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WEATHER PROOF LOUVRE
WLBS-100

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PRODUCT DESCRIPTION AND APPLICATION

Airfoil's Australian-Made Weatherproof Louvre (WLBS-100) is crafted from top-grade aluminium extrusion, ensuring robustness and durability. Rigorously tested for maximum weather protection in outdoor settings, this product is designed to minimize the entry of rainwater in typical climatic conditions.

Featuring a spacious 100mm blade spacing, the WLBS-100 is ideal for both intake and return air applications, offering an approximate free area of 55%. With a standard outer frame size of 40mm and an overall depth of 70mm, it provides ample protection against the elements. The Weatherproof Louvre comes equipped with vermin mesh fitted to the rear of the grille, serving pest control management purposes effectively.

Manufactured to any required size, the Weatherproof Louvre is available in our standard Natural Anodised Silver finish or can be custom powder-coated in any color upon request. This versatile product is suitable for various outdoor commercial applications where weather protection is crucial.

WEATHER PROOF LOUVRE
WLBS-100

PRODUCT SPECIFICATIONS AND INFORMATION

- **Product ordering code – WLBS-100**
- Australian Made
- Aluminium Construction
- Manufactured to any size
- Order by blade length **first** then by height
- Suitable for both intake and return air applications
- Large 100mm blade spacing
- 40mm outer frame size
- 70mm 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
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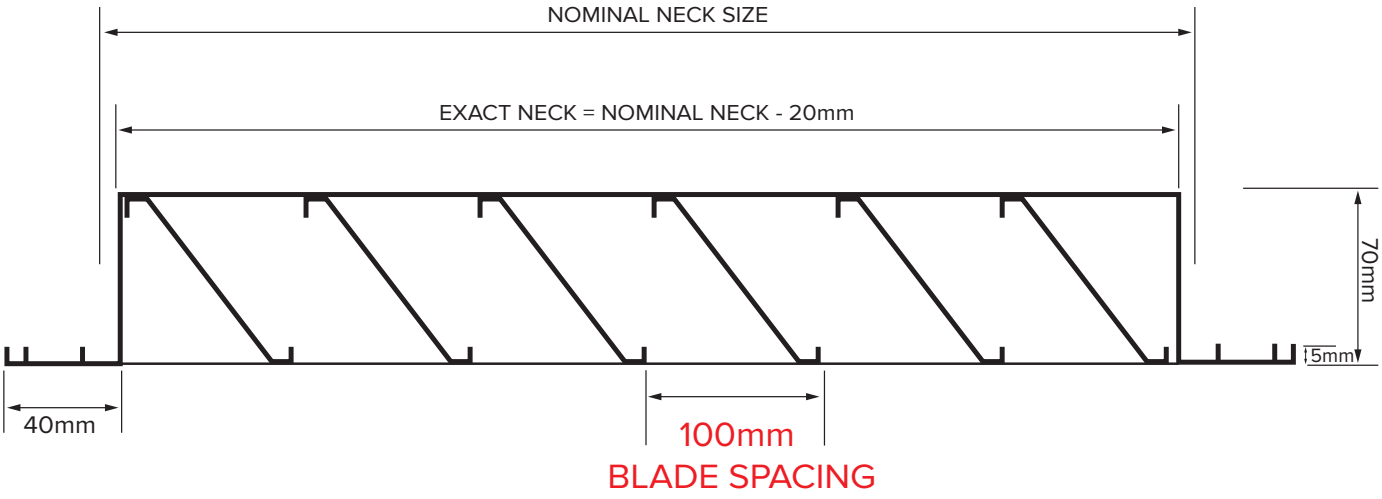
CROSS SECTIONAL DIAGRAM



WEATHER PROOF LOUVRE
WLBS-100

PERFORMANCE DATA

STATIC PRESSURE AT VARIOUS AIR QUANTITIES AND NECK AREAS

STATIC PRESSURE = PA

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	7					
150	22	8				
200	40	16	7			
300	100	42	16	10		
400	180	70	35	20	12	
500	250	120	55	38	20	14
600		180	75	57	35	23
1000		250	230	160	82	47
1500				270	230	105
2000						220

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	5					
600	12	7				
1000	23	18	9	6		
1500	50	48	25	18	5	
2000	95	87	47	34	20	12
2500	190	140	82	58	40	16
3000	260	205	110	82	57	25
4000			205	112	88	47
5000				245	120	83
6000					245	115
7000						162
8000						215
9000						

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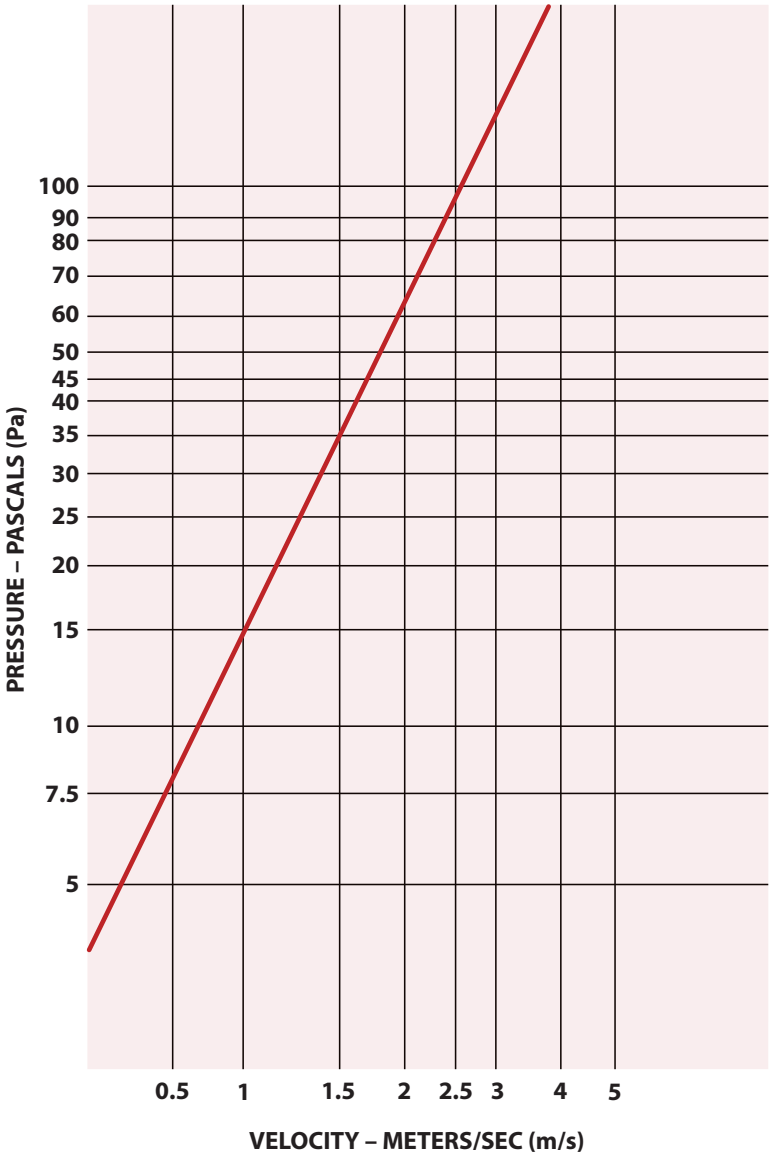
PERFORMANCE DATA

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

$$\text{NECK VELOCITY} = \frac{\text{AIR VOLUME}}{\text{AREA (m2)} \times 1000}$$



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

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

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

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

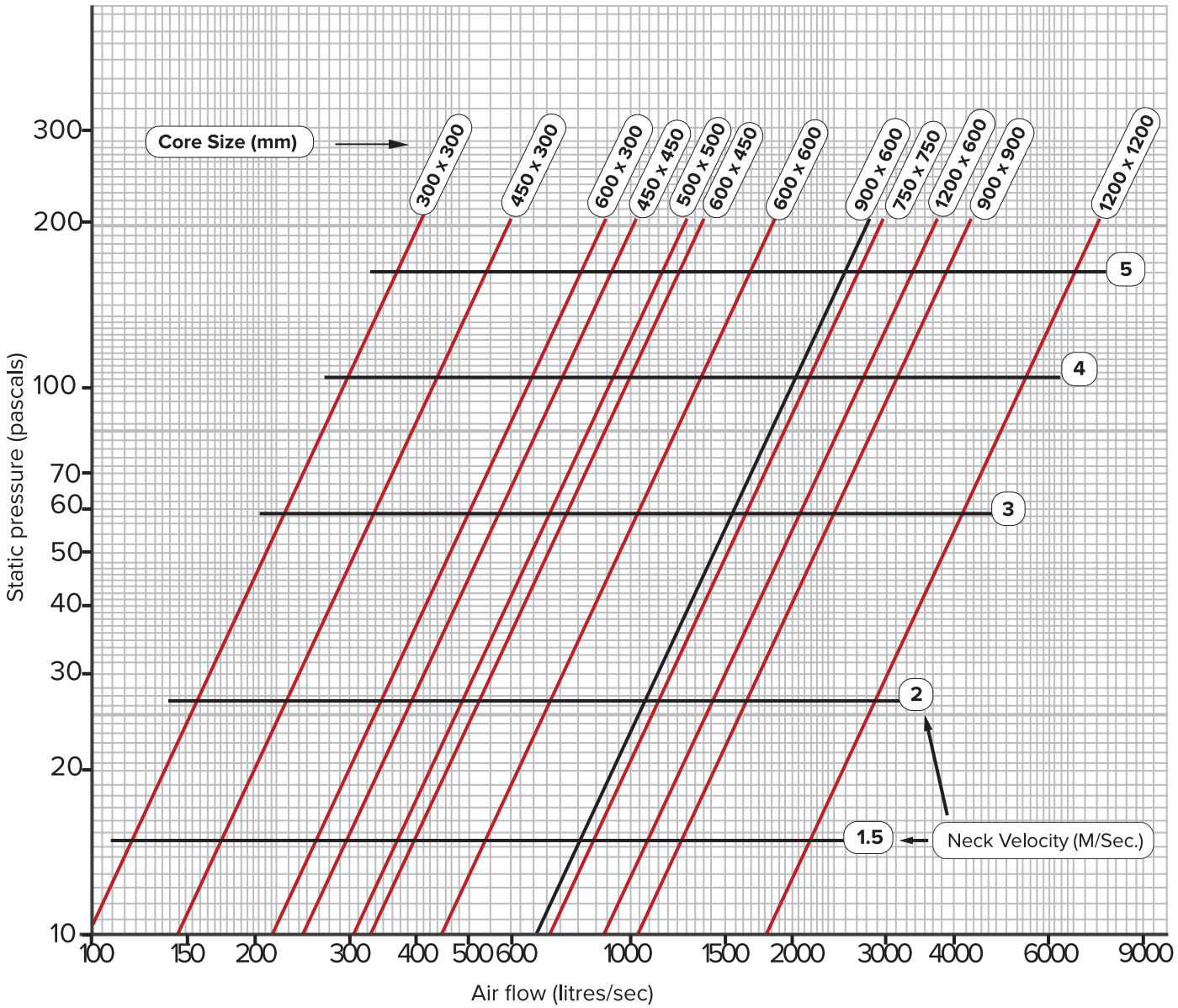
N.V. = 1.5m/s

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

WEATHER PROOF LOUVRE
WLBS-100

PERFORMANCE DATA

STATIC PRESSURE VS AIRFLOW FOR VARIOUS CORE SIZES



Measurement Procedures for Return Air Grilles – (WLBS-100)

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.