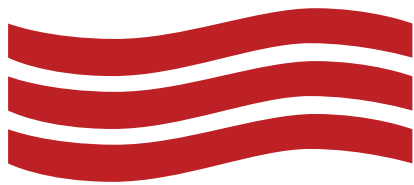


AIRFOIL



GRILLES
DUCT
FITTINGS

making it happen sooner...



Quality
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Company
ISO 9001
 SAI GLOBAL



**HINGED
HALF CHEVRON GRILLE
H-3AR**



HINGED HALF CHEVRON GRILLE **H-3AR**

PRODUCT DESCRIPTION AND APPLICATION

Airfoil's Hinged Half Chevron Grille (H-3AR), proudly Australian Made and designed for excellence, is meticulously engineered from premium aluminium extrusion profiles. Customisable to any size, this grille boasts its unique set of fixed slimline 45-degree blades, spaced at 19mm intervals, providing a total free area of approximately 70%. Ideal for wall or ceiling return air applications, the H-3AR delivers optimal performance and aesthetics.

The slimline half-chevron blades are securely housed within its welded channelled hinged core center. Supported by mullions, spring-loaded steel wires, and knock-on star washers, the fixed blades ensure durability and reliability. Featuring a sleek and aesthetically pleasing 25mm frame, the H-3AR grille offers easy installation and access.

The inner hinged core, typically hung on its long side, is secured by an industrial spring and rivet system, designed for seamless integration into the outer frame. Additionally, the Hinged Half Chevron can be equipped with our optional 12mm deep removable filter (H3AR-F), providing convenience for cleaning or replacement as needed.

Available in our standard white range, the H-3AR is also offered in our Natural Anodised silver finish or can be powder-coated to any special colour upon request. Airfoil's Hinged Core Half Chevron has undergone rigorous testing to meet Australian conditions and is well-suited to meet the requirements of any commercial return or exhaust air transfer application.

HINGED HALF CHEVRON GRILLE H-3AR

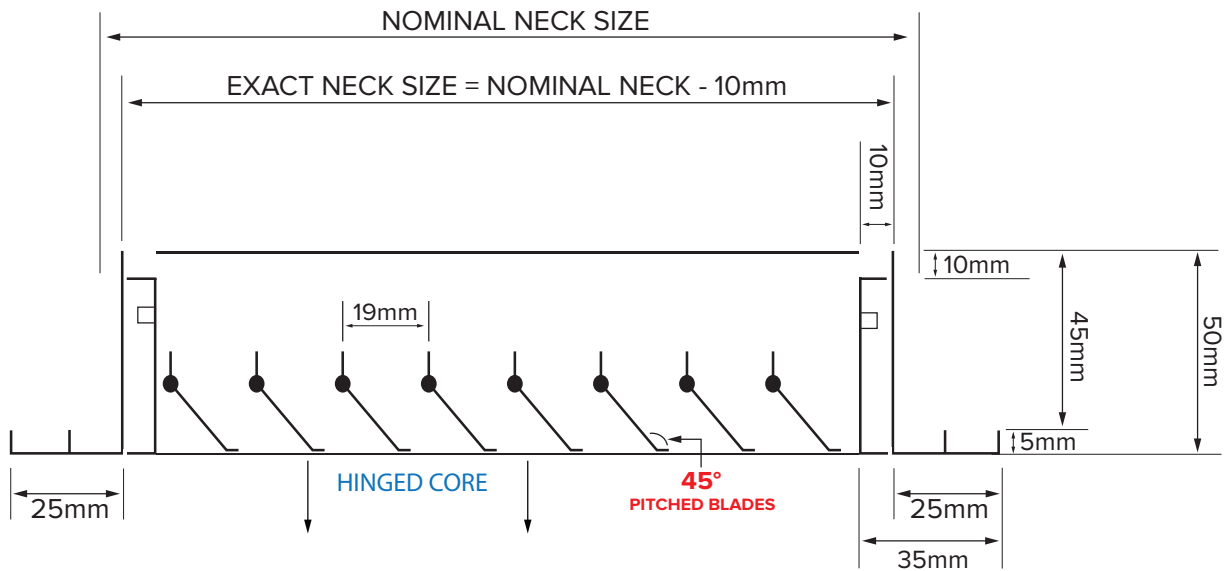
PRODUCT SPECIFICATIONS AND INFORMATION

- **Product ordering code – H-3AR**
- Australian Made and Designed
- Aluminium Construction
- Manufactured to any size (Hinged on long side)
- Welded channelled Hinged Core
- Order by **blade length first** and then by **height**
- Slim line 45 degree half chevron blade
- 19mm blade spaced centres
- 70% Free Area
- 25mm outer frame size
- 50mm deep frame
- Designed to swing open and closed on its long side blade length.
- Optional 12mm commercial filter available (ordering code H3AR-F)
- Wall or ceiling mounted return air
- Available in standard white powder-coated range
- Available in our Natural Anodised Silver finish
- Can be powder-coated to any colour on request
- Product suitable for any domestic or commercial 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**



HINGED HALF CHEVRON GRILLE H-3AR

CROSS SECTIONAL DIAGRAM



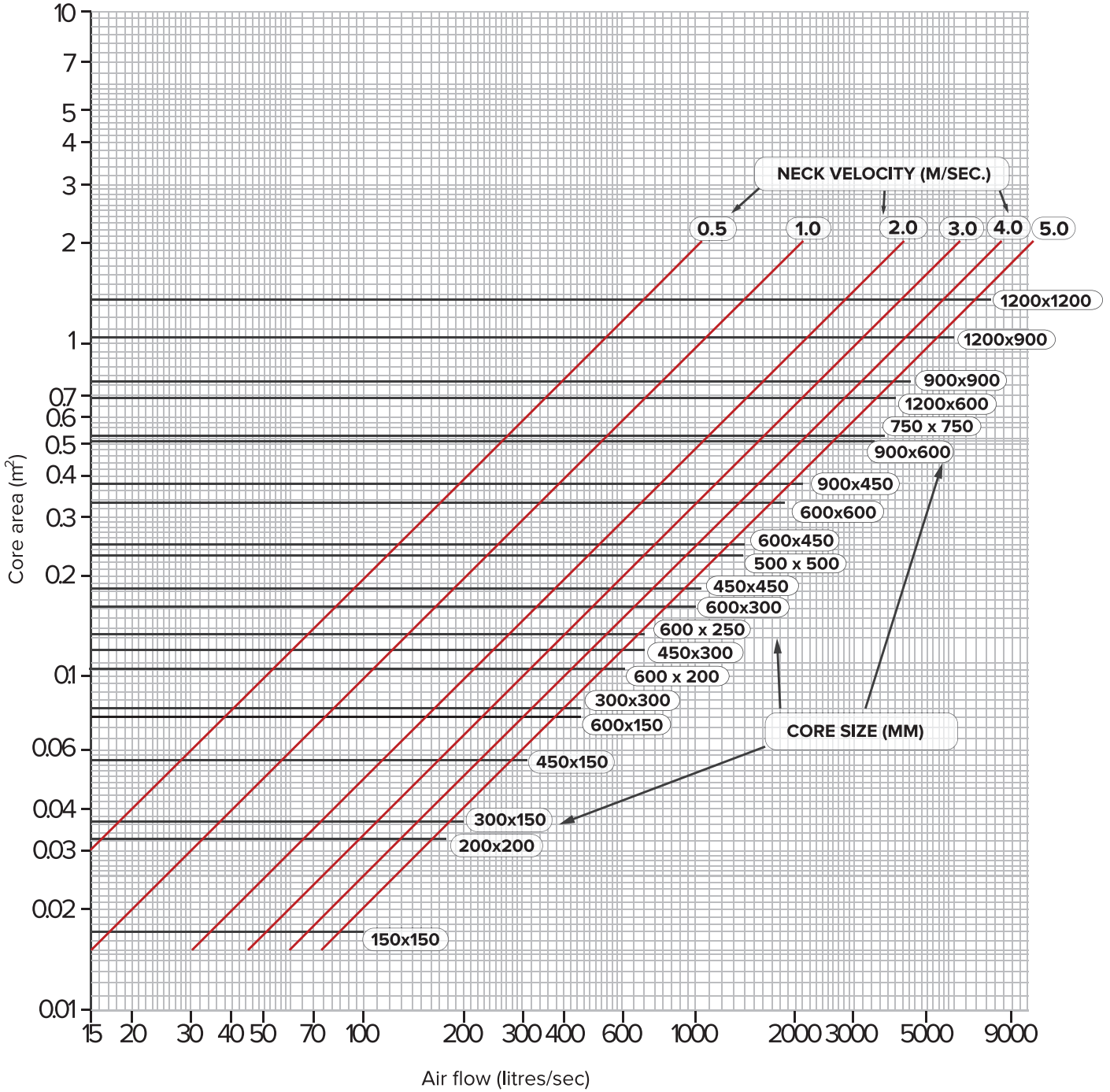
DISCLAIMER:

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HINGED HALF CHEVRON GRILLE H-3AR

PERFORMANCE DATA

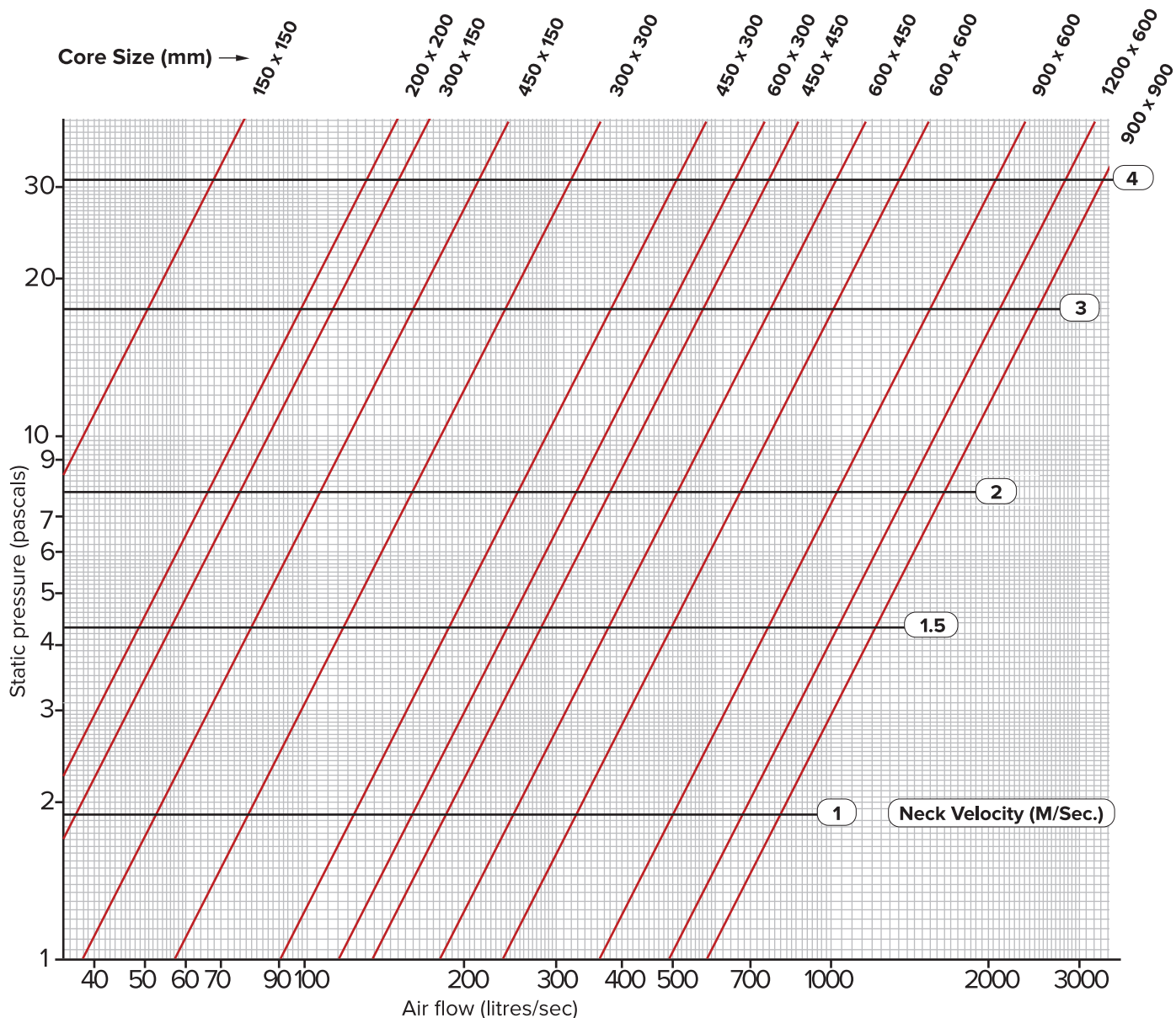
AIRFLOW VS CORE AREA FOR VARIOUS NECK SIZES



HINGED HALF CHEVRON GRILLE H-3AR

PERFORMANCE DATA

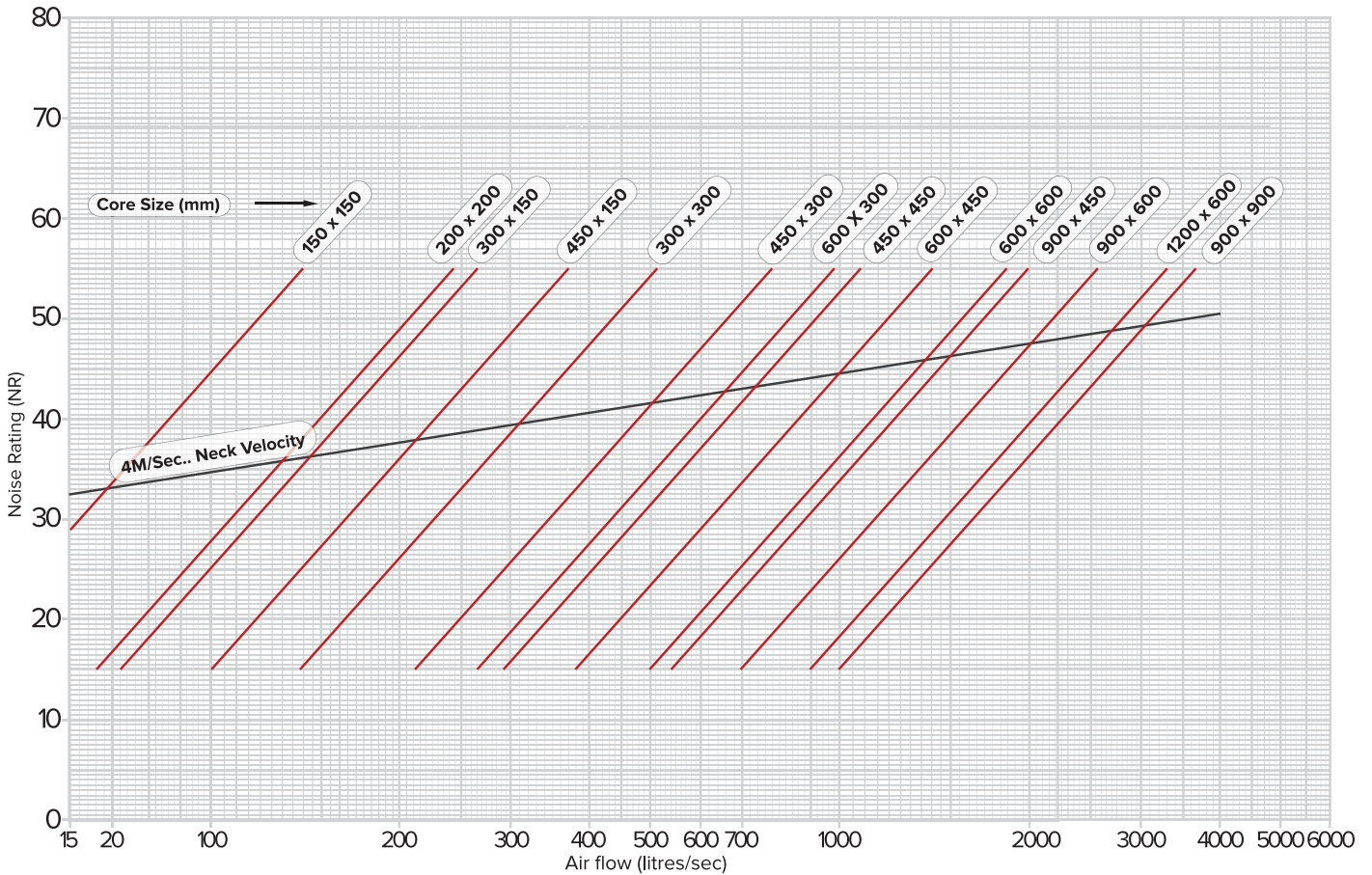
STATIC PRESSURE VS AIRFLOW FOR VARIOUS CORE SIZES



HINGED HALF CHEVRON GRILLE H-3AR

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 – (H-3AR)

1. Sound pressure level measurements

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

Microphone – Bruel & Kjaer 4144
 Pre-amplifier - 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.