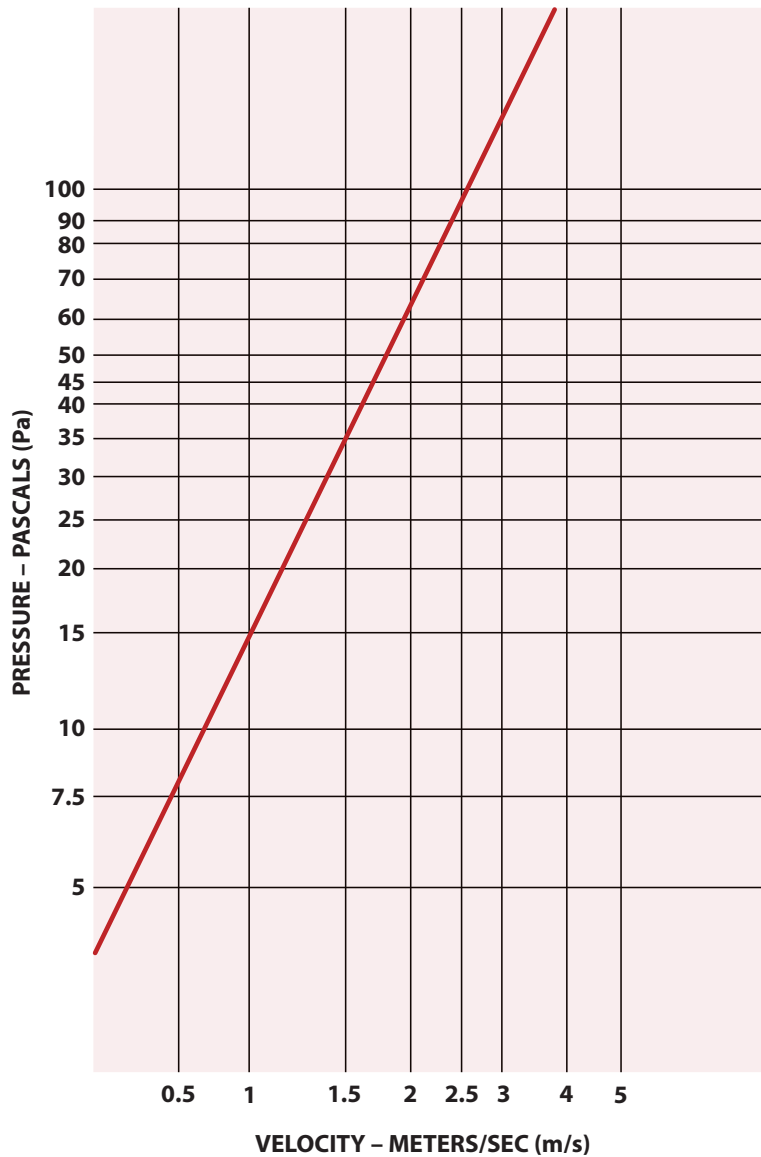
| Typical Sizes | 900 x 450 675 x 600 | 900 x 600 1200 x 450 | 1200 x 600 900 x 800 | 900 x 900 1350 x 600 | 1200 x 900 1080 x 1000 | 1200 x 1200 1600 x 900 |
|-----------------------------------|------------------------|-------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
| Neck Area M ² (l/s) | 0.405 | 0.540 | 0.720 | 0.810 | 1.08 | 1.44 |
| 500 | 8 | | | | | |
| 600 | 15 | 6 | | | | |
| 1000 | 27 | 23 | 13 | 10 | | |
| 1500 | 60 | 55 | 30 | 22 | 8 | 5 |
| 2000 | 110 | 95 | 55 | 40 | 25 | 17 |
| 2500 | 210 | 150 | 90 | 65 | 45 | 20 |
| 3000 | | 220 | 120 | 90 | 65 | 30 |
| 4000 | | | 220 | 125 | 95 | 55 |
| 5000 | | | | 260 | 130 | 90 |
| 6000 | | | | | 265 | 125 |
| 7000 | | | | | | 175 |
| 8000 | | | | | | 225 |
| 9000 | | | | | | 300 |

WEATHER PROOF LOUVRE YLBS-50

PERFORMANCE DATA

GIVEN OPENING SIZE AND AIR VOLUME ISOLATE THE APPROPRIATE NECK VELOCITY BY APPLYING THE FOLLOWING EQUATION:

$$\text{NECK VELOCITY} = \frac{\text{AIR VOLUME}}{\text{AREA (m}^2\text{)} \times 1000}$$



Given the Neck Velocity, static pressure may then be read off the chart

e.g. Area 2m² and Air Quantity 3000 l/s

$$\text{N.V.} = \frac{3000 \text{ l/s}}{2\text{m}^2 \times 1000}$$

$$\text{N.V.} = \frac{3000}{2000}$$

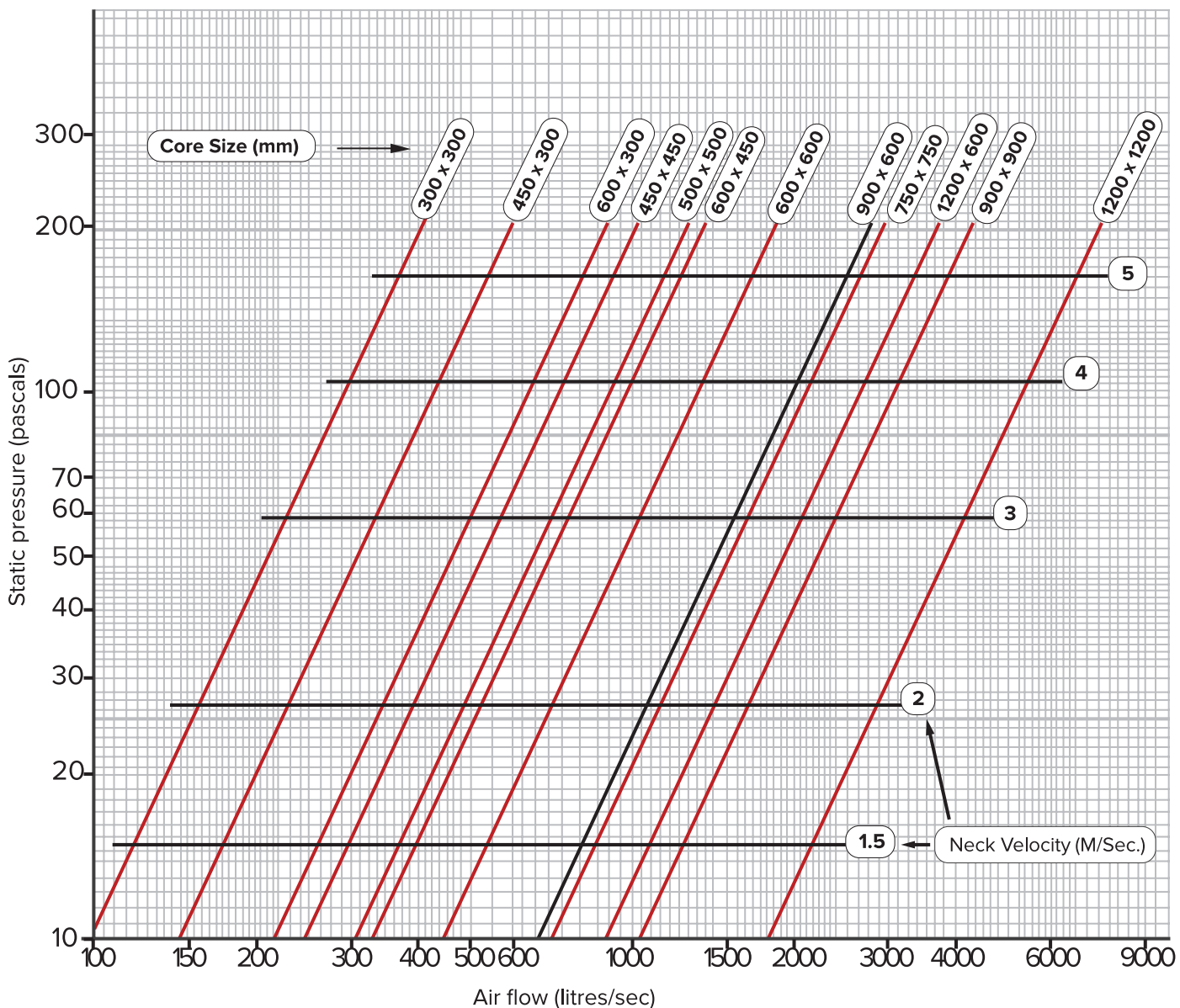
$$\text{N.V.} = 1.5\text{m/s}$$

... Using Chart, Static Pressure = 35pa.

WEATHER PROOF LOUVRE YLBS-50

PERFORMANCE DATA

STATIC PRESSURE VS AIRFLOW FOR VARIOUS CORE SIZES



Measurement Procedures for Return Air Grilles – (YLBS-50)

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 2x10⁻⁵ 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.