

ADVANTAGE AIR[®]

TECHNICAL DATA CATALOGUE

SA.CAT.Rev.31.03.2014

ADVANTAGE AIR®

2014 EDITION

|| COMMERCIAL CATALOGUE

|| Technical & Product Data

Overview

The purpose of this catalogue is to aid you in making an informed decision in the selection of air conditioning components for your project. Advantage Air has a policy of continuous improvement therefore reserves the right to make changes, without notice, to any product or process in this catalogue to improve performance, design, reliability or function

SA.CAT.Rev.31.03.2014

ADVANTAGE AIR®

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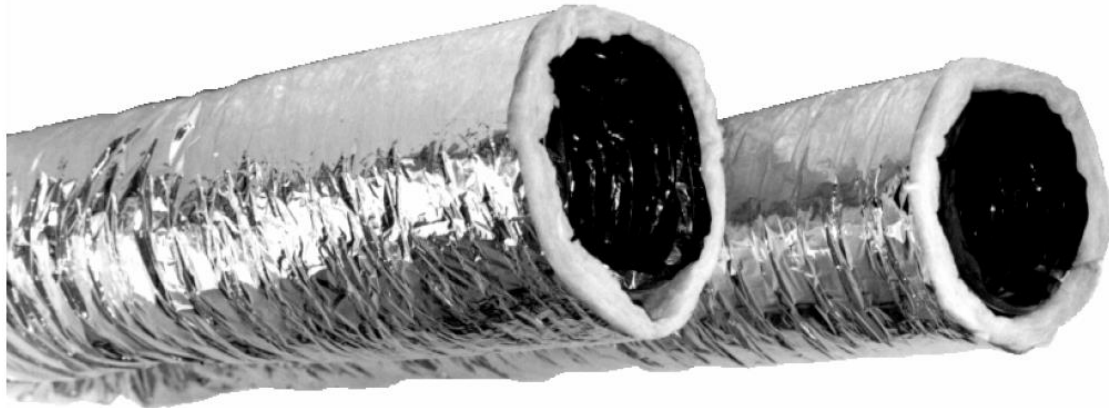
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FLEXIBLE DUCTWORK SIZING GUIDE

MAXIMUM RECOMMENDED AIR QUANTITY (LITRES PER SECOND)	FLEXIBLE DUCT DIAMETER (mm)
22 l/s	Ø 100
30 l/s	Ø 125
44 l/s	Ø 150
65 l/s	Ø 175
92 l/s	Ø 200
170 l/s	Ø 250
275 l/s	Ø 300
385 l/s	Ø 350
503 l/s	Ø 400
636 l/s	Ø 450
785 l/s	Ø 500
950 l/s	Ø 550

ADVANTAGE AIR®

FLEXIBLE DUCTWORK DUROFLEX



CONSTRUCTION

- Supplied in 10 metre lengths.

Core

- Core is constructed from 12 micron clear polyester film bonded to 12 micron clear polyester film with water based fire retardant glue approximately 18 grams per m² encapsulating helically wound spring steel wire.
- The adhesives give the core a black appearance.

Insulation

- Thick polyester blanket as specified by the customer to comply with the BCA.
- Other insulation options available on request.

Jacket

- Inner surface 12 micron clear polyester film bonded to 12 micron labelled metallised polyester film with water based fire retardant glue approximately 18 grams per m².

APPLICATIONS

- DUROFLEX is a less expensive alternative to aluminium duct.
- Is suitable for residential and commercial refrigerated air conditioning, evaporative cooling, heating and ventilation applications.
- Not recommended for return air flexible ductwork on commercial projects, or on systems with AC units larger than 6Hp (18kW).

TECHNICAL

DUROFLEX has been AWTA & SABS tested and complies with the requirements of the

Building Code of Australia & South African standards

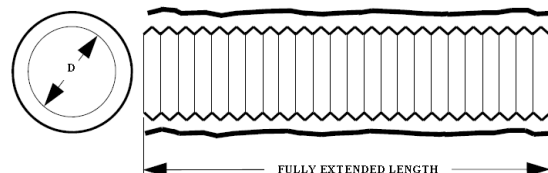
AS 4254 & AS 1530 Part 3

DUROFLEX has passed all of the above tests and has obtained a "0003 rating". Copies of test certificates can be viewed on pages 10 to 17

Operating range

- Between -10°C and +80 °C
- Between -200Pa and +1000Pa internal pressure
- Maximum velocity 20 m/s

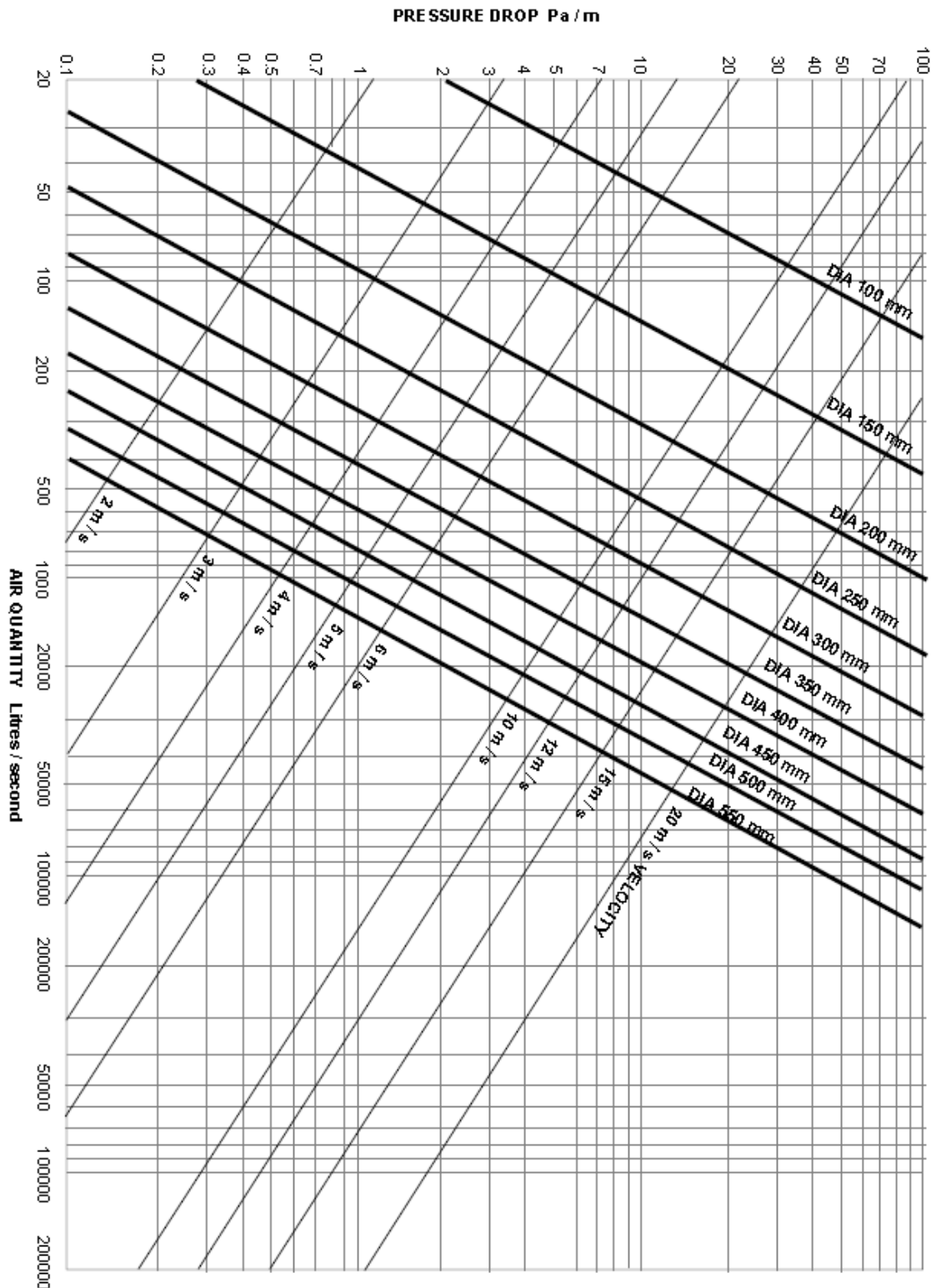
DIMENSIONS



MODEL NO.	DIA D mm	LENGTH mm
D10	100	10000
D12	125	10000
D15	150	10000
D17	175	10000
D20	200	10000
D25	250	10000
D30	300	10000
D35	350	10000
D40	400	10000
D45	450	10000
D50	500	10000
D55	550	10000

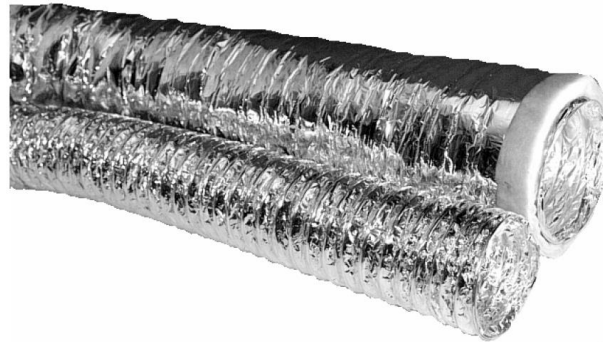
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FLEXIBLE DUCTWORK DUROFLEX - PERFORMANCE CHARACTERISTICS



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FLEXIBLE DUCTWORK ALUFLEX



CONSTRUCTION

- Aluflex is supplied in 10 metre lengths.

Core

- Core is constructed from 15 micron aluminium film bonded to 15 micron aluminium film with water based fire retardant glue approximately 18 grams per m² encapsulating helically wound spring steel wire.

Insulation

- Thick polyester blanket as specified by the customer to comply with the BCA.
- Other insulation options available on request.

Jacket

- 15 micron aluminium film bonded to 15 micron labelled aluminium film with water based fire retardant glue approximately 18 grams per m².

APPLICATIONS

- Aluflex is a high quality product and is suitable for residential and commercial refrigerated air conditioning, evaporative cooling, heating and ventilation applications.
- Suitable for return air flexible ductwork on commercial applications.

TECHNICAL

Aluflex has been AWTA & SABS tested and complies with the requirements of the Building Code of Australia & South African standards

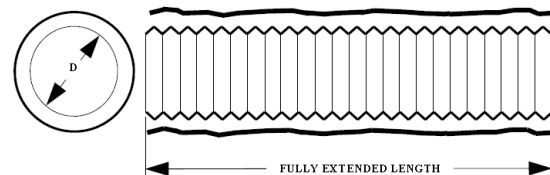
AS 4254 & AS 1530 Part 3

Aluflex has passed all of the above tests and has obtained a "four zero rating". Copies of test certificates can be viewed on pages 10 to 17

Operating range

- Between -10°C and +80 °C
- Between -200Pa and +1000Pa internal pressure
- Maximum velocity 20 m/s

DIMENSIONS

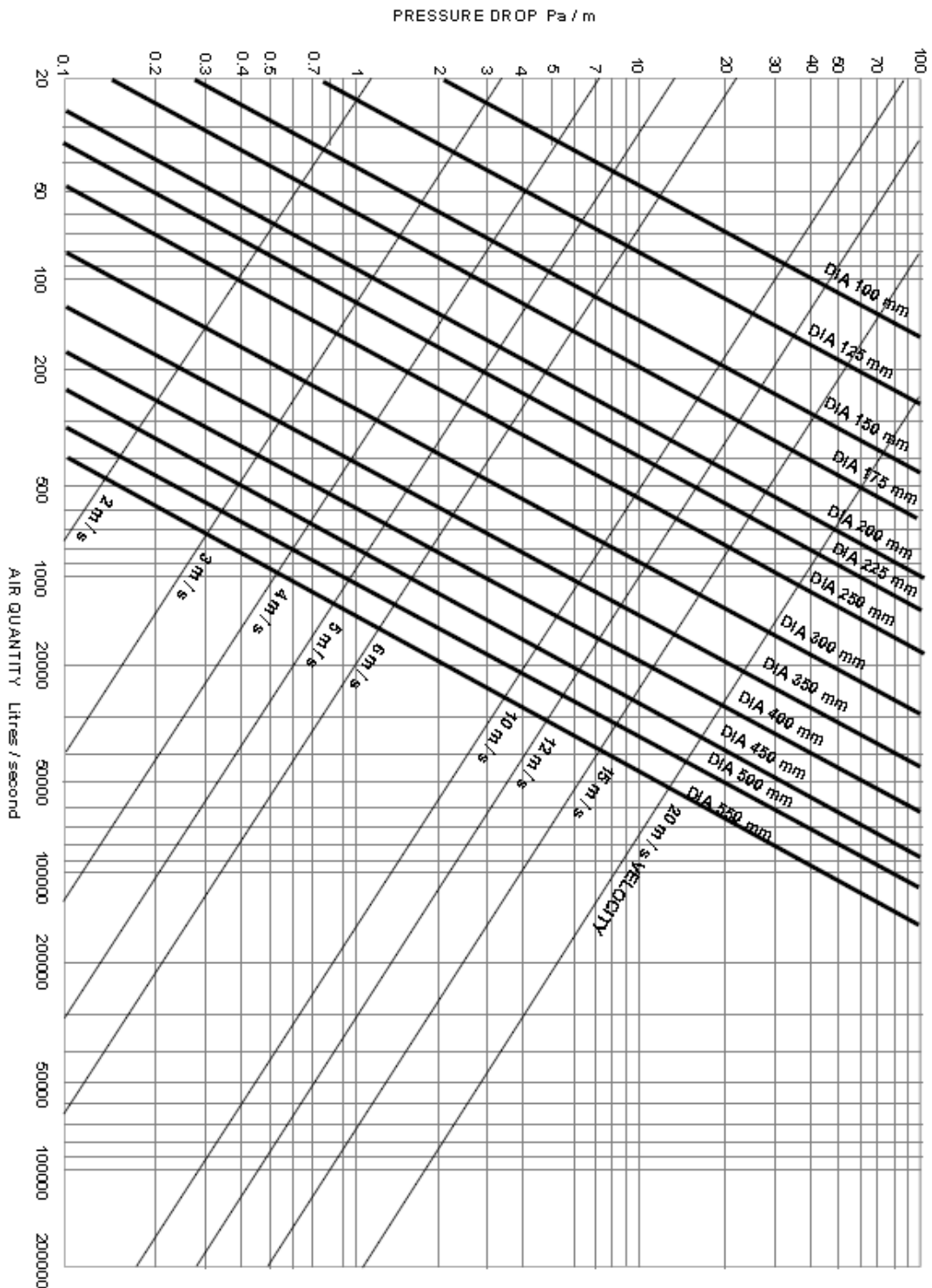


MODEL NO.	DIA D mm	LENGTH mm
A10	100	10000
A12	125	10000
A15	150	10000
A17	175	10000
A20	200	10000
A25	250	10000
A30	300	10000
A35	350	10000
A40	400	10000
A45	450	10000
A50	500	10000
A55	550	10000

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FLEXIBLE DUCTWORK ALUFLEX - PERFORMANCE CHARACTERISTICS



ADVANTAGE AIR®

FLEXIBLE DUCTWORK ACCOUSTIC FLEX



CONSTRUCTION

- Accoustic Flex is supplied in 10 metre lengths.
- **Not a stock item and will require 10 days lead time to manufacture & supply.**

Core

- Constructed from aluminium tape on the inside and metallised polyester tape on the outside which encapsulates a spiral galvanised steel wire and is chemically bonded using self extinguishing fire retardant adhesives.
- The appearance of the core is silver with perforations at regular intervals.

Insulation

- To achieve the published insertion losses the core must be insulated with the following blanket:
- Thick polyester blanket as specified by the customer to comply with the BCA.
 - Other insulation options available on request.

Sleeve

- The sleeve is constructed from a silver metallised polyester tape. As an optional extra insulated duct can be supplied with reinforced sleeve. This must be specified at the time of ordering.
- The sleeve must be fully taped to the spigot as the sleeve acts as the air envelope.

APPLICATIONS

- Accoustic flex provides higher insertion losses than standard flexible duct and is ideal for reducing low frequency noise levels in air conditioning systems.

- Not recommended for return air flexible ductwork on commercial projects, or on systems with AC units larger than 6Hp (18kW).

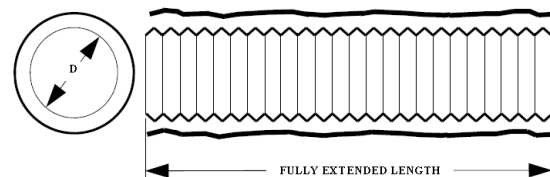
TECHNICAL

Accoustic flex has passed all of the above tests and has obtained a "0003 rating". Copies of test certificates can be viewed on pages 10 to 17

Operating range

- Accoustic flex is designed to operate in the following range:
- Between -10°C and +80 °C
 - Between -200Pa and +1000Pa internal pressure
 - Maximum velocity 20 m/s

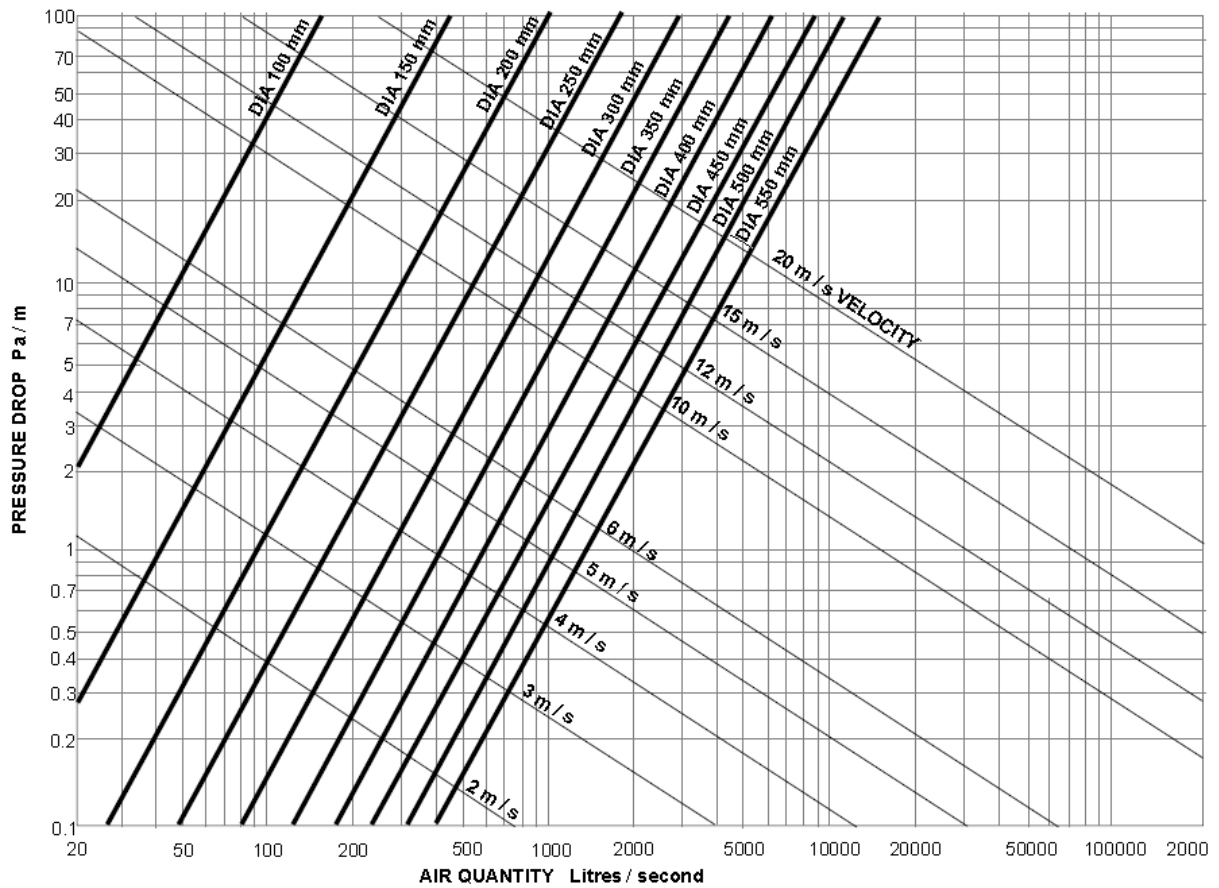
DIMENSIONS



MODEL NO.	DIA D mm	LENGTH mm
AC10	100	10000
AC15	150	10000
AC20	200	10000
AC25	250	10000
AC30	300	10000
AC35	350	10000
AC40	400	10000
AC45	450	10000
AC50	500	10000

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FLEXIBLE DUCTWORK ACCOUSTIC FLEX PERFORMANCE CHARACTERISTICS



ADVANTAGE AIR®

FLEXIBLE DUCTWORK TEST CERTIFICATES

SABS

Your ref: Fax dd 2000/09/19

Our ref: 19/3/21/3

Enquiries: WA van der Hoogt

Tel: (012) 428-6316

Date: 16 October 2000

Advantage Air
Attention: Mr C Whittle
PO Box 3575
EDENVALE
1610

Dear Sirs

SURFACE FIRE INDEX TEST ON FLEXIBLE DUCTING MATERIAL

Enclosed please find our report No 5409/84066/00 A-B (W/O 1561168) on the surface fire index test conducted on the materials submitted by you.

Our invoice in respect of this service will be forwarded under separate cover.

Yours faithfully



WA van der Hoogt
TECHNOLOGIST: FIRE PROTECTION ENGINEERING

SOUTH AFRICAN BUREAU OF STANDARDS
1 Dr Lategan Road Groenkloof Pretoria Private Bag X191 Pretoria 0001
Tel. (012) 428 7911 Int. code +27 12 Fax (012) 344 1568

FLEXIBLE DUCTWORK TEST CERTIFICATES

South African Bureau of Standards

Suid-Afrikaanse Buro vir Standaarde

REPORT
VERSLAG

No 5409/84066/B (W/O 1561168)

Page/Bladsy 2 of/van 2

2. NATURE AND METHOD OF TEST

The sample was evaluated for compliance with subsection 3.5.2 of SABS 1238: 1979 "Air-conditioning ductwork". This standard specifies surface fire index test to be conducted in accordance with SABS 0177: Part 3 "Surface fire index of finishing materials".

The 1 mm spiral galvanized wire was removed in order to lay the specimens flat on an expanded metal grid. The outside of each specimen was exposed to the heat of the furnace.

3. DATE OF RECEIPT

19 September 2000

4. DATE OF TEST

04 October 2000

5. RESULTS

The following results were obtained from the test:

Index	Results	Requirement of SABS 1238: 1979 Subsection 3.5.2	Compliance
Spread of flame index	Nil	0,6	Yes
Heat contribution index	Nil	0,6	Yes
Smoke emission index	Nil	0,6	Yes
Surface fire index	Nil	0,5	Yes

The sample as described under section 1 of this report complied with the requirements of subsection 3.5.2 of SABS 1238:1979 "Air-conditioning ductwork".



WA van der Hoogt
TECHNOLOGIST: FIRE PROTECTION ENGINEERING



ASW van Rensburg
TECHNICIAN

This report relates only to the samples tested and is issued subject to the conditions printed on the back of Page 1. It does not imply approval by the South African Bureau of Standards of the quality and/or performance of the commodity that has been tested. It does not authorize the use of the Standardization Mark.

Hierdie verslag is van toepassing slegs op die getoetste monsters en word uitgereik behoudens die voorwaardes op die keersy van bladsy 1 gedruk. Dit beteken nie dat die Suid-Afrikaanse Buro vir Standaarde die kwaliteit en/of werkverrigting van die getoetste artikel goedkeur nie. Dit verleen ook nie die reg om die Standaardmerk te gebruik nie.

TEST REPORT TOETSVERSLAG

SABS

South African Bureau of Standards
1 Dr Lategan Road, Groenkloof
Private Bag X191, Pretoria, 0001
Tel (012) 428-7911 Fax (012) 344-1568
Int. code +27 12

Suid-Afrikaanse Buro vir Standaarde
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Tel (012) 428-7911 Faks (012) 344-1568
Int. kode +27 12

Advantage Air
PO Box 3575
EDENVALE
1610

Your ref: Fax dd 00-09-19
Our ref: 19/3/21/3
Enquiries: WA van der Hoogt
Tel: (012)428-6316
No.: 5409/84066/00B
(W/O 1561168)
Page: 1 of 2
Date: 2000-10-16

SURFACE FIRE INDEX TEST ON FLEXIBLE DUCTING MATERIALS

NOTE:-

- Terminology between quotation marks are as given by the sponsor
- All numeric values in this report are nominal
- It is recommended that the user obtains confirmation from the South African Bureau of Standards that the contents of this report are valid in respect of a given lot of material.

1 DESCRIPTION OF SAMPLE

The sample consisted of a cylindrical, insulated, flexible ducting marked "WHITE".

The following measurements were recorded:

Length : 2400 mm (when fully extended)
Diam : 150 mm
Mass : 0,95 kg

The following technical data of the ducting was supplied by the sponsor:

"Aluminium flexible ducting insulated (3 layers)

1. Layer 1 (Inner) - Aluminium flexible ducting
2. Layer 2 (Middle) - Poly-fibre which is 100 % polyester and is made up of the following fibres:
 - a) 13 DTEX x 64 mm Hollofibre
 - b) 6.7 DTEX x 64 mm Sofid
 - c) 4 Denier x 51 mm BI component
3. Layer 3 (Outer) - Sleeve, which is constructed, from silver tape".

/2 NATURE

This report relates only to the specific sample(s) tested as identified herein. It does not imply SABS approval of the quality and/or performance of the item(s) in question and the test results do not apply to any similar item that has not been tested. (Refer also to the complete conditions printed on the back of official test reports.)

Hierdie verslag het slegs betrekking op die spesifieke monster(s) wat getoets is, soos hierin geïdentifiseer. Dit impliseer nie dat die kwaliteit en/of prestasie van die betrokke artikel(s) deur die SABS goedgekeur is nie en die toetsresultate is nie van toepassing op 'n soortgelyke artikel wat nie getoets is nie. (Sien ook die volledige voorwaardes op die rugkant van amptelike toetsverslae.)

FLEXIBLE DUCTWORK TEST CERTIFICATES

AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing
A.B.N. 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : AUTEX PTY LTD
166 BAMFIELD ROAD
WEST HEIDELBERG VIC 3081

TEST NUMBER : 7-580863-NV
ISSUE DATE : 14/09/2011
PRINT DATE : 14/09/2011

SAMPLE DESCRIPTION 1 X Roll of White Polyester Insulation
Colour: White
Nominal Composition: Polyester
Nominal Mass: 400 g/m²
Nominal Thickness: 55.00mm

ISO 8302-1991 Thermal Insulation (Guarded Hot Plate Test)

Test Conditions:

Mean Heat Flux (W/m²) 3.791
Total Rct (m²K/W) 1.320
Recovered thickness 53.7mm
Average product density (kg/m³) (ASTM C167) 8.96
Calculated R value for recovered thickness N/A

The thermal resistance values contained in this report are determined by testing in accordance with ISO 8302 and specifically describe the steady state thermal properties of the tested product associated with that method of test

Results contained in this report do not infer thermal information where the product is used under conditions differing from those under which the product was tested

It should be noted that whilst sufficient time has been allowed prior to testing for the product to recover from compression during transit it has been tested at the thickness nominated in the report. This may differ from the client's expectations of nominated thickness at the point of manufacture, we have therefore included the additional calculated measure of the thermal resistance at the client's nominated thickness

The results contained in the report are those which have been requested and do not necessarily denote compliance in entirety to AS/NZS 4859.1

189671 1

(END OF REPORT)

PAGE 1

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Samples, and their identifying descriptions have been provided by the client unless otherwise stated. AWTA Ltd makes no warranty, implied or otherwise, as to the source of the tested samples. The above test results relate only to the sample or samples tested. The above test results are designed to provide THE CLIENT WITH GUIDANCE INFORMATION ONLY.

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This document, the name AWTA Product Testing and AWTA Ltd may be used in advertising providing the content and format of the advertisement have been approved in advance by the Managing Director of AWTA Ltd.



0205/11/06

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc. (Hons)
MANAGING DIRECTOR

FLEXIBLE DUCTWORK TEST CERTIFICATES

AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd – trading as AWTA Product Testing
A.B.N. 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : AUTEX PTY LTD
166 BAMFIELD ROAD
WEST HEIDELBERG VIC 3081

TEST NUMBER : 7-567994-NV
ISSUE DATE : 07/08/2009
PRINT DATE : 07/08/2009
ORDER NUMBER : 21556

SAMPLE DESCRIPTION Clients Ref: "Duct June"
62mm thick polyester batt Colour: White
Nominal Composition: Polyester
Nominal Mass: 420g/m²
Nominal Thickness: 62mm
End Use: Insulation/Ducting

ISO 8302-1991 Thermal Insulation (Guarded Hot Plate Test)

Test conditions:

Mean Heat Flux(W/m²) 7.96

Mean Rct(m²K/W) 1.13

SEE SPREADSHEET FOR RESULTS:

176401

1

(END OF REPORT)

PAGE 1

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0205/11/06

APPROVED SIGNATORY

MICHAEL A. JACKSON B.Sc.(Hons)
MANAGING DIRECTOR

FLEXIBLE DUCTWORK TEST CERTIFICATES

Page 2 of 2

Appendix 1

AWTA PRODUCT TESTING

AS/NZS 4859.1:2002 - Materials for the thermal Insulation of buildings. Part 1: General criteria and technical provisions (Section 2.3) - (Thermal Resistance)

Date:	06-Aug-09		
Project Number:	176401		
Sample Description and orientation:	WHITE PLOYESTER BATT THICKNESS: 62mm MASS 420g/m2		
	Sample 1	Sample 2	Mean
Test Plate Area:	6.58 x 10 ⁻²	6.58 x 10 ⁻²	6.58 x 10 ⁻² m ²
Hot Surface Temperature:	27.00	27.00	27.00 °C
Cold surface Temperature:	19.02	19.20	19.11 °C
ΔT	7.98	7.80	7.89 °C
Mean Temperature	23.01	23.10	23.05 °C
Relative Humidity	65.00	65.00	65.00 %
Heat Flux:	8.32	7.60	7.96 W/m ²
Mean Thermal Resistance (R)	1.23	1.03	1.13 m ² K/W
Tested Thickness	62.0	mm * #	
Client Nominated Thickness	62.0	mm	
Δ Thickness	N/A		

Acceptable

Test Method:	ISO8302:1991 - Thermal insulation - Determination of steady-state thermal resistance and related properties - Guarded hot plate apparatus.		
Wind Velocity:	0.00	0.00	0.00 m/s
Mass Change:			
Mass ^{initial}	120.10	125.20	122.62 g
Mass ^{Final}	120.10	125.20	122.62 g
Δ mass	0.00	0.00	0.00 %
Dimensions (Complete Specimen)			
Thickness	62.00	mm	0.062 m
Width	520.00	mm	0.520 m
Length	525.00	mm	0.525 m
Tested Volume	0.0169	m ³	
Density (δ)	7.24	kg/m ³	
Transfer Factor (φ)	0.0646	0.0604	0.0625 W/mK (Calculated) ^{*1}
Apparent Thermal Conductivity(λ)	0.0504	0.0604	0.0552 W/mK (Calculated) ^{*2}
U - Value	0.81	0.97	0.89 W/(K.m ²) (Calculated) ^{*3}
Calculated R-Value for client nominal thickness	N/A	m ² K/W	(Calculated) ^{*4}

Tested on Guarded Hotplate Apparatus Model:10.5 S/N 306-401 Manufactured by: Measurement Technology Northwest System componentry includes Guarded Hotplate Assembly, Airflow Hood with variable speed fans, Ambient and Hotplate temperature sensors, RH and Windspeed sensors, Control and Logging System and Environmental Chamber. All Specimens are tested in a horizontal position.

Where applicable. The mass applied is 9.836 kg

Where applicable the foil product was tested with the foil face down through a guarded polystyrene 50mm thick air gap.

*1 Calculated in accordance with ISO8302:1991(E) Section 3.5.2

*2 Calculated in Accordance with ASTM C653-97 Section 3.2.1.

*3 Calculated as 1/R.

*4 Linear interpolation based on nominal thickness from measured R-Value

Kelvin units and measured Temperature (°C) units may be read as interchangeable where variations from absolute zero are not required.

FLEXIBLE DUCTWORK TEST CERTIFICATES

Continuation of Report on Measurement of Thermal Transmission Properties.

MEASUREMENT MHF-1316

Sample Details

Measurement sponsor	Autex Pty Ltd 166 Bamfield Road West Heidelberg VIC 3081
Sample manufacturer	As above
Sample description and identification	Sample described as: "White polyester fibre batt insulation nominally 430 mm x 1.17 m", and identified as "Batch 134 1210, pack No. 0001,

Measurements

Measurement reference number	MHF-1316
Calibration reference material	NIST glass fibre transfer standard
Ambient temperature	23 °C
Ambient humidity	27 %
Heat flow direction	Up
Heat flow meter surface	Top
Special preparation requirements	Two batts of median thickness were selected from a pack of 8 batts and conditioned for more than 24 hours.
Special measurement requirements	Two batts placed side-by-side centrally under 4 heat flow meters and measured at approximately 99.5 % of mean free thickness to give nominal compression between hot and cold plates.
No. of free thickness measurement points	24
Mean thickness before measurement	109.6 mm
Standard deviation in thickness readings	2.8 mm
Length x width before measurement	1160 mm x 914 mm (aggregate of 2 batts)
Weight before measurement	0.842 kg (aggregate of 2 batts)
Free density before measurement	7.3 kg/m ³

FLEXIBLE DUCTWORK TEST CERTIFICATES

Continuation of Report on Measurement of Thermal Transmission Properties.
Measurement Reference MBF-1316.

Hot plate temperature	33.0 °C
Cold plate temperature	12.9 °C
Plate temperature difference	20.1 K
Mean plate spacing	109.0 mm
Sample density between plates	7.3 kg/m ³
Sample mean temperature	23.0 °C
Duration of measuring period	40 minutes
Size of heat flow meters	230 mm x 230 mm
Number of heat flow meters	4
Mean heat flow	11.75 W/m ²
Mean maximum variation between measured heat flows	2.1 %
Mean thermal conductance	0.590 W/m ² .K ± 6 %
Mean thermal conductivity	0.0643 W/m.K ± 8 %
Mean thermal resistance	1.695 m ² .K/W ± 6 %
Variation in thermal resistance over measuring period	0.5 %

ADVANTAGE AIR®

METAL DIFFUSERS

T-Bar Register

T-BAR REGISTER

MODEL: JM-602M REMOVABLE CORE

SPECIFICATIONS

Size: Outer frame either 595mm x 595mm metric

Neck: 450mm x 450mm

Material: Pressed Metal - Steel - Powder Coated

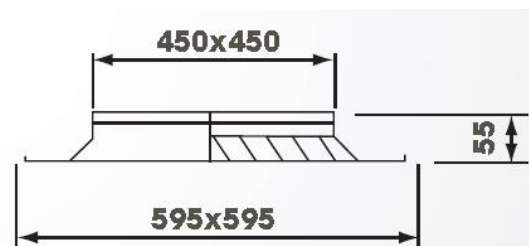
Colour: Standard white but for large numbers we are prepared to use other colours, but there may be a cost penalty.

ADVANTAGES

- Lightweight
- No visible joints on face
- Reduces possibility of corrosion
- Easy to clean
- Captive air system, no air leak to ceiling space

TECHNICAL DATA

I/S	NR	pa	Throw
100	-	-	1.0
150	-	-	1.4
200	-	-	1.8
250	22	5	2.3
300	24	10	3.5
400	26	15	5.5
500	32	25	6.3
600	36	35	6.9
700	42	45	7.2



ADVANTAGE AIR®

METAL DIFFUSERS

T-Bar Register – Performance data

450/595 4-Way ADCD					
AIRFLOW L/s	STATIC PRESSURE Pa	Throw (m) to terminal velocity		CORE m/s	NOISE RATING NR
		0.5 m/s	0.25 m/s		
160	3	2.3	3.2	0.8	28
207	4	3	4.2	1	39
250	7	3.6	5	1.2	44
349	8	5	*	1.6	53
504	23	*	*	2.4	64
590	32	*	*	2.8	69
710	44	*	*	3.3	75

NOTE: * indicates throw greater than 5.5m.

ADVANTAGE AIR®

SWIRL OUTLETS

Preliminary remarks

KRANTZ KOMponenten SWIRL outlets of the RA-N3 series have 24 fixed SWIRL vanes and are available with square or circular face. They generate high-quality diffuse air flow according to the principle of turbulent mixing ventilation. They can be installed free-hanging from the ceiling, above open grid or expanded metal ceilings, or flush with either closed false ceilings or square tile ceilings.

The RA-N3 offers a very large volume flow rate range. Using one nominal size for RA-N3 outlets within a room enables to get a uniform ceiling design. If only a small volume flow rate is required, a collar can be inserted in the outlet so as to obtain the requested air flow range; the nominal size of all ceiling-mounted RA-N3 outlets being the same, the ceiling design keeps its harmony. For perimeter and corner zones it is possible to fit the outlets (inside) with segment cover discs. These optional discs are designed to cover certain outlet segments so as to adapt the air discharge direction to the room layout.

RA-N3 SWIRL outlets achieve a high level of thermal comfort and can be used for volume flow rates up to 400 l/s [1440 m³/h] at temperature differences up to -12 K when cooling and +10 K when heating for ceiling heights up to 3 m (> 3 m = +5 K).

Range of application

Size	Collar	Volume flow rate V		Max. temperature difference supply air-indoor air $\Delta\vartheta$
		l/s	m ³ /h	
DN 355	0	56 – 175	200 – 630	-12 K when cooling +10 K when heating (£ 3 m)
	2	38 – 122	135 – 440	
	4	26 – 89	95 – 320	
DN 500	0	125 – 400	450 – 1440	+ 5 K when heating (> 3 m)
	2	86 – 280	310 – 1010	
	4	61 – 200	220 – 720	

Mode of operation

The SWIRL outlet 1 discharges the supply air in the horizontal direction, this feature being enhanced by the special shape of the exit 1a. The high-turbulence supply air jets induce a large proportion of indoor air, which leads to the fast equalization of supply air and indoor air temperatures as well as to a rapid decrease in jet velocity.

Thanks to its stable supply air distribution pattern at low sound power levels this outlet can be used for a very wide range of air volume flow rates. Inserting a collar in the outlet enables to additionally vary the flow rate range.

Construction design

The RA-N3 is available in 2 nominal sizes: DN 355 and DN 500. The circular model is fitted on the outside with a flush contact edge for ceiling attachment (see detail Y on page 4). The outlet with square face has a 90° turn-up for installation in square tile ceilings (see detail Z on page 4).

Both outlet models are made from powder-coated sheet metal and are fastened to the reducer or connection box with a central screw 5 whose head is concealed by a cap 5a having the same powder coating as the outlet.

Installation options

The following connection types with related accessories are available for connecting the outlet to the duct system.



Connection type A, with reducer for connection to a circular duct or a flexible duct

SWIRL OUTLETS



Connection type D, with connection box for a closed ceiling

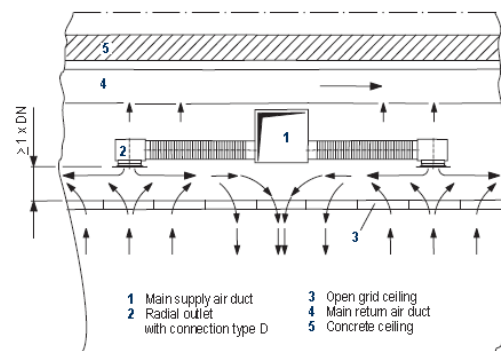


Connection type F, with connection box for a square tile ceiling

Connection type A The 'A' reducer is fitted with 3 suspension brackets staggered by 90°, for fixing to the ceiling, as well as with a screw nut for the central fastening of the outlet. The reducer can be connected to a spiral seam duct or to a flexible duct. For installation in a closed false ceiling upon completion of said ceiling, the SWIRL outlet with flush contact edge shall be inserted into the reducer through the ceiling cutout and screwed up.

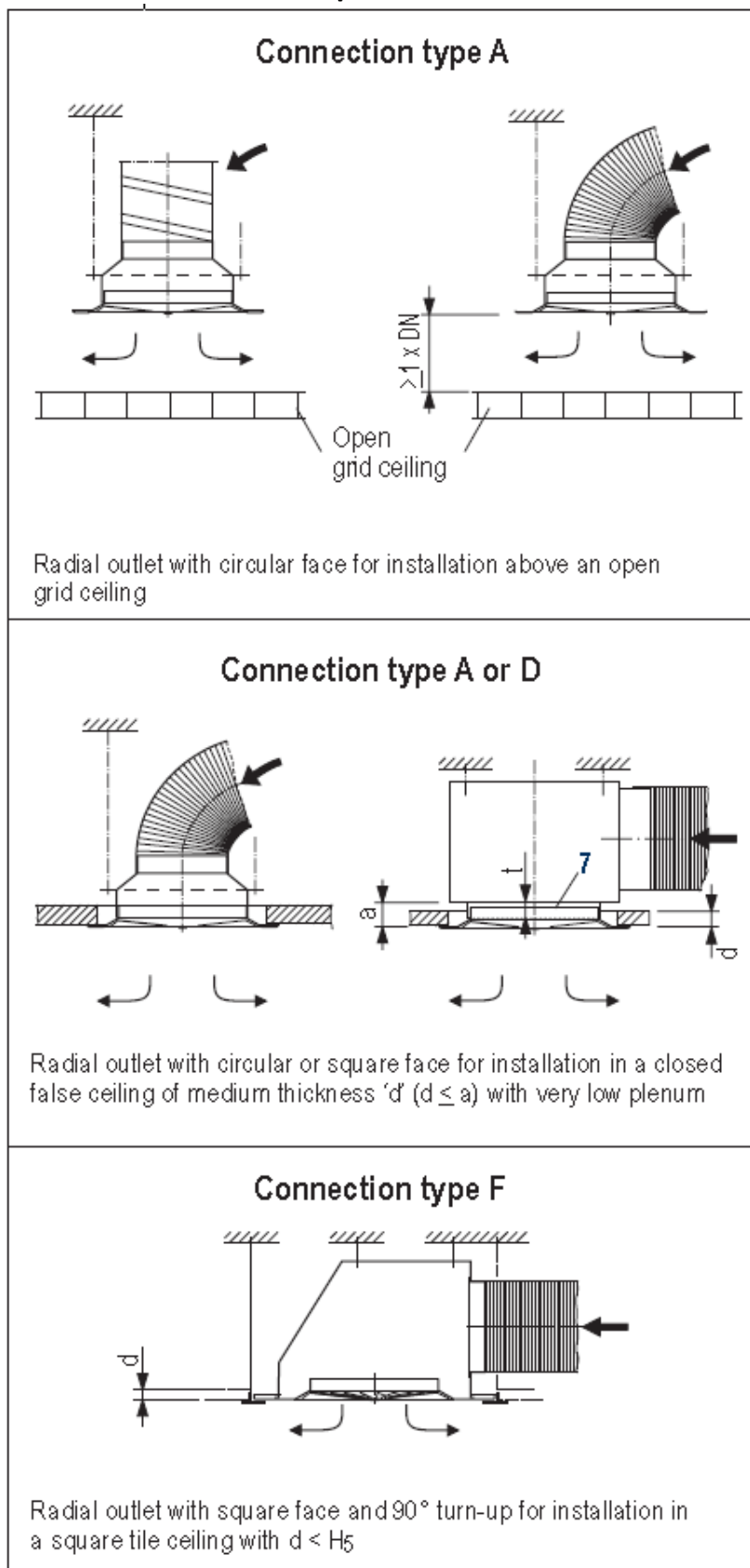
Connection type D The RA-N3 outlet is connected to a circular duct via the lateral spigot of a flat connection box. This connection type is suitable for outlets to be installed above open or closed false ceilings. The connection box is fitted with 4 suspension brackets for fixing to the ceiling and a screw nut for the central fastening of the outlet. The optional volume flow damper positioned in the lateral connection spigot can be adjusted through the openings of the SWIRL outlet. As an option, this connection box can be fitted with acoustic lining.

Connection type F This connection type is particularly suitable for square tile ceilings. The square SWIRL outlet with connection box is inserted into the ceiling from the top in place of a ceiling tile. The connection box is fixed to the load-bearing ceiling and the outlet is screwed to the connection box.

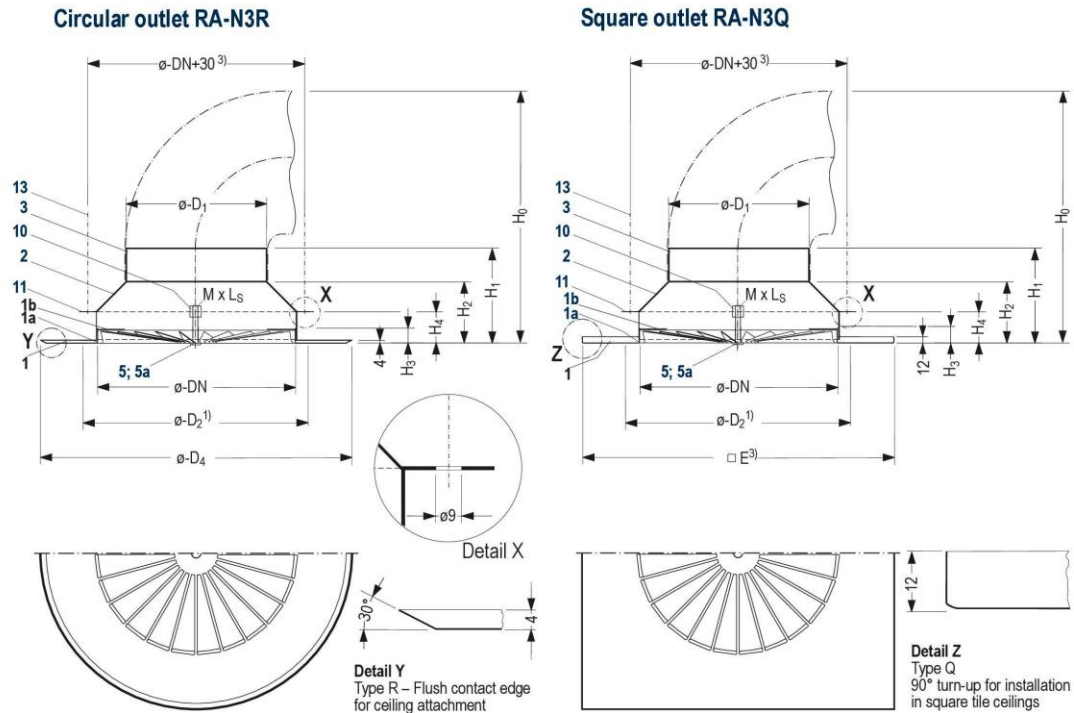


SWIRL outlets installed above an open grid ceiling. The return air is removed evenly through the whole ceiling surface and extracted by the main return air duct positioned immediately above the outlets.

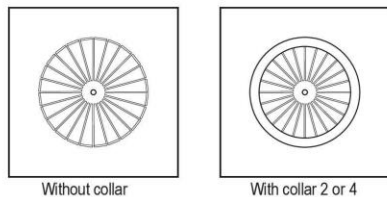
Sketches of installation options



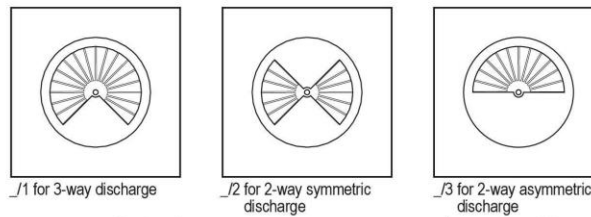
Dimensions of connection type A



Top view of RA-N3 without and with collar



Optional segment cover discs 4) for adapting air discharge to room layout



Key for all pages		Material
1	Radial outlet	Sheet metal, powder-coated
1a	Exit	
1b	Collar 2)	Aluminium
2	Reducer	
3	Circular duct connection	—
4	Connection box	Galvanized sheet metal
5	Central fastening screw M8	
5a	Screw cap	Brass, powder-coated
6	Acoustic lining (optional)	Mineral wool

Key for all pages		Material
7	Sleeve at connection box D	Galvanized sheet metal
8	Spigot at connection box	
9	V damper (optional)	
10	Central fastener for radial outlet	
11	Suspension bracket	
12	Bore for suspension by others	
13	Threaded rod or quick fastener, (by others)	
14	Adjusting device for V damper (adjustable from room)	

Size / D ₁	Collar	H ₃ mm	Type RA-N3Q		Type RA-N3R		RA-N3R with reducer A				M x L _S mm	Weight in kg Air outlet
			Ceiling tile	□ E ³⁾ mm	D ₂ ¹⁾ mm	D ₄ mm	H ₀ mm	H ₁ mm	H ₂ mm	H ₄ mm		
DN 355/249	0	27	□ 600	□ 595	405	470	450	171	111	57	8 x 80	approx. 2.0
DN 355/199	2 4		□ 625	□ 620			405	176	136			
DN 500/354	0	36	□ 600	□ 595	580	675	585	199	139	66	8 x 110	approx. 3.6
DN 500/314	2 4		□ 625	□ 620			565	219	159			

¹⁾ Recommended ceiling cutout

²⁾ Optional segment cover discs for one-way or multi-way discharge

³⁾ Other square dimensions and rectangular design on request

⁴⁾ The segment cover discs can be turned so as to adapt the air discharge direction to the room layout

SWIRL OUTLETS

Comfort criteria and minimum air outlet centre spacing

Comfort criteria

The layout of the outlet will be based on compliance with the required maximum permissible indoor air velocities¹⁾. First you have to determine the maximum specific volume flow rate $V_{Sp\ max}$ depending on the indoor air velocity u and the discharge height H as per Graph 1. The minimum outlet centre spacing t_{min} will then be determined according to Graph 2 on the basis of the maximum specific volume flow rate and the outlet volume flow rate.

The layout criterion (Graph 1) is based on

$$\Delta\vartheta_{max} = -10 \text{ to } -12 \text{ K}$$

If the maximum temperature difference is lower,

$V_{Sp\ max}$ can be increased by the following percentage:

$$\Delta\vartheta_{max} = -8 \text{ K} \rightarrow V_{Sp\ max} \text{ 15\% higher}$$

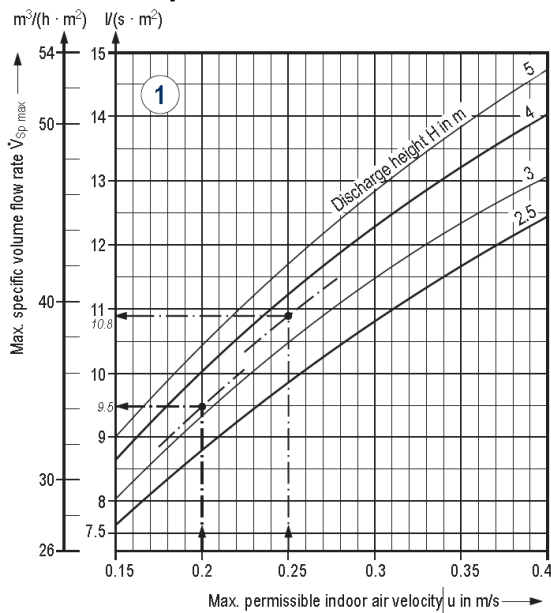
$$\Delta\vartheta_{max} = -6 \text{ K} \rightarrow V_{Sp\ max} \text{ 35\% higher}$$

$$\Delta\vartheta_{max} = -4 \text{ K} \rightarrow V_{Sp\ max} \text{ 70\% higher}$$

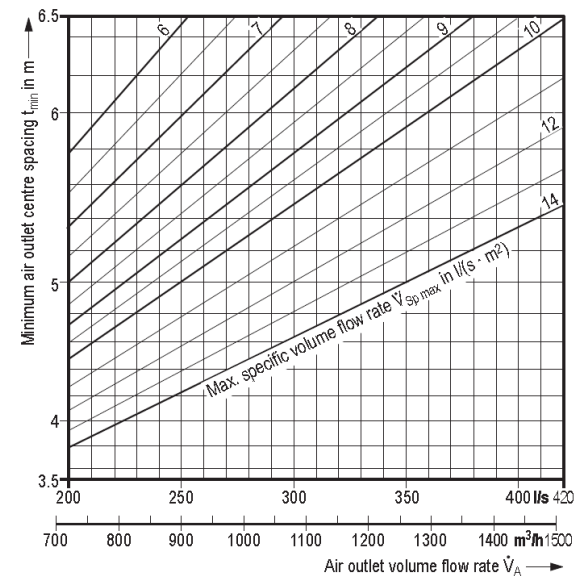
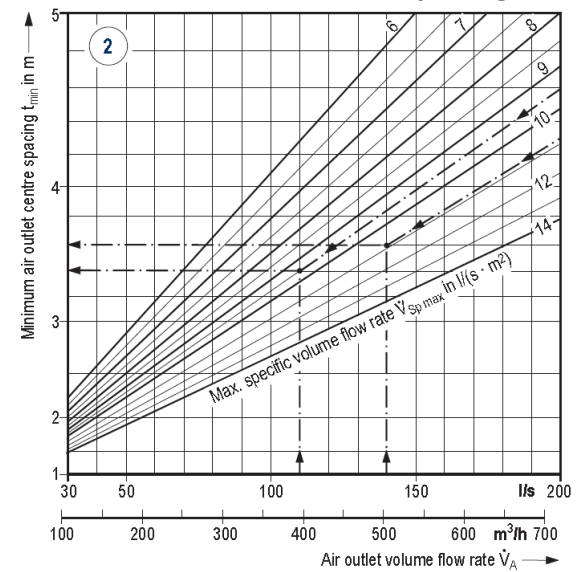
Key for all graphs:

- $\dot{V}_{A\ max}$ = Maximum volume flow rate per air outlet when cooling
- $\dot{V}_{A\ min}$ = Minimum volume flow rate per air outlet when cooling
- \dot{V}_A = Selected volume flow rate per air outlet
- $\dot{V}_{Sp\ max}$ = Maximum specific volume flow rate per m^2 of floor area
- u = Maximum permissible indoor air velocity
- t_{min} = Minimum air outlet centre spacing
- H = Discharge height
- L_{WA} = Sound power level
- Δp_t = Total pressure loss

Maximum specific volume flow rate

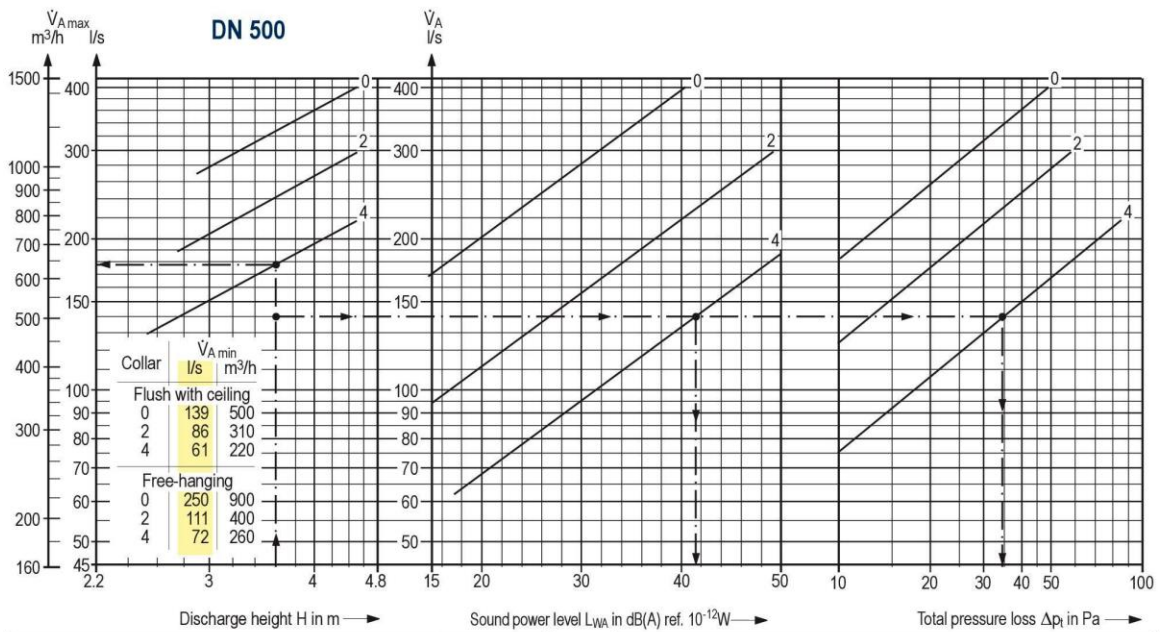
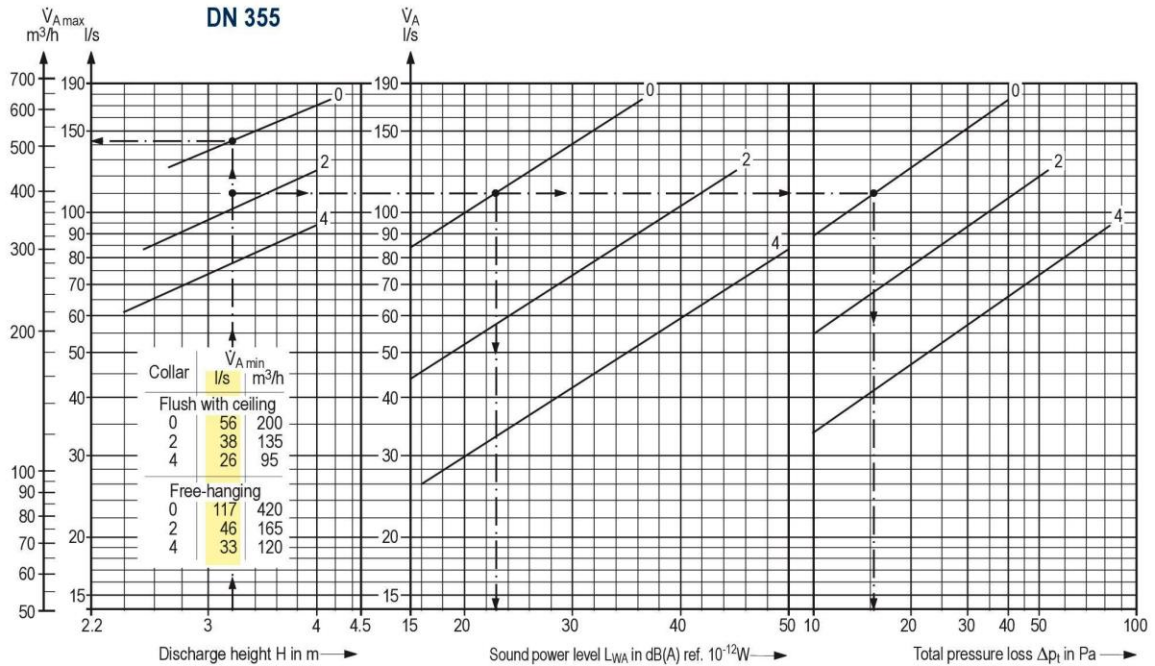


Minimum air outlet centre spacing



SWIRL OUTLETS

Layout sheet for connection type A

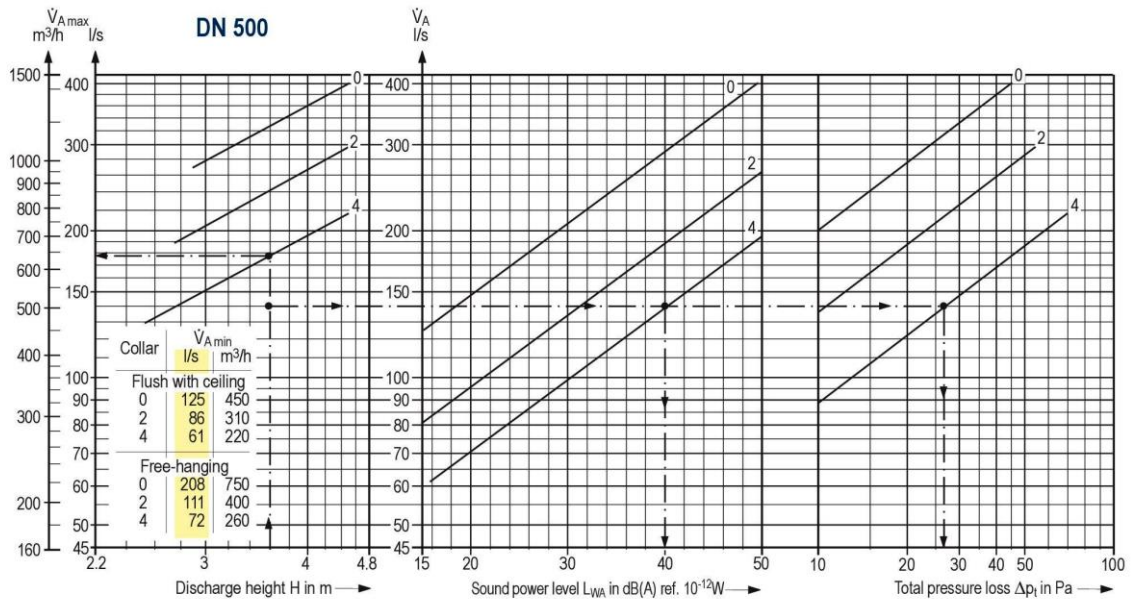
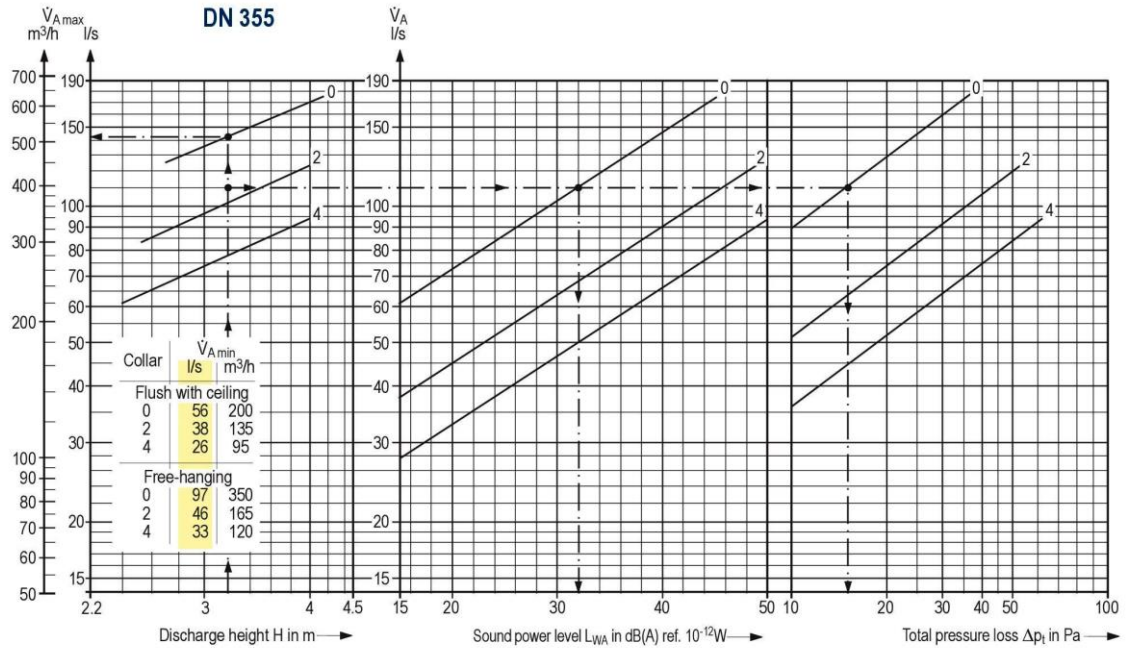


Layout example		DN 355	DN 500
Size		Office	Department store
1 Supply air volume flow rate \dot{V}	l/s	650	2 780
2 Discharge height H	m	3.2	3.6
3 Floor area A	m²	120	600
4 Max. permissible sound power level L_{WA}	dB(A)	35	45
5 Comfort criteria (see page 6)			
- Max. perm. indoor air velocity u	m/s	0.2	0.25
- Max. specific volume flow rate $\dot{V}_{Sp \max}$	l/(s · m²)	9.5	10.8
- Actual specific volume flow rate [from 1 : 3] $\dot{V}_{Sp \text{ tats}}$	l/(s · m²)	5.4	4.6

From nomogram		DN 355	DN 500
6 $\dot{V}_{A \max}$	l/s	140	180
7 $\dot{V}_{A \text{ selected}}$	l/s	110	140
8 Z [from 1 : 7]	units	6	17
9 L_{WA}	dB(A) ref. 10 ⁻¹² W	≈23	≈41
10 Δp_t	Pa	≈16	≈35
11 t_{\min} [Graph on page 6]	m	3.4	3.6

SWIRL OUTLETS

Layout sheet for connection type D and F

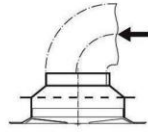


Layout example		DN 355	DN 500
Size		Office	Department store
1 Supply air volume flow rate \dot{V}	l/s	650	2 780
2 Discharge height H	m	3.2	3.6
3 Floor area A	m ²	120	600
4 Max. permissible sound power level L_{WA}	dB(A)	35	45
5 Comfort criteria (see page 6)			
- Max. perm. indoor air velocity u	m/s	0.2	0.25
- Max. specific volume flow rate $\dot{V}_{Sp \max}$	l/(s · m ²)	9.5	10.8
- Actual specific volume flow rate $\dot{V}_{Sp \text{ tats}}$ [from 1 : 3]	l/(s · m ²)	5.4	4.6

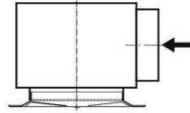
From nomogram			
Size		DN 355	DN 500
6 $V_{A \max}$	l/s	140	180
7 $V_{A \text{ selected}}$	l/s	110	140
8 Z [from 1 : 7]	units	6	17
9 L_{WA}	dB(A) ref. 10 ⁻¹² W	≈32	40
10 Δp_t	Pa	≈16	≈27
11 t_{\min} [Graph on page 6]	m	3.4	3.6

ADVANTAGE AIR®

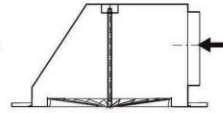
SWIRL OUTLETS Sound power level and insertion loss



Connection type A



Connection type D



Connection type F

Size/ø-D ₁	Collar	Connection type A										Connection types D and F											
		Air outlet volume flow rate		Total pressure loss Δp _t Pa	Sound power level L _W in dB ref. 10 ⁻¹² W ¹								Air outlet volume flow rate		Total pressure loss Δp _t Pa	Sound power level L _W in dB ref. 10 ⁻¹² W ²							
		V _A l/s	m ³ /h		L _{WA} dB(A)	Octave band centre frequency in Hz							V _A l/s	m ³ /h		L _{WA} dB(A)	Octave band centre frequency in Hz						
				125		250	500	1000	2000	4000	125	250			500		1000	2000	4000				
DN 355/249	0	56	200	4	18	26	22	13	—	—	—	56	200	3	18	26	20	14	—	—	—		
		111	400	15	24	33	29	21	—	—	—	111	400	14	33	37	38	28	21	—	—		
		167	600	36	34	38	36	34	28	16	—	167	600	33	45	48	48	40	38	30	16		
DN 355/199	2	42	150	5	17	23	19	13	—	—	—	42	150	5	20	26	22	13	—	—	—		
		83	300	23	34	34	37	35	26	14	—	83	300	23	38	45	40	35	29	21	—		
		125	450	54	46	41	44	46	42	35	24	125	450	58	50	53	50	46	44	40	29		
DN 355/199	4	28	100	7	20	28	26	14	—	—	—	28	100	6	19	27	23	13	—	—	—		
		56	200	29	41	35	40	42	34	19	—	56	200	24	37	40	37	36	27	16	—		
		83	300	68	50	43	48	49	47	39	29	83	300	56	48	48	46	44	42	38	24		
DN 500/354	0	139	500	5	17	25	19	14	—	—	—	139	500	5	18	30	22	14	—	—	—		
		250	900	20	27	36	31	26	18	—	—	250	900	15	35	45	41	32	27	16	—		
		361	1300	40	37	41	40	36	33	22	—	361	1300	31	46	52	50	44	41	35	22		
DN 500/314	2	111	400	8	18	25	21	14	—	—	—	111	400	6	20	32	27	16	11	—	—		
		194	700	25	37	40	38	36	33	24	—	194	700	19	38	45	43	38	36	28	13		
		278	1000	52	49	47	46	46	45	41	27	278	1000	42	51	55	51	48	49	45	32		
DN 500/314	4	83	300	12	24	32	28	22	—	—	—	83	300	9	23	34	32	21	12	—	—		
		139	500	34	41	42	43	41	34	28	15	139	500	24	37	45	42	38	34	27	10		
		194	700	69	51	49	48	51	45	42	32	194	700	48	55	53	50	49	46	42	29		

¹⁾ Values apply for vertical air supply to the outlet. They are higher for outlet connection to flexible duct and 90° elbow.

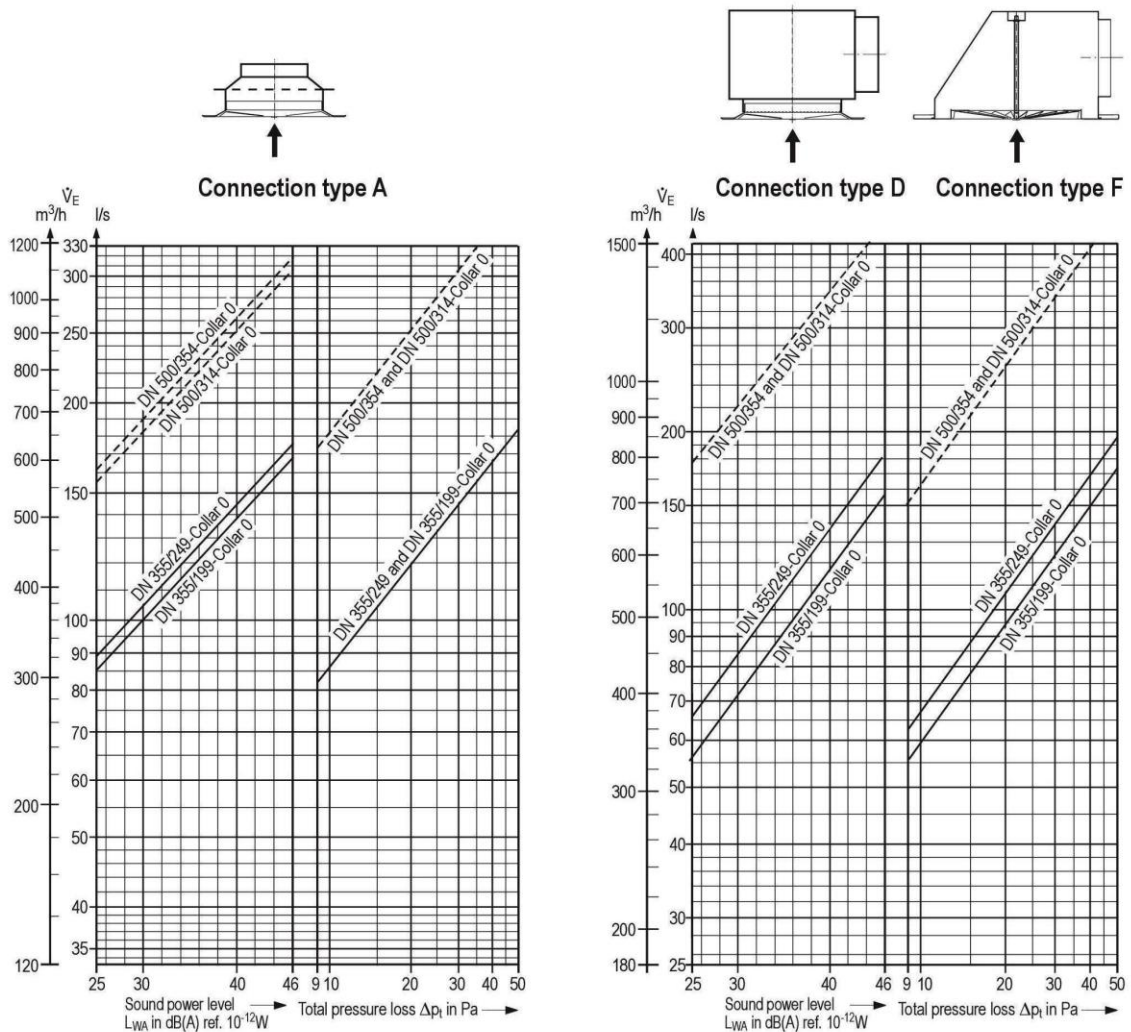
²⁾ Applies for V damper position 'open' and connection box without acoustic lining. With acoustic lining (only for connection type D) the values are lower by approx. 2 dB(A) ref. 10⁻¹² W. The pressure loss is not influenced by the acoustic lining.

Insertion loss in dB							
Size /ø-D ₁	Collar	Connection box (for connection types D and F) without acoustic lining					
		Octave band centre frequency in Hz					
		125	250	500	1000	2000	4000
DN 355/199	4	4	2	4	5	3	2
DN 355/199	2	4	2	4	5	3	2
DN 355/249	0	4	2	4	5	4	3
DN 500/314	4	4	2	5	5	4	3
DN 500/314	2	4	2	4	4	3	3
DN 500/354	0	4	2	3	3	3	2

Insertion loss in dB							
Size /ø-D ₁	Collar	Connection box (for connection type D) with acoustic lining					
		Octave band centre frequency in Hz					
		125	250	500	1000	2000	4000
DN 355/199	4	4	2	5	8	6	7
DN 355/199	2	4	2	5	7	6	8
DN 355/249	0	4	2	6	7	6	7
DN 500/314	4	4	2	6	6	5	6
DN 500/314	2	4	2	5	6	4	5
DN 500/354	0	4	2	5	6	4	4

SWIRL OUTLETS

Sound power level and total pressure loss



Size / ϕ -D ₁	Connection type A				Connection types D and F			
	Air outlet volume flow rate		Total pressure loss	Sound power level	Air outlet volume flow rate		Total pressure loss	Sound power level
	\dot{V}_E l/s	\dot{V}_E m ³ /h	Δp_T Pa	L_{WA} dB(A) ref. 10 ⁻¹² W	\dot{V}_E l/s	\dot{V}_E m ³ /h	Δp_T Pa	L_{WA} dB(A) ref. 10 ⁻¹² W
DN 355/249	111	400	17	32	111	400	11	27
	139	500	28	39	139	600	25	38
	167	600	41	44	167	800	45	46
DN 355/199	83	300	10	26	83	300	8	22
	125	450	21	37	125	450	17	33
	167	600	37	45	167	600	30	41
DN 500/354	181	650	10	29	181	650	8	20
	250	900	20	39	250	900	15	29
	278	1000	25	42	278	1300	30	40
DN 500/314	139	500	7	23	139	500	4	14
	194	700	12	32	194	700	9	23
	278	1000	26	43	278	1000	19	33

Features

- For high-quality diffuse indoor air flow.
- Available with square. 1) or circular face
- Stable supply air jets. 2) even at minimum volume flow rate
- Available in 2 sizes: DN 355 and DN 500, each with 3 volume flow rate ranges (depending on collar 0, 2, or 4)
- Very large volume flow rate range, which enables a uniform ceiling design due to the use of one outlet size within a room.
- Discharge height from 2.4 to 4.5 m .
- Maximum temperature difference between supply air and indoor air: -12 K when cooling, +5 K when heating (+10 K up to 3 m ceiling height)
- Low sound power level and pressure loss.
- Installation free-hanging from the ceiling, above open grid ceilings, or in closed ceilings
- Outlet element easy to mount and demount from the room
- Box for connection type F is stackable, i.e. low transport and storage volume
- Outlet element made from powder-coated sheet metal, connection box made from Sendzimir galvanized sheet metal
- Segment cover discs (optional) enable to adapt the air discharge to the room layout (3-way discharge, 2-way discharge symmetric or asymmetric); these discs can be turned any time upon outlet installation

SWIRL OUTLETS

Type code and tender text

Type code



Geometry ¹⁾

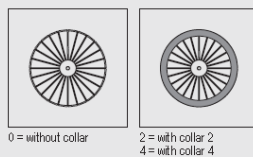
- RS = round face
- Q1 = square face for square tile ceiling 600 mm x 600 mm
- Q2 = square face for square tile ceiling 625 mm x 625 mm

Size

- 355 = DN 355
- 500 = DN 500

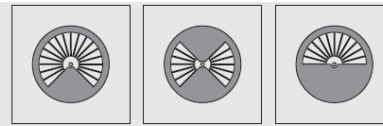
Collar

- 0 = no collar
- 2 = collar 2
- 4 = collar 4



Segment cover

- 0 = none
- 1 = for 3-way discharge
- 2 = for 2-way symmetric discharge
- 3 = for 2-way asymmetric discharge



_1 = for 3-way discharge _2 = for 2-way symmetric discharge _3 = for 2-way asymmetric discharge

Connection type

- O = no connection piece (only discharge element)
- A = reducer (connection type A)
- D = connection box (connection type D), external sleeve
- F = connection box (connection type F), for square face

Damper

- O = no volume flow damper
- R = with volume flow damper adjustable from room

Insulation

- O = without acoustic lining
- I = with acoustic lining

Surface finish

- 9010 = face painted to RAL9010, semi-matt
- = face painted to RAL

Volume flow rate factor for segment cover discs

	Segment cover discs (optional)								
	0/1	0/2	0/3	2/1	2/2	2/3	4/1	4/2	4/3
DN 355	0.83	0.68	0.64	0.85	0.70	0.66	0.89	0.75	0.68
DN 500	0.85	0.68	0.64	0.87	0.70	0.66	0.88	0.73	0.68

Tender text

..... units

SWIRL outlet for high-quality indoor air flow at minimal temperature gradients in the occupied zone, consisting of:

- low-height outlet element with spigot, specially shaped face, SWIRL vanes – vane underside flush with surrounding outlet face – and central fastening screw with cap; outlet face is round or square
- optional V. collars to increase the range of volume flow rates
- optional segment cover discs for 3-way discharge or 2-way symmetric or asymmetric discharge 2)
- optional aluminium reducer (connection type A) with lateral suspension brackets and screw nut for central fastening of outlet
- optional connection box in flat design with screw nut for central fastening of outlet, with lateral suspension brackets and connection spigot, box design:
 - as connection type D for SWIRL outlet with round or square face,

optionally fitted with V. damper adjustable from room side and/or acoustic lining.

or as connection type F for SWIRL outlet with square face, optionally fitted with V. damper adjustable from room side.

Materials:

SWIRL outlet made from sheet metal powder-coated to RAL 9010 3).

Reducer made from aluminium.

Connection box made from galvanized sheet metal.

Make: KRANTZ KOMPONENTEN

Type: RA-N3 – ___ – DN ___ / ___ / ___ – ___ – ___

Subject to technical alteration.

- 1) Square face with 90° turn-up (12 mm) for square tile ceilings on enquiry
- 2) The segment cover discs can be turned so as to adapt the air discharge direction to the room layout
- 3) Other colour on enquiry

SELECTION OF SUPPLY GRILLES AND REGISTERS

- The performance data which follows permits quick, easy, and accurate selection of supply grilles and registers.
- Two groups of data are required for selection.
- Inherently required by the structural and room use considerations.
- The required performance characteristics of the supply outlets.
- Consider first the spaces which are to be conditioned and their effects upon outlet selections.

1. **m³/s** The air volume to be delivered to each space is determined by overall system design, and the m³/s per outlet is determined by the number of outlets which supply each space.
2. **NC Level** The permissible sound level in each space may be specified by the owner or the architect, or it may be determined as an engineering design goal. Figure 1 contains an abbreviated list of design goals for air conditioning sound control in common occupancies.
3. **Throw Requirement** The required throw is determined from the building plan. Often the throw requirement will be the distance from the outlet to the opposite wall. Sometimes it will be the distance from the outlet to the intersection of its air system with air being delivered from another supply outlet.

- Other items to be considered are the spread requirement, permissible drop, and acceptable pressure drop.

- The air stream should spread sufficiently so that the wall or space at the end of the throw is blanketed.
- The drop of the air stream should not be so great that it is within 1.5m of the floor at the end of the throw.
- Finally, the allowance in the design of the system for outlet pressure loss should not be exceeded.
- After the design requirements - air flow, NC level, throw spread, and drop requirements - are known, the outlet can be selected

Selection of Grilles and Registers - 19mm Louvers

- The basic selection data are given in the Tables to follow for grilles and registers having louvers on a 19mm spacing.
- For each listed air volume, the static pressure drop and two values of throw are given for each grille area factor.
- The minimum throw is the distance the air will travel to a terminal velocity of 0.64m/s; the maximum throw is the distance of air travel to a terminal velocity of 0.41m/s.
- For each m³/s and the grille size, selection data are given at three spread angles -0°, 22½° and 45°.
- NC level is coded in 5 db increments for each m³/s, spread angle, and area factor in the table.

SUPPLY AIR GRILLES Details

TABLE 5 - RECOMMENDED NC LEVEL DESIGN GOALS

NC RANGE	COMMUNICATION TEL. VOICE	TYPICAL APPLICATION
20-25	EXCEL	9.1-15.2m CHURCH SANCTUARY, CONCERT & OPERA HALLS, SOUND REPRODUCTION STUDIOS.
25-30	EXCEL	6.0-12.1m LEGITIMATE THEATERS, BOARD ROOMS.
30-35	GOOD	3.0-9.1m PRIVATE OFFICE, BALL ROOMS, MOVIE THEATERS.
35-40	FAIR	1.8-3.6m PUBLIC LIBRARIES, BUILDING LOBBIES, GENERAL OFFICE.
40-45	FAIR	1.2-2.7m HALLS & CORRIDORS, CAFETERIAS.
45-50	POOR	0.9-1.8m SUPERMARKETS, DEPARTMENT STORES, RESTAURANT KITCHENS.
OVER 50	VERY POOR	0.3-0.6m MANUFACTURING AREAS.

- The area factor shown at the top of each column is the key to actual grille-size selection.
- The Grille Sizes shown are not the only grilles which could be selected.
- Complete size selection is given, in Tables 6, 7 & 8 to follow, which relates grille height and grille width to the area factor.
- Selecting a register requires that the effects of dampers on grille performance be considered.
- Throw, spread, and drop are not affected by the dampers of a register - if the damper is wide open - but the pressure requirement and the sound level generated by a register are different from those of a grille only.
- The effects of the damper on these performance characteristics are shown in Table 6 to follow.
- To obtain the NC level of a register add the "NC addition" factor to the NC level of the grille as determined from Tables 6 & 9 to follow.

- To obtain the static pressure loss of the register, multiply the grille static pressure by the "Ps multiplier" of the damper.
- Note these two factors vary with grille width.

Drop

- The drop of a cooled air stream is shown in Table 7. This is the vertical distance which the air will have dropped as it travels across the room and slows to a velocity of 0.6mJs.
- Note that, at a constant air flow, the drop increases as the grille area factor increases.
- This occurs because the air velocity at the grille face decreases as the grille area increases.
- On the other hand, it must be realized that the further the air travels - that is: the longer the throw - the greater the drop becomes.
- For this reason, drop increases as air flow is increased if the grille size and spread angle are kept constant.
- The spread angle setting affects all of the performance characteristics of a grille.
- The following general rules can be used to estimate the spread:
 1. For 0° spread angle, the total spread of the air stream is one-third of the throw.
 2. For 22½° spread angle, the total spread of the air stream is about 45 percent of the throw.
 3. For 45° spread angle, the total spread of the air stream is 1.5 times the throw.
- These values are the total spread of the air stream, but they do not consider grille width which should be added to the spread estimated above.

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If three grilles serve the space, determine the difference between the combined NY level for the first two grilles and the NC level of the third grille. Determine the NC addition as above, and add this to the combined NC level of the first two units. If the difference between NC levels of two grilles is 10 db or more, the sound generated by the quieter grille will not affect the space NC.

TABLE 6 - NC AND STATIC PRESSURE FACTORS FOR REGISTERS (OPEN DAMPER)

GRILLE WIDTH	100	125	150-170	200-250	250-300	300-350	355-450	450-550	550-600	600-700	700-850	850-1050	1050-1200
NC Addition (1)	12	11	10	9	8	7	6	5	5	4	4	4	3
PS Multiplier (2)	2.5	2.4	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.2

- NOTES:**
- (1) NC Addition plus grille NC equals register NC level.
 - (2) Ps Multiplier times grille static pressure equals register static pressure

TABLE 7 - DROP OF COOLED SUPPLY AIR

AREA FACTOR	0.15		0.25		0.5		1		2		3		4	
	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°	0°	45°
m3/s														
0.035 0.047 0.07	1.21 1.37 1.52	0.61 0.61 0.80	1.37 1.52 1.68	0.80 0.80 0.80	1.52 1.68 1.83	0.80 0.80 0.91	1.83 1.98	0.91 0.91						
0.9 0.14 0.25	1.68	0.8	1.83 1.98	0.91 0.91	1.98 2.29 2.60	1.07 1.07 1.22	2.29 2.59 2.90	1.07 1.22 1.40	2.44 2.74 3.20	1.22 1.40 1.52	3.05 3.35	1.52 1.68	3.66	1.68
0.35 0.5 0.7					2.9	1.4	3.20 3.66 3.96	1.52 1.68 1.98	3.5 3.96 4.57	1.68 1.98 2.13	3.81 4.27 4.72	1.83 1.98 2.28	3.96 4.42 5.02	1.98 2.13 2.44
0.95 1.2 1.5									4.88 5.18 5.64	2.44 2.59 2.74	5.18 5.48 5.94	2.59 2.74 2.89	5.48 5.79 6.25	2.59 2.89 3.05

- For larger spaces and specific room absorption conditions, a calculation using sound power level data is required.
- Closing the damper of a register results in:
 - The restriction of the air flow, thereby increasing the pressure drop and decreasing the air flow.
 - The damper generating sound - increases the NC level.
- For example a damper closed sufficiently to double the pressure loss of a register (pressure ratio of 2) causes an NC increase of about 7 db. (As a rule of thumb - and for general reference only - it can be assumed that closing an opposed blade damper to an effective opening ratio of 70 percent doubles the pressure loss of the damper outlet combination. Closing the damper to an effective opening ratio of fifty percent increases the pressure loss to 4-times the grille-open damper loss.)

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SUPPLY AIR GRILLES Details

Combining Sound Sources

- The NC data for registers and grilles, given in tables to follow, contain an allowance for the sound adsorbing properties of the average room and its contents.
- This absorption is assumed to be 8 db.
- For relatively small spaces - about 73.5 sq m. or less of floor area and ceiling height of 3.0m or less – the following simplified method for estimating NC level produced by combinations of supply and return registers and grilles can be used:
 1. Determine the difference in NC level between the grilles or registers having the highest NC and the second highest NC level.
 2. From table 9 to follow determine the number of decibels to be added to the NC level of the grille having highest NC level. This sum is the combined NC level generated by the two grilles or registers.

TABLE 8 AREA FACTORS, FOR SELECTION OF SUPPLY GRILLES - 19mm, SD AND DD

GRILLE WIDTH	100	125	150	200	250	300	350	400	450	500	550	600	650	700	750	800	1000	1100	1200	
100	1.52																			
125	2.03	2.54																		
150	2.29	3.05	3.81																	
200	3.30	4.32	5.33	7.37																
250	4.32	5.33	6.60	9.14	11.68															
300	5.08	6.60	8.13	11.18	14.22	17.27														
350	6.10	7.87	9.65	13.21	16.76	20.57	34.38													
400	6.86	8.89	11.18	15.24	19.30	23.62	27.94	31.75												
450	7.87	10.16	12.45	17.27	21.18	26.92	31.24	36.07	40.64											
500	8.64	11.43	13.97	19.30	24.38	29.72	34.80	40.64	45.72	50.80										
550	9.65	12.45	15.49	21.08	27.43	33.81	39.91	45.72	51.50	57.20	62.90	68.60	74.30	80.00	85.70	91.40	97.10	102.80	108.50	114.20
600	10.41	13.72	16.76	23.11	29.46	35.81	41.91	48.26	54.61	60.96	67.31	73.66	80.01	86.36	92.71	99.06	105.41	111.76	118.11	124.46
650	11.43	14.73	18.29	25.15	32.00	38.37	45.72	53.34	59.69	66.04	72.39	78.74	85.09	91.44	97.79	104.14	110.49	116.84	123.19	129.54
700	12.70	16.00	19.81	27.18	34.54	41.91	49.53	57.15	64.77	71.12	77.47	83.82	90.17	96.52	102.87	109.22	115.57	121.92	128.27	134.62
750	13.97	17.27	21.08	29.21	37.08	44.45	53.34	60.96	68.58	75.20	81.82	88.44	95.06	101.68	108.30	114.92	121.54	128.16	134.78	141.40
800	16.61	21.59	21.59	25.40	35.05	44.45	54.61	63.50	73.66	82.55	92.71	101.60	111.76	121.92	132.08	142.24	152.40	162.56	172.72	182.88
1000	19.05	24.13	24.13	29.21	39.37	49.53	60.96	71.12	81.28	92.71	104.14	114.30	124.46	134.62	144.78	154.94	165.10	175.26	185.42	195.58
1100	20.30	26.67	26.67	31.75	43.18	53.34	66.04	78.74	90.17	102.87	114.30	127.00	137.16	147.32	157.48	167.64	177.80	187.96	198.12	208.28
1200	22.86	29.21	34.29	46.99	59.69	72.39	86.36	99.06	111.76	124.46	137.16	149.86	162.56	175.26	187.96	200.66	213.36	226.06	238.76	251.46
1300	25.40	30.48	38.10	52.07	64.77	77.47	91.44	105.41	119.38	134.62	147.32	162.56	175.26	187.96	200.66	213.36	226.06	238.76	251.46	264.16
1400	26.67	33.02	40.64	55.88	69.85	83.82	96.52	111.76	127.00	142.24	157.48	172.72	187.97	200.66	215.90	226.70	239.40	251.10	263.80	275.50
1500	27.94	35.56	43.18	59.69	74.93	90.17	101.60	119.38	137.16	152.40	167.64	185.42	200.66	213.86	231.14	244.48	258.82	273.16	287.50	301.84

TABLE 9 - NC ADDITION FOR COMBINING EFFECTS OF SOUND SOURCES

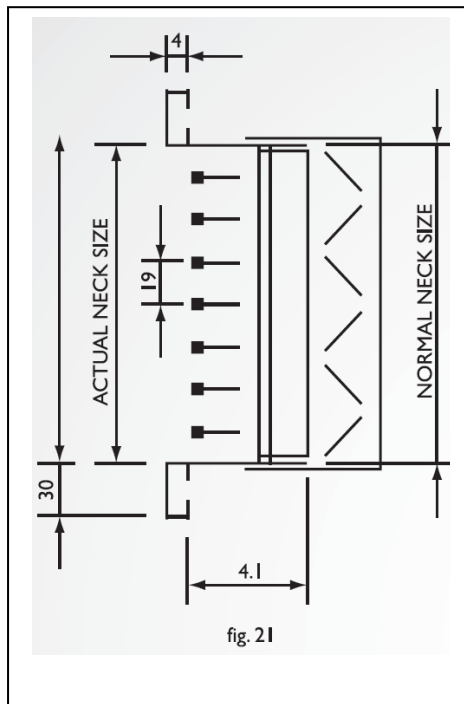
DIFFERENCE BETWEEN TWO LEVELS TO BE COMBINED	0	1	2	4	6	9	10
NUMBER TO BE ADDED TO HIGHER LEVEL TO OBTAIN COMBINED LEVEL	3	2.5	2	1.5	1	0.5	0

Selection of Grilles and Registers - 19mm Blade Spacing

- Grilles and registers having louvers (blades) on 19mm spacing are selected in a similar manner.
- The structural and room-use factors, the air volume, and the throw, spread drop and NC requirements must be considered in the same way as with other grilles and registers.
- For each listed air volume, the static pressure and two values of throw are given.
- The minimum throw is the distance the air will travel to a terminal velocity of 0.64m/s; the maximum throw is the distance of air travel to a terminal velocity of 0.41m/s.
- Selection data are given at each of three spread angles - 0°, 22½°, and 45° - and for NC level in 5 db increments.
- The area factor shown at the top of each column permits flexibility in grille-size selection

SUPPLY AIR GRILLES

Details



TYPE DD: Double deflection supply air grilles manufactured of extruded type 50S anodising grade aluminium with individually adjustable front vertical and rear horizontal louvres held in place by starlock washers and spring wire.

Optional Accessories **OBD** = Opposed Blade Damper
CF = Concealed Fixing

Frame Options **30mm Standard**
20mm
50mm

Finish Options **NA** = Natural Anodised
EPC = Epoxy Powder Coating
WS = Wet Spray Colour

Note: (1) Dimensions given are for opening size into which grille will fit (i.e Normal Duct Size)
 (2) If code "OS" is entered under SPECIAL INSTRUCTIONS, then dimensions given are over flange.

ADVANTAGE AIR®

SUPPLY AIR GRILLES Performance Data DD – SD

NOMINAL SIZE		200 x 100	250 x 100	300 x 100 200 x 150	400 x 100 250 x 150	500 x 100 300 x 150	350 x 150 250 x 200	
	CORE AREA Ca	0.015	0.02	0.024	0.032	0.038	0.044	
	DEFLECTION	0° 22½° 45°	0° 22½° 45°	0° 22½° 45°	0° 22½° 45°	0° 22½° 45°	0° 22½° 45°	
m³/s	Aj (m²)	0.011 0.01 0.008	0.014 0.014 0.011	0.018 0.017 0.013	0.023 0.022 0.017	0.028 0.027 0.021	0.032 0.031 0.024	
0.024	Tp (Pa)	1.72 2.12 8.48	1.11 1.38 5.74	1.74 2.18 9.33	1.14 1.45 6.78			
	THROW (m)	2.1-4.0 1.5-3.0 1.2-2.1	1.7-3.6 1.4-2.7 0.9-2.2	2.4-4.9 1.8-3.7 1.3-2.6	2.1-4.3 1.6-3.2 1.3-2.3			
	VEL (m/s)	1.97 2.18 4.36	1.58 1.76 3.59	1.98 2.21 4.58	1.6 1.8 3.9			
	NS dB	*	*	*	*			
0.036	Tp (Pa)	3.87 4.77 19.09	2.5 3.11 12.92	4.84 6.06 25.9	3.16 4.03 18.85	2.15 2.76 12.46	1.74 2.13 8.58	
	THROW (m)	3.4-8 2.4-3.6 1.8-2.7	2.7-4.9 2.1-3.7 1.5-2.7	4.6-11.3 3.4-6 2.3-5.4	3.4-6.5 2.4-4.9 1.8-3.7	3.6-11.3 2.4-6.8 1.8-3.4	3.1-6.2 2.4-4.6 1.8-3.4	
	VEL (m/s)	2.95 3.27 6.65	2.37 2.64 5.39	3.29 3.69 7.63	2.66 3.01 6.5	2.2 2.49 5.29	1.97 2.19 4.39	
	NS dB	*	*	*	*	*	*	
0.047	Tp (Pa)	6.6 8.13 32.53	4.25 5.3 22.03	8.84 11.15 45.6	5.7 7.31 29.6	3.7 4.76 19.4	2.9 3.7 15.5	
	THROW (m)	4.5-6 3.4-2 2.1-3	3.6-5.3 2.7-4.3 2.1-3.1	6.5-16.4 4.8-7.7 3.1-5.4	5.7-11.3 4.2-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)	3.85 4.27 8.55	3.09 3.45 7.03	4.29 5.02 10.4	4.5 5.1 10.7	3.9 4.4 9.1	3.4 3.8 7.6	
	NS dB	*	*	*	*	*	*	
0.060	Tp (Pa)	10.76 13.25	6.93 8.63 35.9	12.12 15.2 64.1	7.91 10.1 41.8	5.4 6.92 28.4	4.35 5.33 21.5	
	THROW (m)	4.3-6.5 3.4-4.9	4.3-6.4 3.5-5 2.5-3.7	7.2-18.4 5.2-7.7 3.4-5.4	6.4-12.7 4.7-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)	4.91 5.45	3.94 4.4 8.98	5.22 5.84 11.8	4.21 4.76 11.8	3.48 3.94 9.1	3.13 3.46 6.95	
	NS dB	17 18	*	*	*	*	*	
0.070	Tp (Pa)	14.64 18.04	9.44 11.75	15.09 18.93 81.5	9.85 12.58 51.4	6.72 8.61 34.9	5.42 6.64 26.77	
	THROW (m)	4.9-6.5 3.7-6.5	4.9-7 3.7-5.5	7.2-18.4 5.2-7.7 3.4-5.4	6.4-12.7 4.7-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)	5.73 6.36	4.6 5.14	5.22 5.84 11.8	4.21 4.76 11.8	3.48 3.94 9.1	3.13 3.46 6.95	
	NS dB	23 24	18.4 19	*	*	*	*	
0.083	Tp (Pa)	20.58 25.36	13.27 16.52	23.05 28.91 125.6	15.05 19.21 78.1	10.26 13.15 55.1	8.27 10.14 40.89	
	THROW (m)	5.2-7.6 4-5.8	5.2-7.3 4-5.3	7.2-18.4 5.2-7.7 3.4-5.4	6.4-12.7 4.7-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)	6.8 7.55	5.46 6.09	5.22 5.84 11.8	4.21 4.76 11.8	3.48 3.94 9.1	3.13 3.46 6.95	
	NS dB	28 29	19 21	*	*	*	*	
0.095	Tp (Pa)		17.38 21.64	23.05 28.91 125.6	15.05 19.21 78.1	10.26 13.15 55.1	8.27 10.14 40.89	
	THROW (m)		5.4-7.9 4.3-6.1	7.2-18.4 5.2-7.7 3.4-5.4	6.4-12.7 4.7-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)		6.25 6.97	5.22 5.84 11.8	4.21 4.76 11.8	3.48 3.94 9.1	3.13 3.46 6.95	
	NS dB		24 25	*	*	*	*	
0.106	Tp (Pa)		21.64 26.94	23.05 28.91 125.6	15.05 19.21 78.1	10.26 13.15 55.1	8.27 10.14 40.89	
	THROW (m)		6.1-8.5 4.5-6.7	7.2-18.4 5.2-7.7 3.4-5.4	6.4-12.7 4.7-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)		6.97 7.78	5.22 5.84 11.8	4.21 4.76 11.8	3.48 3.94 9.1	3.13 3.46 6.95	
	NS dB		29 30	*	*	*	*	
0.118	Tp (Pa)		26.81 33.38	18.71 23.45	12.21 15.59	8.33 10.67	6.71 8.23 33.18	
	THROW (m)		6.4-8.8 4.9-6.6	6-8.9 4.5-6.7	6-8.9 4.6-6.6	6-9 4.7-6.8	6-9 4.7-6.7 3.4-4.9	
	VEL (m/s)		7.76 8.66	6.48 7.26	5.23 5.91	4.32 4.89	3.88 4.3 8.63	
	NS dB		35 36	25 26	18 19	*	*	
0.131	Tp (Pa)			23.05 28.91 125.6	15.05 19.21 78.1	10.26 13.15 55.1	8.27 10.14 40.89	
	THROW (m)			7.2-18.4 5.2-7.7 3.4-5.4	6.4-12.7 4.7-6.7 3.1-4.6	5.2-10.4 3.6-6.8 2.4-4.4	4.7-9.4 3.4-6.2 2.4-4.6	
	VEL (m/s)			7.19 8.06	5.81 6.57	4.8 5.43	4.31 4.77 9.58	
	NS dB			29 30	21 22	17 23	*	
0.141	Tp (Pa)			26.71 33.49	17.43 22.25	11.89 15.24	9.58 11.75	
	THROW (m)			7-9.8 5.5-7.5	6.7-9.9 5.1-7.6	6.7-9.9 5-7.5	6.7-10 5.7-8	
	VEL (m/s)			7.74 8.67	6.25 7.07	5.17 5.85	4.64 5.14	
	NS dB			34 35	24 25	19 19	17 20	
0.165	Tp (Pa)				23.87 30.47	16.28 20.86	13.12 16.09	
	THROW (m)				7-10.3 5.6-8.2	7.3-10.4 5.4-8	7.3-10.4 5.5-8	
	VEL (m/s)				7.32 8.27	6.05 6.84	5.43 6.01	
	NS dB				29 30	24 25	20 21	
0.187	Tp (Pa)				39.4 39.14	26.88 26.8	21.67 20.67	
	THROW (m)				8-11.3 6-8.5	8-11.3 6-8.5	8-11.3 6-8.6	
	VEL (m/s)				9.4 9.37	7.77 7.76	6.97 6.81	
	NS dB				35 36	28 29	24 25	
0.212	Tp (Pa)	NS = sound rating from sound power data assuming RA=8dB CA = core area in m. Aj = effective area of throw in m/s. Tp = static pressure + the duct velocity pressure in Pa. = Total pressure in Pa. Throw = distance tp point of max. air stream velocity at 0.5m/s and to 0.25m/s					33.31 34.44	26.85 26.57
	THROW (m)						8.5-12 6.7-9	8.5-12 6.7-9
	VEL (m/s)						8.65 8.79	7.76 7.72
	NS dB						33 34	28 29
0.236	Tp (Pa)	NS = sound rating from sound power data assuming RA=8dB CA = core area in m. Aj = effective area of throw in m/s. Tp = static pressure + the duct velocity pressure in Pa. = Total pressure in Pa. Throw = distance tp point of max. air stream velocity at 0.5m/s and to 0.25m/s					40.74 42.68	32.84 32.92
	THROW (m)						8.9-12.7 6.7-9.8	8.9-12.9 6.7-9.9
	VEL (m/s)						9.56 9.79	8.59 8.6
	NS dB						38 39	32 33
0.261	Tp (Pa)	NS = sound rating from sound power data assuming RA=8dB CA = core area in m. Aj = effective area of throw in m/s. Tp = static pressure + the duct velocity pressure in Pa. = Total pressure in Pa. Throw = distance tp point of max. air stream velocity at 0.5m/s and to 0.25m/s					38.88 40.27	30.13 29.5
	THROW (m)						9.34 9.51	9.51 9.51
	VEL (m/s)							
	NS dB							

ADVANTAGE AIR®

SUPPLY AIR GRILLES Performance Data DD – SD

NOMINAL SIZE		300 x 400 800 x 150			300 x 250 375 x 200 500 x 150			300 x 300 360 x 250 450 x 200 600 x 150			350 x 300 420 x 250 525 x 200 700 x 150			400 x 300 480 x 250 600 x 200			450 x 350 525 x 300 750 x 200 750 x 200					
CORE AREA Ca		0.01			0.08			0.09			0.11			0.12			0.16					
DEFLECTION		0° 22½° 45°			0° 22½° 45°			0° 22½° 45°			0° 22½° 45°			0° 22½° 45°			0° 22½° 45°					
m³/s		AJ (m³)			0.07 0.064 0.03			0.045 0.04 0.019			0.054 0.048 0.022			0.062 0.056 0.026			0.071 0.064 0.03			0.093 0.083 0.038		
0.070	TP	(Pa)	0.43	0.54	2.5																	
	THROW	(m)	3.4-6.4	2.4-4.9	1.8-3.8																	
	VEL	(m/s)	0.98	1.1	3.27																	
	NS	(dB)	*	*	*																	
0.083	TP	(Pa)	0.6	0.75	3.51	1.53	1.9	8.58														
	THROW	(m)	3.7-7.3	3-5.6	2.1-4	3.5-6.8	2.5-5.2	1.8-3.8														
	VEL	(m/s)	1.16	1.3	2.81	1.85	2.07	4.39														
	NS	(dB)	*	*	*	*	*	*														
0.095	TP	(Pa)	0.79	0.99	4.6	2	2.49	11.25	1.4	1.74	7.97											
	THROW	(m)	4.3-8	3.5-6.2	2.5-4.3	4-7.6	3-5.8	2.1-4.3	3.7-7.3	2.7-5.5	2.1-4											
	VEL	(m/s)	1.33	1.49	3.21	2.12	2.36	5.02	1.77	1.98	4.23											
	NS	(dB)	*	*	*	*	*	*	*	*	*											
0.106	TP	(Pa)	0.98	1.23	5.73	2.5	3.1	14	1.74	2.17	9.92	1.28	1.6	7.4								
	THROW	(m)	5-8.2	3.4-6.7	2.4-4.6	4.4-8.5	3.4-6.7	2.4-4.5	4-7.9	3-6	2-4.3	3.8-7.4	2.8-5.5	2.1-4								
	VEL	(m/s)	1.48	1.66	3.59	2.37	2.64	5.61	1.97	2.2	4.72	1.69	1.89	4.07								
	NS	(dB)	*	*	*	*	*	*	*	*	*	*	*	*								
0.118	TP	(Pa)	1.21	1.52	7.1	3.09	3.84	17.35	2.15	2.68	12.3	1.58	1.98	9.17								
	THROW	(m)	5.6-9	4.4-6.5	3-5	5-9	3.8-6.9	2.7-5	4.7-9	3.7-6.8	2.7-5	4.4-8.2	3.4-6.4	2.4-4.6								
	VEL	(m/s)	1.65	1.85	3.99	2.63	2.94	6.24	2.2	2.45	5.25	1.89	2.11	4.54								
	NS	(dB)	*	*	*	*	*	*	*	*	*	*	*	*								
0.131	TP	(Pa)	1.5	1.87	8.75	3.81	4.73	21.38	2.65	3.31	15.15	1.95	2.44	11.3	1.51	1.86	8.52					
	THROW	(m)	5.8-9	4.6-7	3-5.2	5.2-9	4-7	2.8-5.2	5-9.7	3.7-7.3	2.7-5.2	4-6.9	3.7-7	2.4-5.2	4.3-8.3	3.4-6.5	2.4-4.6					
	VEL	(m/s)	1.83	2.05	4.43	2.95	3.26	6.93	2.44	2.72	5.83	2.09	2.34	5.04	1.84	2.04	4.37					
	NS	(dB)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*					
0.165	TP	(Pa)	2.37	2.97	13.88	6.05	7.51	33.93	4.21	5.25	24.04	3.1	3.87	17.92	2.4	2.95	13.52					
	THROW	(m)	7.3-10.35	5-8.2	4-5.9	6.7-10.4	5.2-7.8	3.7-5.8	6.1-10.4	4.6-7.9	3.4-5.8	5.9-10.4	4.6-7.8	3-5.9	5.2-10.4	4-8	2.8-5.9					
	VEL	(m/s)	2.31	2.58	5.58	3.68	4.11	8.73	3.07	3.43	7.35	2.64	2.95	6.34	2.32	2.57	5.51					
	NS	(dB)	17	18	23	*	*	*	*	*	*	*	*	*	*	*	*					
0.187	TP	(Pa)	3.05	3.82	17.82	7.77	9.65	43.58	5.41	6.74	30.88	3.98	4.97	23.02	3.08	3.79	17.37					
	THROW	(m)	8-11.3	6-8.6	4.3-6	8-11.3	6-8.6	4.3-6	7-11	5.6-8.5	4-6.1	6.7-11.3	5.2-8.5	3.7-6.1	6.1-11.3	4.6-8.5	3.4-6.1					
	VEL	(m/s)	2.62	2.93	6.32	4.18	4.65	9.89	3.48	3.89	8.33	2.99	3.34	7.19	2.63	2.92	6.24					
	NS	(dB)	20	21	26	16	17	22	*	*	*	*	*	*	*	*	*					
0.212	TP	(Pa)	3.92	4.91		9.98	12.4		6.95	8.66	39.69	5.11	6.39	29.59	3.95	4.87	22.33					
	THROW	(m)	8.1-12	6.5-9.1		8.5-11.9	6.7-9		8-12	6-9	4.3-6.4	7.6-12	5.8-9.1	4.3-6.4	6.7-12	5.2-9	3.7-6.4					
	VEL	(m/s)	2.97	3.32		4.73	5.28		3.95	4.41	9.44	3.39	3.79	8.15	2.98	3.31	7.08					
	NS	(dB)	23	24		19	20		*	*	*	*	*	*	*	*	*					
0.236	TP	(Pa)	4.86	6.08		12.37	15.37		8.61	10.73		6.34	7.92	36.67	4.9	6.04	27.67					
	THROW	(m)	8.8-12.56	6-10		8.8-12.6	6.7-10		8.9-12.66	7-9.7		8.3-12.6	6.5-10	4.6-7.1	7.3-12.6	5.6-10	4-7					
	VEL	(m/s)	3.3	3.7		5.27	5.87		4.4	4.91		3.77	4.22	9.07	3.32	3.68	7.88					
	NS	(dB)	27	28		22	23		17	18		*	*	*	*	*	*					
0.261	TP	(Pa)	5.94	7.44		15.13	18.79		10.53	13.13		7.75	9.69		5.99	7.38	33.84					
	THROW	(m)	9-13	7-10		9-13	7-10.1		9.1-13.1	7-10.1		9.1-13.1	7-10.1		8.3-13.2	5-10.2	4.7-7.4					
	VEL	(m/s)	3.65	4.09		5.83	6.5		4.86	5.43		4.17	4.66		3.6	4.07	8.72					
	NS	(dB)	30	31		24	25		20	21		16	17		*	*	*					
0.284	TP	(Pa)	7.03	8.81		17.91	22.25		12.47	15.53		9.18	11.47		7.1	8.74	40.07					
	THROW	(m)	9.9-13.87	7-10.8		9.6-13.87	7-10.7		9.9-13.8	7-10.7		9.9-14	7.6-10.7		8.9-13.7	6.8-10.8	5-7.7					
	VEL	(m/s)	3.97	4.45		6.34	7.07		5.29	5.91		4.54	5.07		3.99	4.43	9.48					
	NS	(dB)	32	33		27	28		22	23		19	20		*	*	*					
0.331	TP	(Pa)	9.55	11.97		24.33	30.23		16.94	21.12		12.46	15.58		9.64	11.88						
	THROW	(m)	10-14.9	8-11.6		10.4-15	8-11.7		10.4-15	8-11.7		10.4-15	8-11.7		10.7-15	8.3-11.6						
	VEL	(m/s)	4.63	5.18		7.39	8.24		6.17	6.88		5.29	5.91		4.65	5.16						
	NS	(dB)	38	39		32	33		26	27		23	24		18	19						
0.380	TP	(Pa)				32.07	39.84		22.32	27.83		16.43	20.53		12.7	15.65						
	THROW	(m)				11.2-16	8.6-12		11.4-16	8.6-12.3		11-16	8.6-12.3		11.4-16	8.6-12.4						
	VEL	(m/s)				8.48	9.46		7.08	7.9		6.07	6.79		5.34	5.93						
	NS	(dB)				37	38		31	32		27	28		22	23						
0.424	TP	(Pa)							27.79	34.65		20.45	25.56		15.82	19.49						
	THROW	(m)							12-16	9-12.8		12-16	9-12.8		11.7-17	8.9-12.8						
	VEL	(m/s)							7.9	8.82		6.78	7.57		5.96	6.61						
	NS	(dB)							35	36		31	31		25	26						
0.473	TP	(Pa)							34.58	43.12		25.45	31.81		19.68	24.25						
	THROW	(m)							12.6-18	9.8-14		12.6-18	9.8-13.8		12.5-17	9.9-13.8						
	VEL	(m/s)							8.81	9.84		7.56	8.45		6.65	7.38						
	NS	(dB)							39	40		35	36		28	29						

Aj Register with OBD 0° 22½° 45°
 .79CA .70CA .55CA

Aj Register without OBD .79CA .74CA .58CA

Throw 100% 77% of Straight 55% of Straight

C pressure Coeff. 1.341 1.315 1.305

Basic Formulae:
 $m^3/s = V \times Aj$
 $V = C$

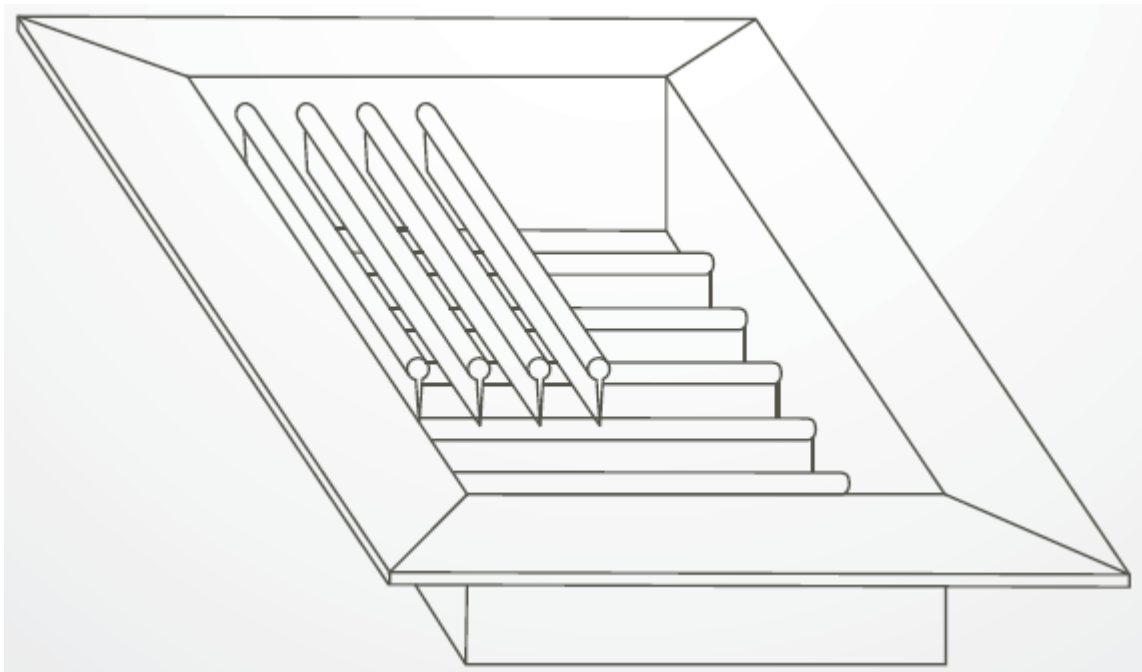
ADVANTAGE AIR®

SUPPLY AIR GRILLES Type DD

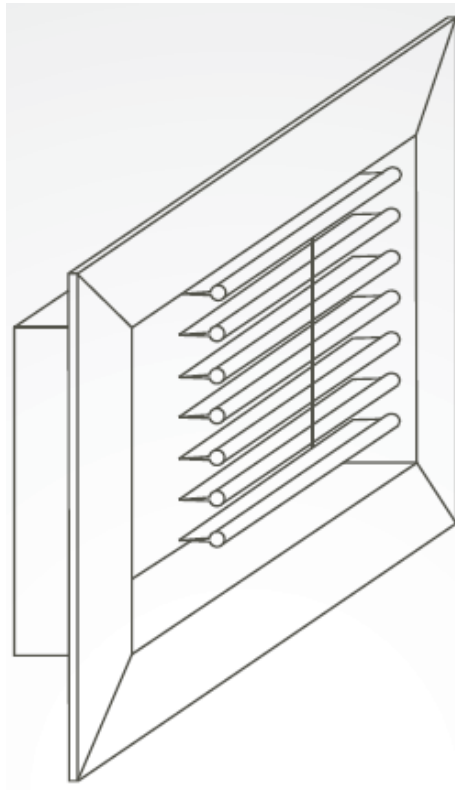
- The two sets of individually adjustable louvers - vertical and horizontal - with or without a damper attached, allow these grilles to provide maximum flexibility of adjustments for spread and throw requirements.
- The multi directional flexibility allows for multi-directional air supply.
- They are recommended for high sidewall, bulkhead or duct mounting and can be used for heating, cooling, or ventilating applications

GENERAL SPECIFICATIONS

- All models feature two sets of individually adjustable blades - vertical and horizontal - spaced at 19mm apart, and fitted into a 32.5 or 20mm frame.
- The optional opposed blade damper is constructed using extruded aluminium blades and frame.
- The individual blades are secured by corrosion resistant star lock washers with added adjusting tension supplied by corrosion resistant spring wire.
- All models can be furnished with powder coated white finish preceded by five stage preparation process of cleaning, phosphatising and drying.
- Grilles can be supplied in natural anodised and white powder coated finishes.
- Other colours are available on request.



SUPPLY AIR GRILLES Type SD



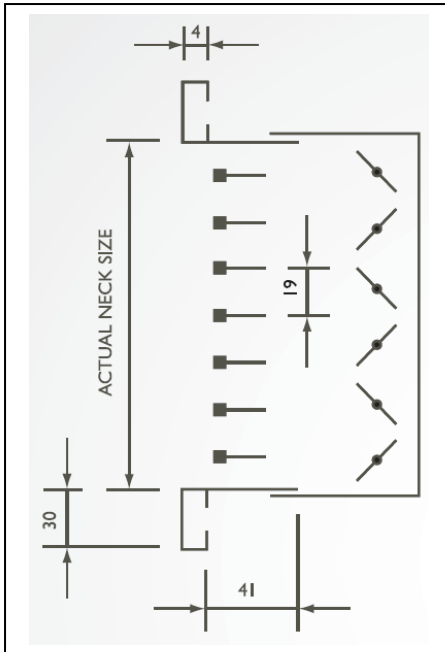
- These models have one set of individually adjustable blades on a horizontal plane to provide maximum throw requirements or on a vertical plane (on special request) to provide maximum spread adjustment.
- They are recommended for heating, cooling, and ventilating applications, generally mounted in a high sidewall, bulkhead or duct when either spread or throw only is important.
- The grilles are provided with or without an opposed blade damper.
- The adjustable blades are spaced at 19mm, but fixed blades with 13, 21 and 26mm spacing can be offered at special request.

GENERAL SPECIFICATIONS

- All models feature one set of individually adjustable blades of extruded aluminium set in a 32.5 or 20mm extruded aluminium frame.
- An optional extra opposed blade damper is constructed of extruded aluminium blades can be supplied on request.
- All models can have a powder coated white surface finish preceded by five stage preparation process of cleaning, phosphatising and drying.
- Other colours are available on request.
- Grilles can also be supplied in natural anodised finish.

SUPPLY AIR GRILLES

Details



TYPE SD: Single Deflection Supply Air Grille

extruded type 50S anodising grade aluminium with individually adjustable horizontal louvers held in place by starlock washers and wire

Optional Accessories **OBD** = Opposed Blade Damper
CF = Concealed Fixing

Frame Options **30mm Standard**
20mm
50mm

Finish Options **NA** = Natural Anodised
EPC = Epoxy Powder Coating

Note: (1) Dimensions given are for opening size into which grille will fit (i.e Normal Duct Size)
(2) If code "OS" is entered under SPECIAL INSTRUCTIONS, then dimensions given are over flange

ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES STREEMLINE RANGE ADJUSTABLE BLADE DIFFUSER KITS



FEATURES

- The SL54 are designed to fit in a standard commercial "T bar" ceiling grid
- Louvred biscuits can be adjusted to seven optimum set points using the patented locking system.
- Adjustable blade diffusers allows for airflow adjustments after installation
- Each biscuit can be located to blow in any one of four directions.
- Diffusers are quick and easy to install.
- Louvre blades remain flush with the ceiling at all times with no ugly protrusions below the ceiling.
- Aerofoil blade profile reduces air noise at the grille and improves air diffusion.
- The louvre biscuits can be removed and washed.

CONSTRUCTION

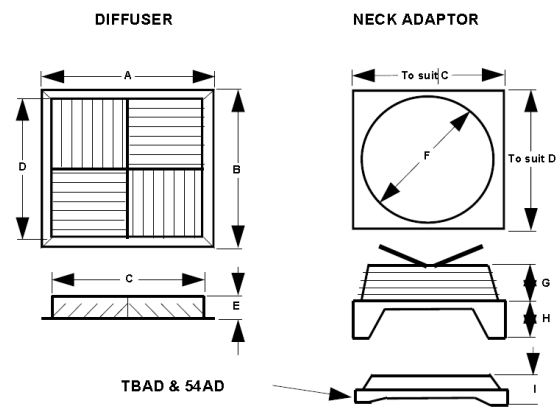
- The diffuser is manufactured from white ABS plastic.
- Plastic neck adaptors are manufactured from black ABS plastic.
- The diffuser clips are constructed from Acetal plastic.

KIT MODEL NO.	A O'all mm	B O'all mm	C Neck mm	D Neck mm	E mm	F Dia mm	G mm	H mm	I mm
SL2WS15*	334	195	280	141	75	150	160	32	na
SL2WS20*	334	195	280	141	75	200	80	32	na
SL3020*	334	334	280	280	60	200	80	32	na
SL3025*	334	334	280	280	60	250	80	32	na
SL3030*	334	334	280	280	60	300	80	32	na
SL2VL20	416	237	365	185	60	200	83	118	na
SL2VL25	416	237	365	185	60	250	83	118	na
SL2VL30	416	237	365	185	60	300	83	118	na

APPLICATIONS

- Ideal for commercial, refrigerated air conditioning, heating and ventilation applications

DIMENSIONS

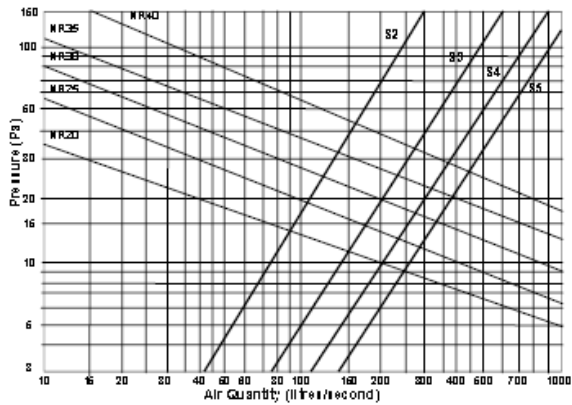


KIT MODEL NO.	A O'all mm	B O'all mm	C Neck mm	D Neck mm	E mm	F Dia mm	G mm	H mm	I mm
SL4020*	416	416	360	360	60	200	80	32	97
SL4025*	416	416	360	360	60	250	80	32	97
SL4030*	416	416	360	360	60	300	80	32	97
SL4030	416	416	360	360	60	300	60	60	na
SL4035	416	416	360	360	60	350	60	60	na
SL4040	416	416	360	360	60	400	60	60	na
SL5440	596	416	540	360	60	400	100	16	75
SL5445	596	416	540	360	60	450	100	16	na
SL5450	596	416	540	360	60	500	100	16	na

ADVANTAGE AIR®

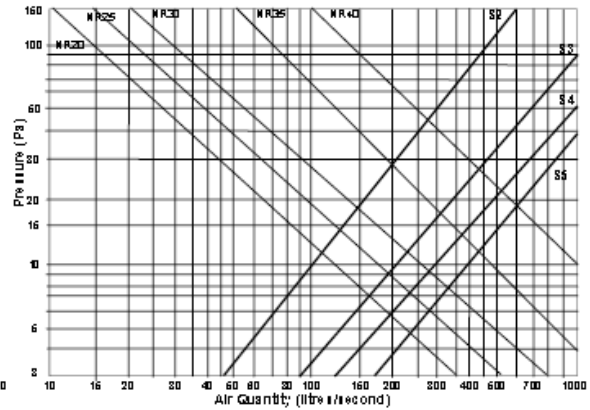
PLASTIC DIFFUSERS & GRILLES STREMLINE RANGE ADJUSTABLE BLADE DIFFUSER KITS PERFORMANCE CHARACTERISTICS

SL-40 (360x360 Streamline diffuser - 4 way blow)



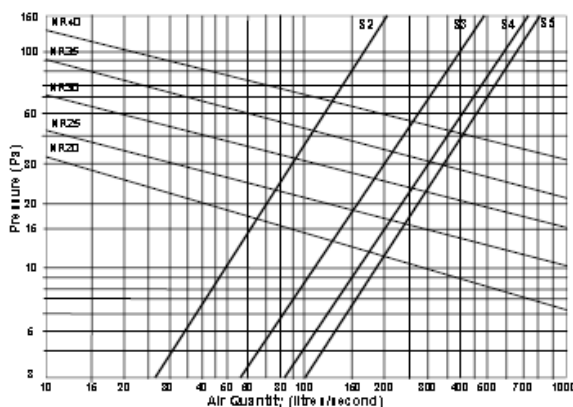
Throws vary between 1 to 5 meters up to 120 l/s and +5 meters for all air quantities above 120 l/s.

SL-54 (360x540 Streamline diffuser - 4 way blow)



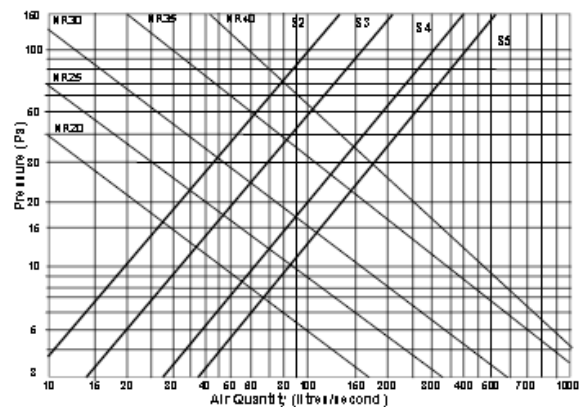
Throws vary between 1 to 5 meters up to 330 l/s and +5 meters for all air quantities above 330 l/s.

SL-30 (280x280 Streamline diffuser - 4 way blow)



Throws vary between 1 to 5 meters up to 200 l/s and +5 meters for all air quantities above 200 l/s.

SL-2WS (280x140 Streamline diffuser - 2 way blow)



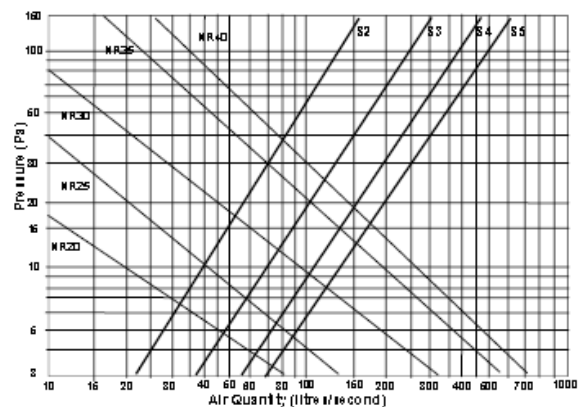
Throws vary between 1 to 5 meters up to 95 l/s and +5 meters for all air quantities above 95 l/s.

LEGEND

- S5** - Blade setting 5
- S4** - Blade setting 4
- S3** - Blade setting 3
- S2** - Blade setting 2
- S1** - Blade fully closed

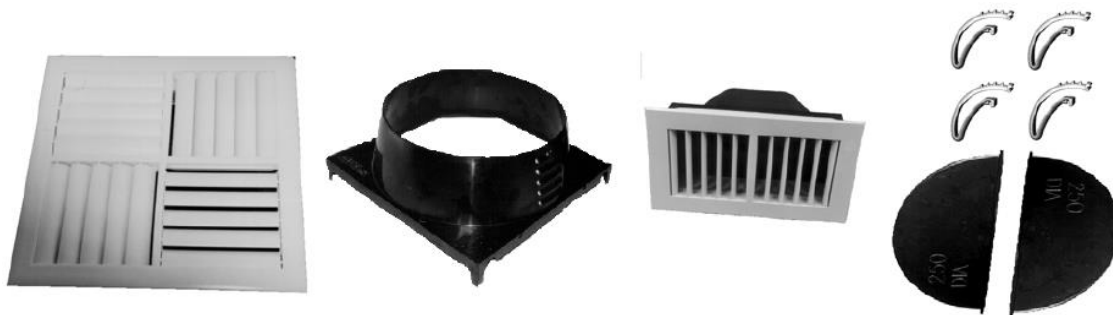
NR - Noise Rating

SL-2WL (360x180 Streamline diffuser - 2 way blow)



ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES STREEMLINE RANGE FIXED BLADE DIFFUSER KITS



FEATURES

- The SL54 are designed to fit in a standard commercial "T bar" ceiling grid.
- Louvred biscuits are moulded in one piece and the pitch of the blades is fixed.
- Diffusers are quick and easy to install.
- Louvre blades remain flush with the ceiling at all times with no ugly protrusions below the ceiling.
- Aerofoil blade profile reduces air noise at the grille and improves air diffusion.
- Each biscuit can be located to blow in any one of four directions.
- The louvre biscuits can be removed and washed.
- Fixed blade Streamline diffusers are less expensive than adjustable blade diffusers.

CONSTRUCTION

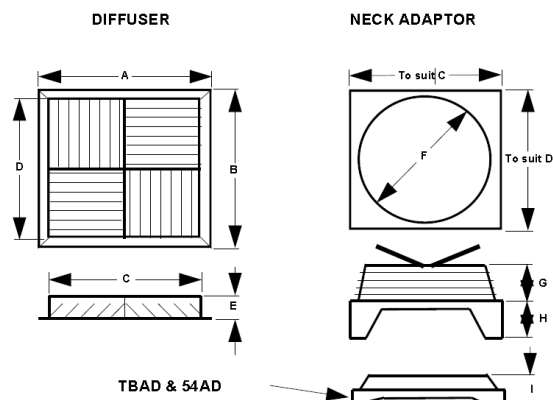
- The diffuser is manufactured from white ABS plastic.
- Plastic neck adaptors are manufactured from black ABS plastic.

- The diffuser clips are constructed from Acetal plastic.

APPLICATIONS

- Ideal for commercial, refrigerated air conditioning, heating and ventilation applications

DIMENSIONS

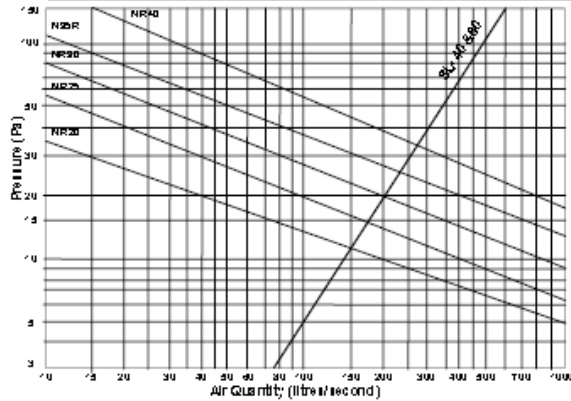


KIT MODEL NO.	A O/all mm	B O/all mm	C Neck mm	D Neck mm	E mm	F Dia mm	G mm	H mm	I mm
SLF2WS15*	334	195	280	141	75	150	160	32	na
SLF2WS20*	334	195	280	141	75	200	80	32	na
SLF3020*	334	334	280	280	60	200	80	32	na
SLF3025*	334	334	280	280	60	250	80	32	na
SLF3030*	334	334	280	280	60	300	80	32	na
SLF2WL20	416	237	365	185	60	200	83	118	na
SLF2WL25	416	237	365	185	60	250	83	118	na
SLF2WL30	416	237	365	185	60	300	83	118	na

KIT MODEL NO.	A O/all mm	B O/all mm	C Neck mm	D Neck mm	E mm	F Dia mm	G mm	H mm	I mm
SLF4020*	416	416	360	360	60	200	80	32	97
SLF4025*	416	416	360	360	60	250	80	32	97
SLF4030*	416	416	360	360	60	300	80	32	97
SLF4030	416	416	360	360	60	300	60	60	na
SLF4035	416	416	360	360	60	350	60	60	na
SLF4040	416	416	360	360	60	400	60	60	na
SLF5440	596	416	540	360	60	400	100	16	75
SLF5445	596	416	540	360	60	450	100	16	na
SLF5450	596	416	540	360	60	500	100	16	na

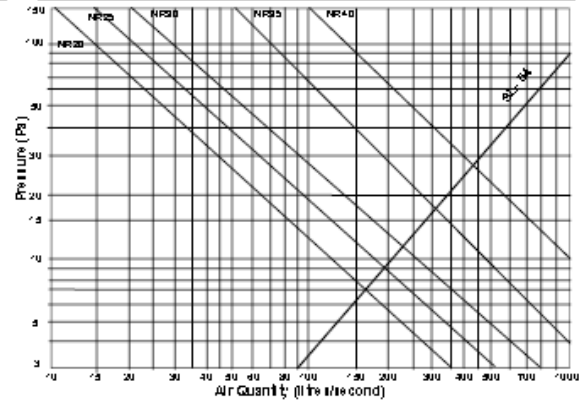
PLASTIC DIFFUSERS & GRILLES STREMLINE FIXED BLADE DIFFUSER PERFORMANCE CHARACTERISTICS

SL-40 (360x360 Streamline diffuser - 4 way blow)



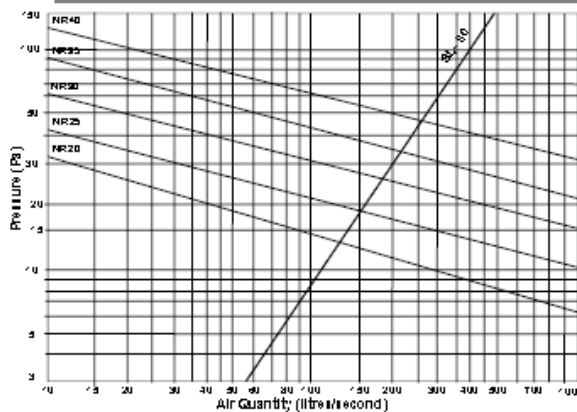
Throws vary between 1 to 5 meters up to 200 l/s and +5 meters for all air quantities above 200 l/s.

SL-54 (360x540 Streamline diffuser - 4 way blow)



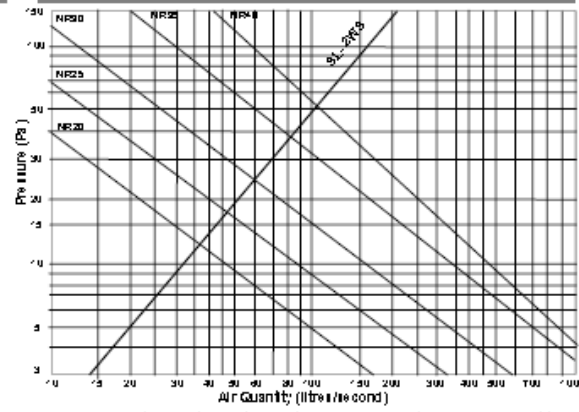
Throws vary between 1 to 5 meters up to 330 l/s and +5 meters for all air quantities above 330 l/s.

SL-30 (280x280 Streamline diffuser - 4 way blow)



Throws vary between 1 to 5 meters up to 120 l/s and +5 meters for all air quantities above 120 l/s.

SL-2WS (280x140 Streamline diffuser - 2 way blow)

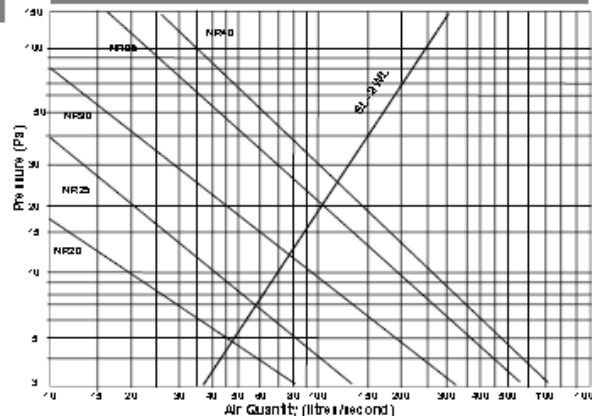


Throws vary between 1 to 5 meters up to 55 l/s and +5 meters for all air quantities above 55 l/s.

LEGEND

NR - Noise Rating

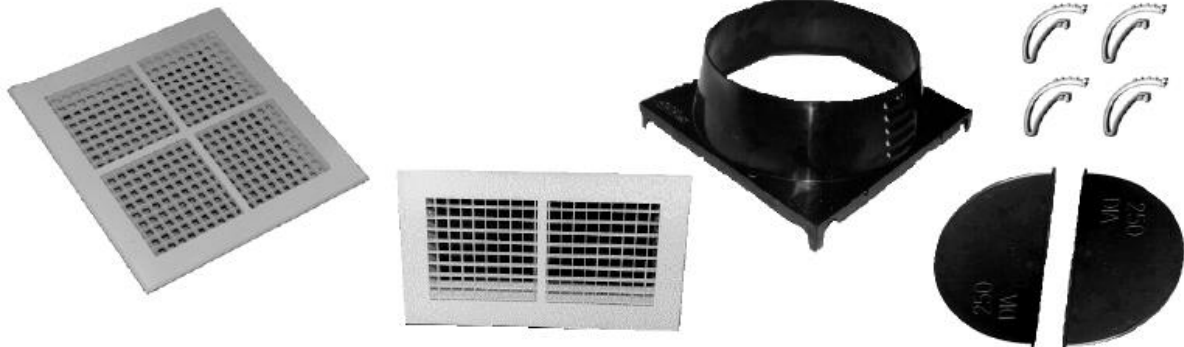
SL-2WL (360x180 Streamline diffuser - 2 way blow)



Throws vary between 1 to 5 meters up to 55 l/s and +5 meters for all air quantities above 55 l/s.

ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES STREEMLINE RANGE EGGCRATE GRILLE KITS



FEATURES

- The SL54 are designed to fit in a standard commercial "T bar" ceiling grid.
- Eggcrate biscuits are moulded in one piece.
- Grilles are quick and easy to install.
- The eggcrate biscuits can be removed and washed.
- Fixed blade Streamline Eggcrate grilles are less expensive than aluminium eggcrate grilles and easier to remove and clean.

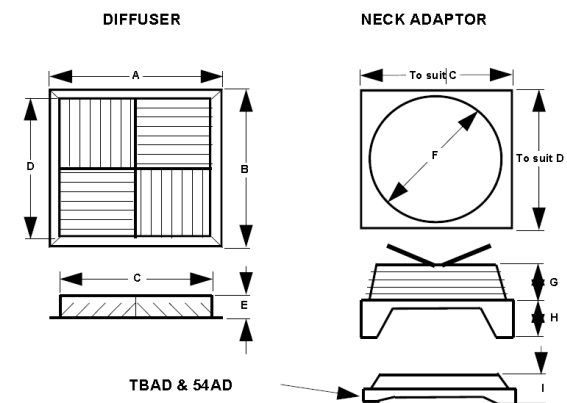
CONSTRUCTION

- The diffuser is manufactured from white ABS plastic.
- Plastic neck adaptors are manufactured from black ABS plastic.
- The diffuser clips are constructed from Acetal plastic.

APPLICATIONS

- Ideal for commercial, refrigerated air conditioning, heating and ventilation applications

DIMENSIONS

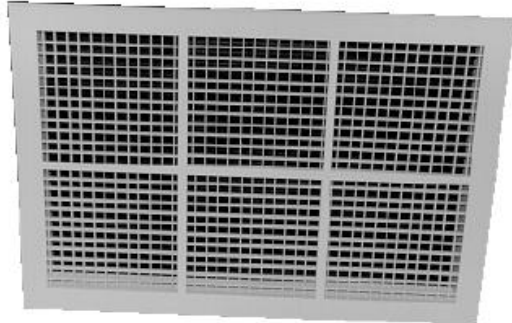


KIT MODEL NO.	A O/all mm	B O/all mm	C Neck mm	D Neck mm	E mm	F Dia mm	G mm	H mm	I mm
SLE2WS15*	334	195	280	141	75	150	160	32	na
SLE2WS20*	334	195	280	141	75	200	80	32	na
SLE3020*	334	334	280	280	60	200	80	32	na
SLE3025*	334	334	280	280	60	250	80	32	na
SLE3030*	334	334	280	280	60	300	80	32	na
SLE2WL20	416	237	365	185	60	200	83	118	na
SLE2WL25	416	237	365	185	60	250	83	118	na
SL2EWL30	416	237	365	185	60	300	83	118	na

KIT MODEL NO.	A O/all mm	B O/all mm	C Neck mm	D Neck mm	E mm	F Dia mm	G mm	H mm	I mm
SLE4020*	416	416	360	360	60	200	80	32	97
SLE4025*	416	416	360	360	60	250	80	32	97
SLE4030*	416	416	360	360	60	300	80	32	97
SLE4030	416	416	360	360	60	300	60	60	na
SLE4035	416	416	360	360	60	350	60	60	na
SLE4040	416	416	360	360	60	400	60	60	na
SLE5440	596	416	540	360	60	400	100	16	75
SLE5445	596	416	540	360	60	450	100	16	na
SLE5450	596	416	540	360	60	500	100	16	na

ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES STREEMLINE RANGE SSRV - STREEMLINE SECURITY RELIEF VENTS



FEATURES

- Rectangular grille with six removable eggcrate cores and a vision proof barometric damper behind the grille.
- The barometric damper will open if the pressure on the room side of the grille is greater than the pressure in the ceiling void.
- Supplied with a separate metal stop to prevent the damper from blowing open.
- Fitted with rubber seals to prevent noise when damper closes.

CONSTRUCTION

- These relief vents are constructed from white plastic and have a black, fluted, plastic barometric damper behind

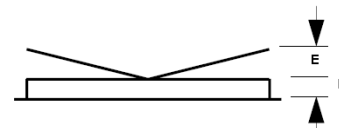
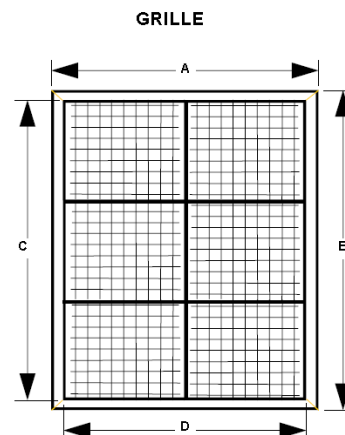
PERFORMANCE

- Air flow through the grille will be determined by the pressure in the room and room leakage. Maximum air flow through a single grille should not exceed 390 l/s if air noise through the grille is to be avoided.

APPLICATIONS

- Security relief vents are designed to be installed in the ceiling of areas which are evaporative cooled. Installation of these grilles provides a relief path for the evaporative system and eliminates the need to open windows and doors.

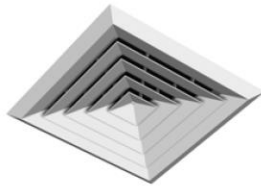
DIMENSIONS



MODEL NO.	A O/all mm	B O/all mm	C Neck mm	D Neck mm	E Open mm	F mm
SSRV	416	596	540	360	150	60

ADVANTAGE AIR®

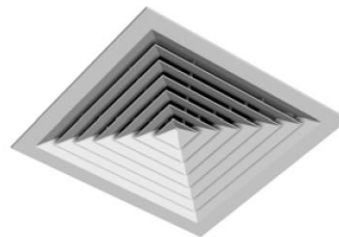
PLASTIC DIFFUSERS & GRILLES SILHOUETTE DIFFUSERS



ST-30 4 WAY CORE



ST-30 3 WAY CORE



ST-60 METRIC TEEBAR



SILHOUETTE DIFFUSER WITH
CUSHION HEAD ADAPTOR

FEATURES

- 360x360 Tee Bars are designed to drop in a standard commercial "T bar" ceiling grid. It can also be flush mounted in gyprock ceilings.
- Available in 2 sizes:
 - .280x280
 - .360x360 (Tee Bar)
- Easy to clean removable cores
- Alternative cores are available to suit the following blow configuration:
 - .280x280: 4 and 3 way blow
 - .360x360 (Tee Bar): 4 way blow
- Aesthetically pleasing louvre design
- Lightweight rigid construction
- 280x280 diffusers comes with spring loaded clips for quick and easy installation
- 360x360 Tee Bar accepts all standard Advantage Air 360x360 neck adaptors and plastic cushion head adaptors.
- 280x280 silhouette diffuser accepts all standard Advantage Air 280x280 neck adaptors and plastic cushion head adaptors.

CONSTRUCTION

- Constructed from blended engineering plastics

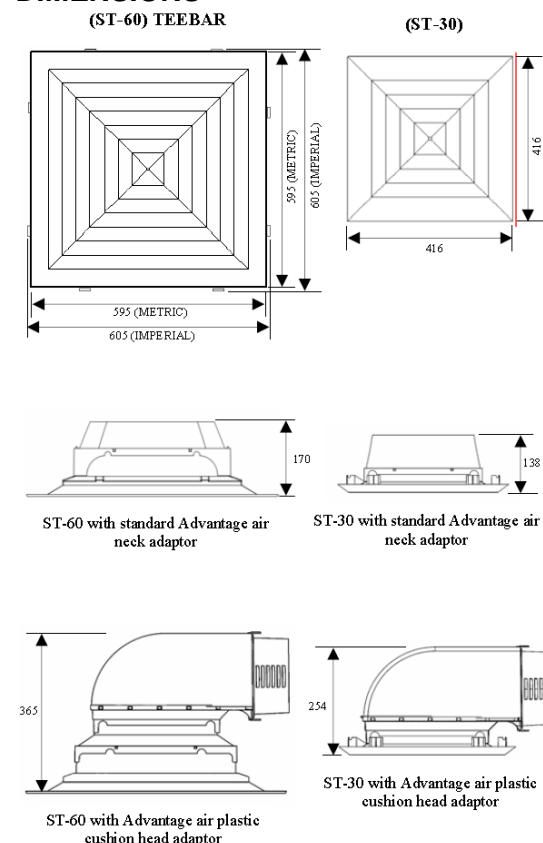
APPLICATIONS

- Ideal for commercial reverse cycle air conditioning, heating and ventilation applications

OPTIONAL EXTRAS

- Plastic neck adaptors
- Plastic cushion head adaptors
- Sheet metal cushion head adaptors
- Steel clips for Tee Bar diffusers
- Sheet metal OBD dampers
- Tabs on Tee Bar diffusers for installations to imperial ceiling grids.

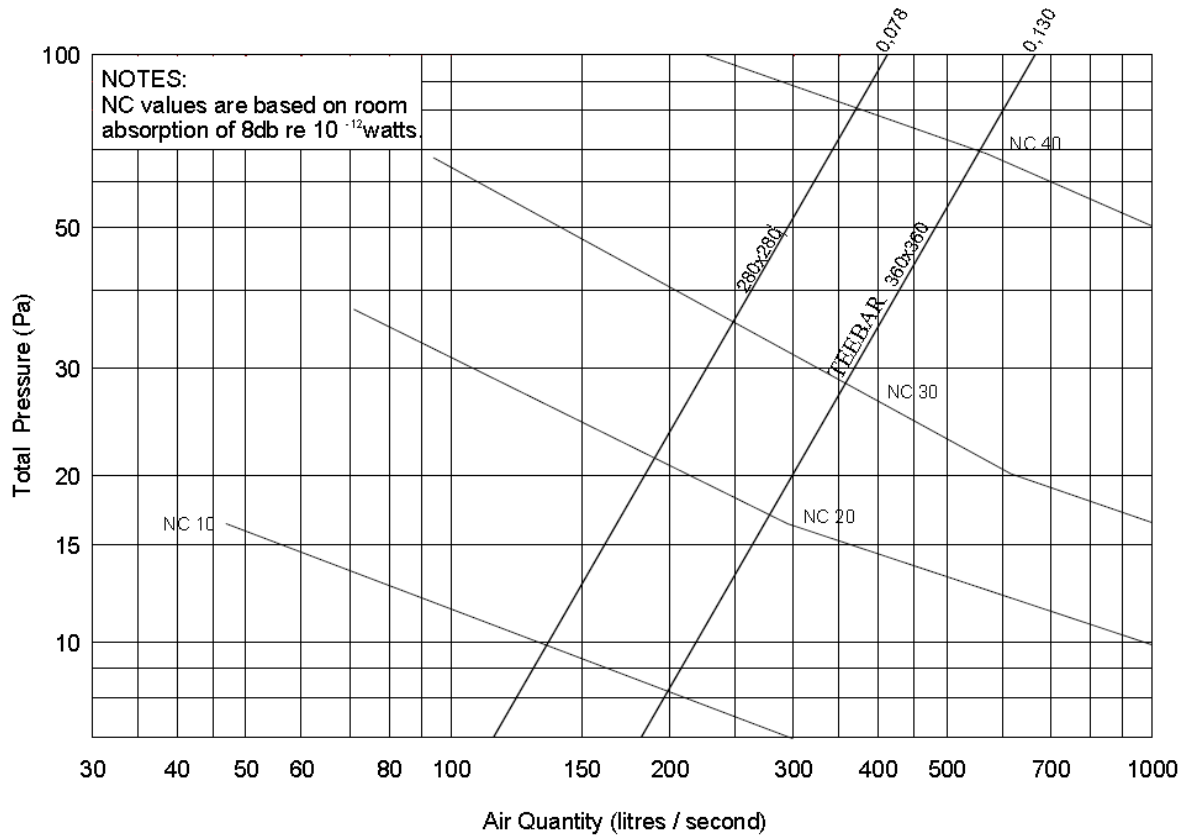
DIMENSIONS



PLASTIC DIFFUSERS & GRILLES SILHOUETTE DIFFUSERS PERFORMANCE CHART

SILHOUTTE DIFFUSERS TEEBAR (360X360) & (280X280) DIFFUSER

Core Area (m²)



SQUARE CEILING DIFFUSERS

ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES PLASTIC CUSHION HEAD



FEATURES

- Low cost
- Lightweight rigid construction
- Provides even airflow across entire diffuser face
- Suitable for restricted ceiling voids
- Curved design allows easy ceiling installation
- Internal insulation reduces risk of condensation and provides excellent acoustic properties
- Integral hanging points

CONSTRUCTION

- Constructed from ABS blended engineering plastics

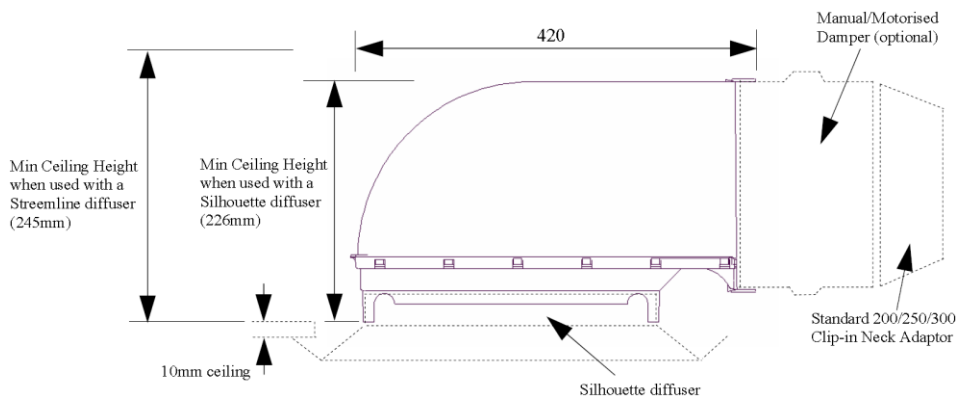
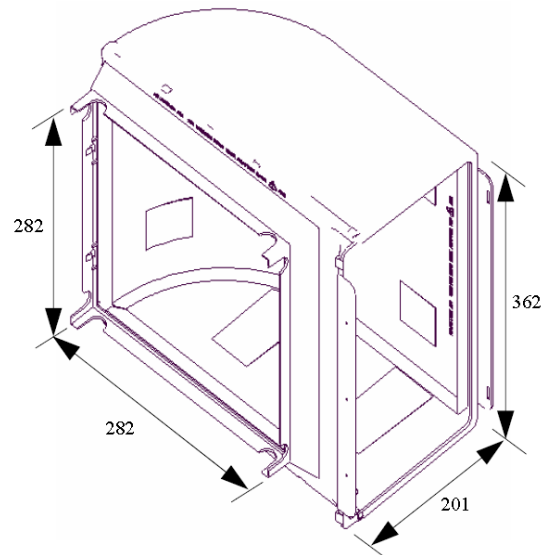
APPLICATIONS

- Suitable for use on:
- Streamline diffusers
- Silhouette diffusers
- Spigot sizes available 200/250/300 diameter

OPTIONAL EXTRAS

- Can be internally insulated with a 'closed cell' polyethylene adhesive material or a 25mm (black scrim or perforated foil) fibreglass
- Manual or Motorised inlet damper

DIMENSIONS



ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES ROUND DIFFUSER



FEATURES

- Available in 4 different sizes:
- 150 dia
- 200 dia
- 250 dia
- 300 dia
- Stylish design
- Easily adjusted diffuser opening
- Low cost
- Lightweight rigid construction
- Easy to clean.
- Scratch resistant surface.
- Quiet.
- Snap action clips for fast and easy installation.
- Tapered neck for easy duct connection

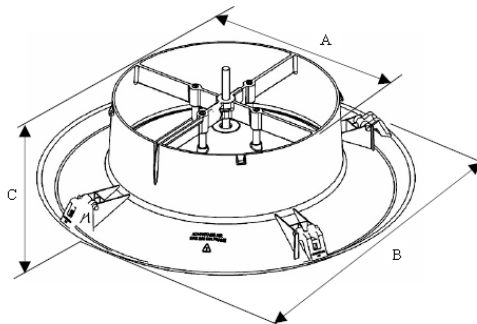
CONSTRUCTION

- These outlets are injection moulded from white ABS plastic and have integrated spring loaded clips

APPLICATIONS

- Ideal for commercial reverse cycle air-conditioning, heating and ventilation applications.

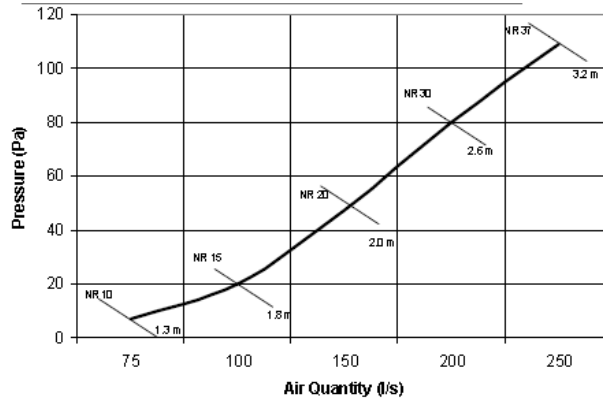
DIMENSIONS



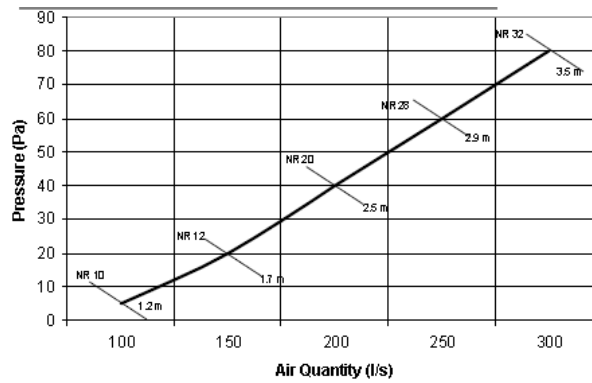
GRILLE SIZE	A NOMINAL NECK SIZE (mm)	B FLANGE SIZE (mm)	C HEIGHT (mm)	HOLE DIAMETER (mm)
150 DIA	145	268	93	231
200 DIA	200	328	100	284
250 DIA	250	390	102	356
300 DIA	300	436	102	398

PLASTIC DIFFUSERS & GRILLES ROUND DIFFUSER PERFORMANCE DATA

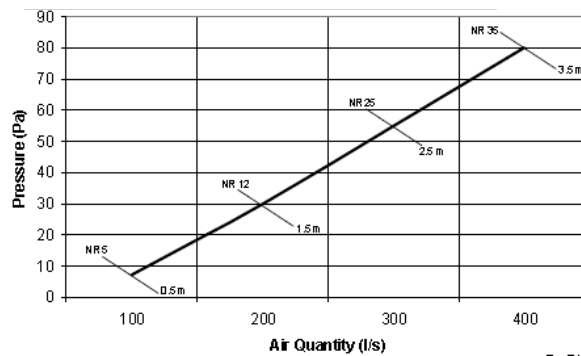
200 DIA SUNLINE DIFFUSER



250 DIA SUNLINE DIFFUSER



250 DIA SUNLINE DIFFUSER



ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES SWIVEL JET DIFFUSERS



FEATURES

- Unique swivel core allows the occupant to adjust the direction of airflow through 360° to suit furniture layouts etc.
- Easy to clean.
- Quiet.
- Damper is easily adjusted from the face of the grille and will not blow closed.
- Snap action clips for fast installation.
- Tapered neck for easy duct connection

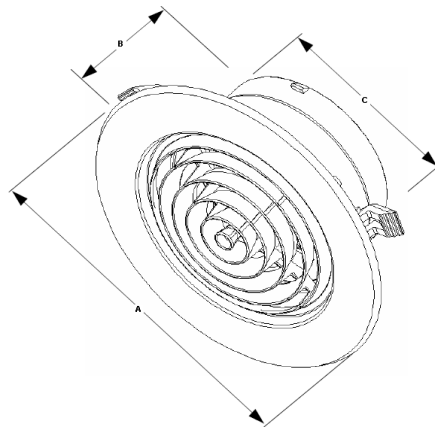
CONSTRUCTION

- These outlets are injection moulded from white A.B.S plastic and have integrated spring loaded Clips

APPLICATIONS

- These outlets are ideal as heating, supply air ceiling diffusers.
- Can also be used for en-suite exhaust, bulkhead air conditioning / heating or as a reverse cycle jet diffuser.

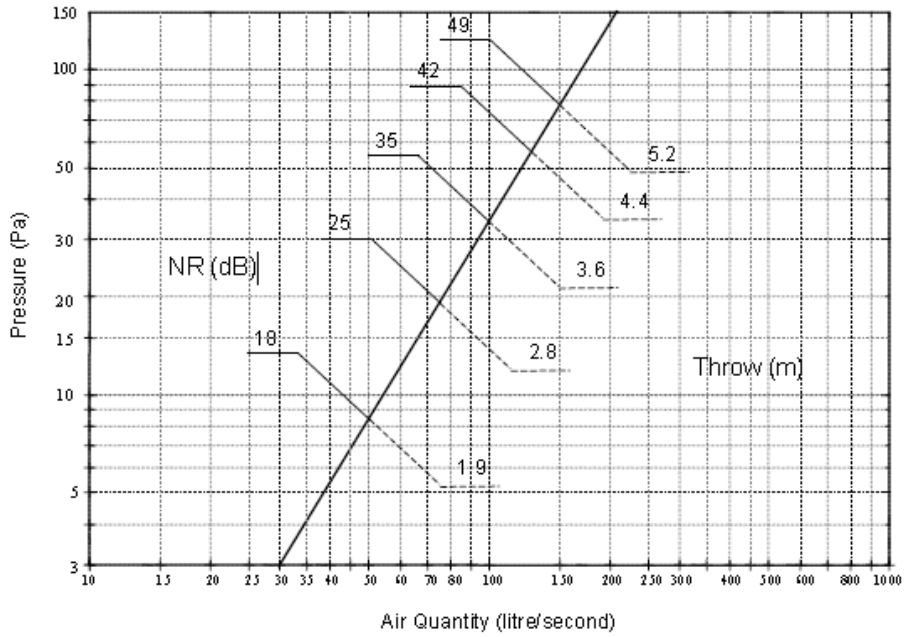
DIMENSIONS



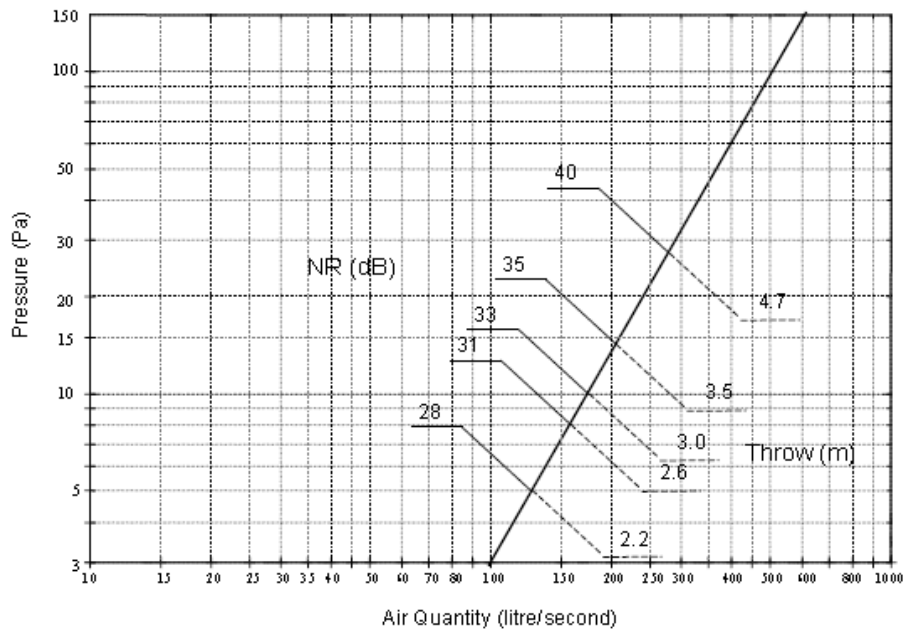
MODEL NO.	A O/all	B O/all	C Neck
SJ15	262	100	148
SJ20	312	103	198

PLASTIC DIFFUSERS & GRILLES SWIVEL JET DIFFUSERS - PERFORMANCE DATA

150 DIA SWIVEL JET DIFFUSER

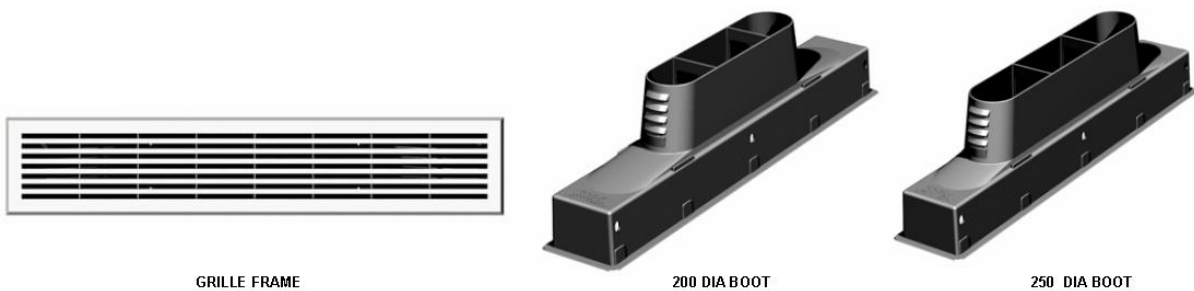


200 DIA SWIVEL JET DIFFUSER



ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES BABY LINEAR GRILLE



FEATURES

- One piece construction of the diffuser eliminates unsightly joins.
- Attractive moulded diffuser is scratch resistant and will not corrode or deteriorate with age.
- Fast, easy installation.
- Significantly lower cost than aluminium diffusers.
- Will fit commercial ceiling grids.
- Easy to clean removable grille frame.
- Light weight ridged construction.
- Standard ceiling white.
- Paintable.
- Boots available in 200 DIA and 250 DIA connections.

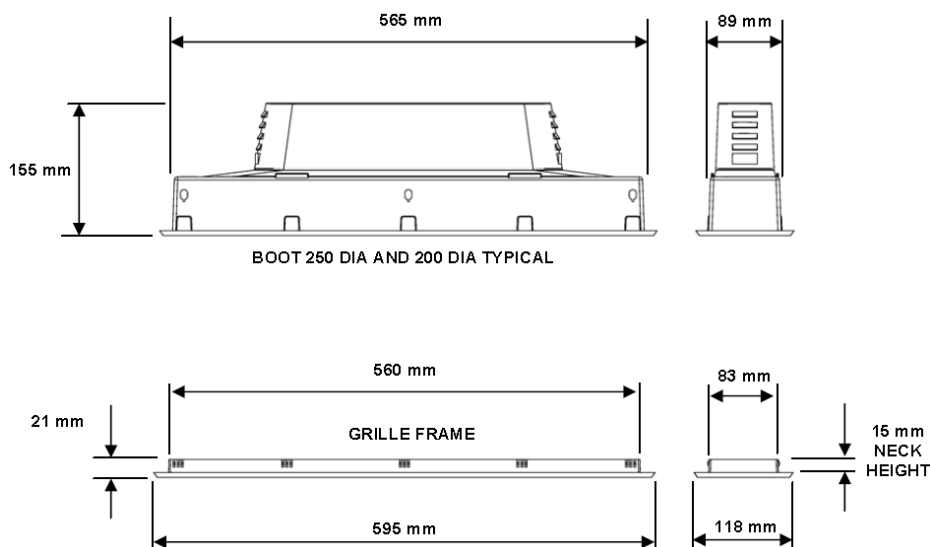
CONSTRUCTION

- The diffuser is moulded from white ABS plastic.
- The boot/adaptor black ABS plastic.
- The frame can be supplied separately for bulkhead, wall and door installations.
- The boot clips are constructed from Acetal plastic.

APPLICATIONS

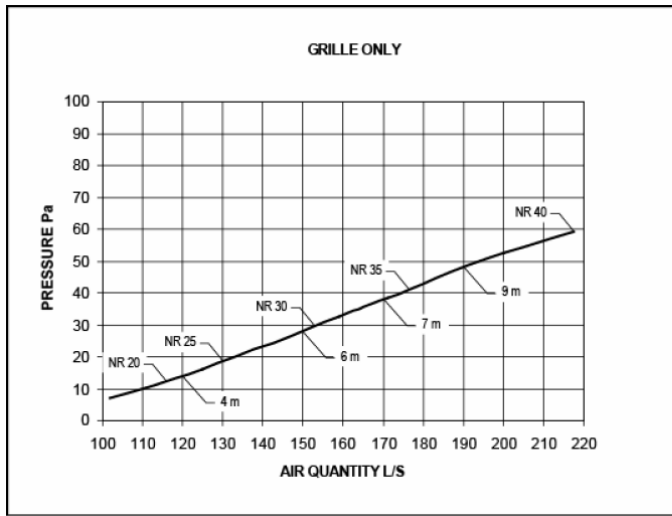
- Ideal for light commercial reverse cycle air conditioning systems.
- Suitable for ceiling, commercial T-Bar, bulkhead, and wall
- Suggested cut out 90mm x 570mm for boots. Grille only installations will require a smaller cut-out hole for grille neck.

DIMENSIONS

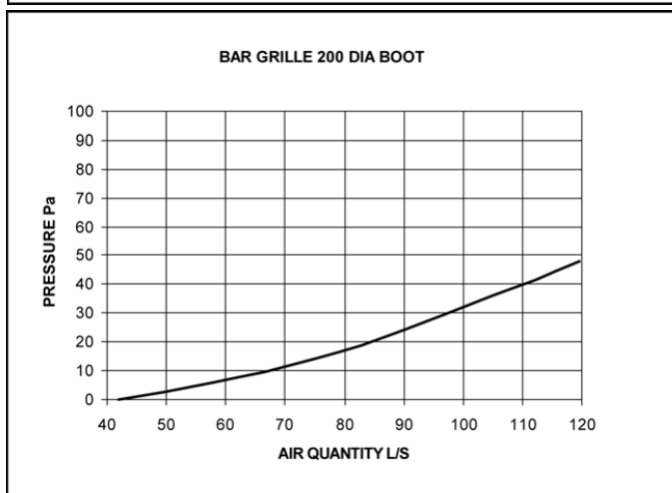
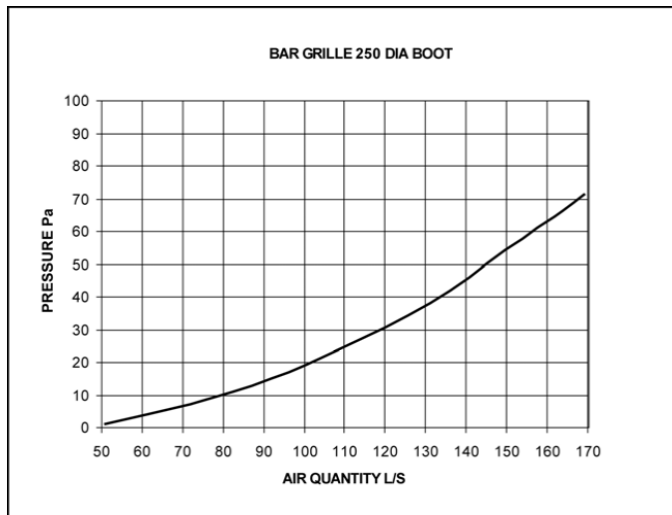


ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES BABY LINEAR GRILLE PERFORMANCE



LEGEND
NR - Noise Rating



ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES LINEAR ELITE DIFFUSER



Clips supplied separately. Please specify.

FEATURES

- Two 25mm slots provide high flow rates with low noise levels.
- One piece construction of the diffuser eliminates unsightly joins.
- Attractive moulded diffuser is scratch resistant and will not corrode or deteriorate with age.
- Fast, easy installation.
- Two deflectors per slot enables 180 degree throw pattern.
- Significantly lower cost than aluminium diffusers.
- Will fit both metric and imperial commercial ceiling grids.

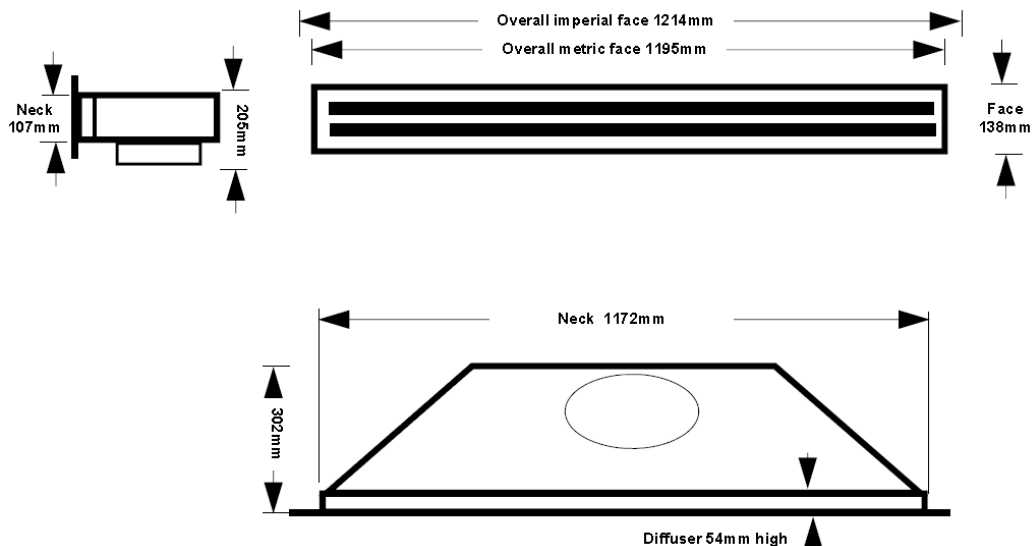
CONSTRUCTION

- The diffuser is constructed from white ABS plastic.
- The boot, adaptor and deflectors are all constructed from black plastic.
- The internal insulation for the boot is moulded polystyrene.
- The boot is supplied with a side central hole for the propriety spigot.

APPLICATIONS

- Reverse cycle commercial air conditioning.
- Heating.
- Suggested cut out 118mm x 1175mm.

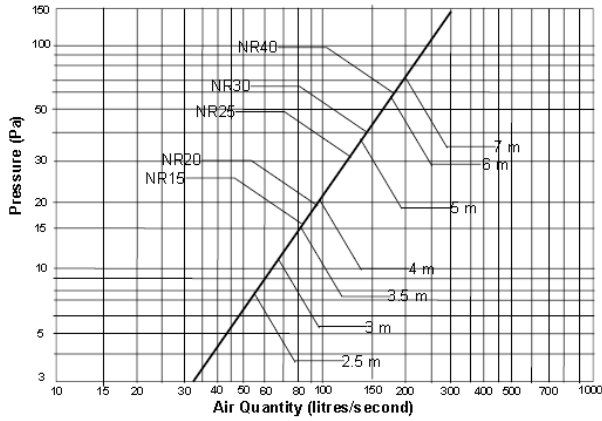
DIMENSIONS



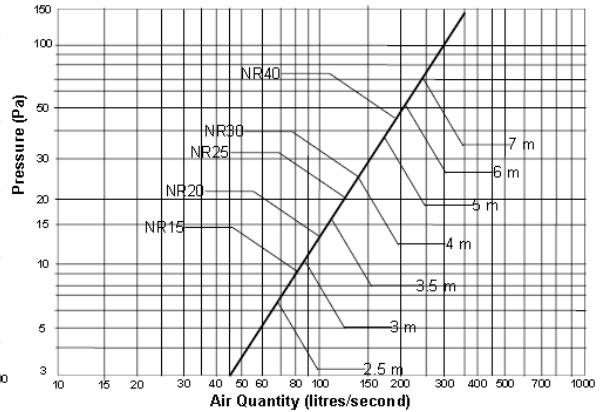
ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES LINEAR ELITE DIFFUSER PERFORMANCE CHARACTERISTICS

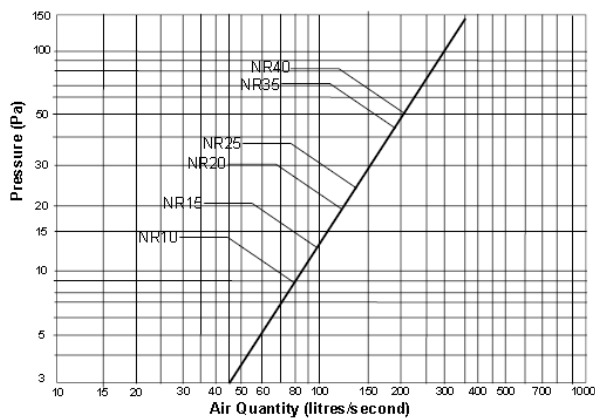
LINEAR
(1200x100 Linear Elite Diffuser - Horizontal discharge)



LINEAR
(1200x100 Linear Elite Diffuser - Vertical discharge)



LINEAR (1200x100 Linear Elite Diffuser - Return air)



LEGEND

NR - Noise Rating

ADVANTAGE AIR®

PLASTIC DIFFUSERS & GRILLES AIRLINE DIFFUSER



Features

- Stylishly presented 4 slot Linear grille
- One piece face construction – no visible joins
- Scratch resistant, and will not corrode
- Suitable for airflow of up to 220 l/s
- 360 degree directable airflow
- Easy installation

Construction

- Grille – White ABS Plastic
- Boot – White ABS Plastic

Applications

- Commercial Reverse Cycle Air-conditioning systems

Dimensions

- Exact Neck Dimensions: **532mm x 196mm**
- Height (including spigot, but not duct): **140mm**



ADVANTAGE AIR®

METAL RETURN AIR GRILLES

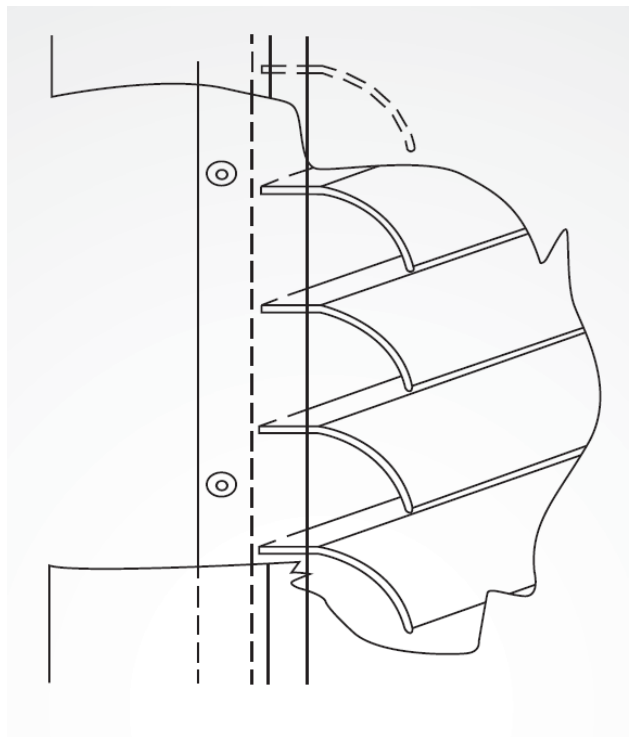
STOCK RANGE

RETURN AIR FILTER AND FRAME

MODEL NO.	SIZE MM
BRAG595/595	595*595
BRAG1195/595	1195*595

CUSTOM RANGE

Type-RA

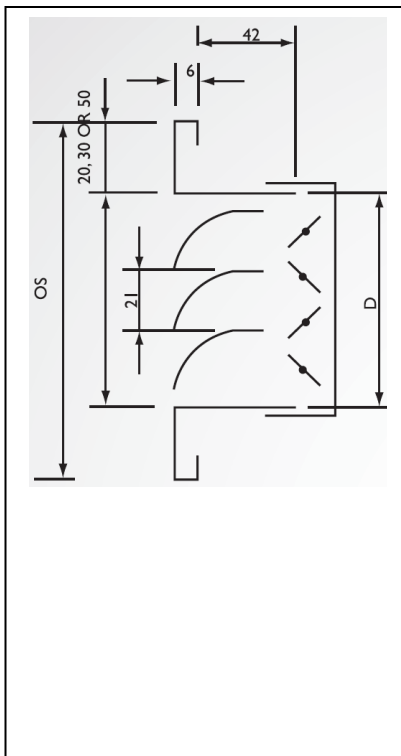


- These grilles feature light weight extruded aluminium with or without damper attached. The standard grilles are available with fixed horizontal blades spaced at 21mm apart.

GENERAL SPECIFICATIONS

- Different spacing can be offered as a special request.
- The frame is constructed of 1.3mm thickness extruded aluminium with curved fins of extruded aluminium of 1.2 to 1.6mm thickness.
- The damper is constructed from extruded aluminium blades and frame.
- Grille can be furnished with powder coated white finish preceded by a five stage preparation process of cleaning, phosphatising and drying.
- Other colours are available on request.
- Grilles can also be supplied as natural anodised.
- For outside weatherproof applications the Return Air Ribbed Blade (RARB) can be offered. This type is particularly suited to grilles for console air conditioners

METAL RETURN AIR GRILLES Details



TYPE RA

(45deg. Deflection):

Return Air Grille manufactured of extruded type anodising grade aluminium with fixed curved blade profile giving low see through characteristics.

This grille may be mounted vertically or horizontally.

Optional Accessories

OBD = Opposed Blade Damper

CF = Concealed Fixing

FS = Rear Fixing Straps

Frame Options

30mm Standard

20mm

50mm

Finish Options

NA = Natural Anodised

EPC = Epoxy Powder Coating

WS = Wet Spray Colour

Blade Spacing

13mm

19mm

21mm Standard

26mm

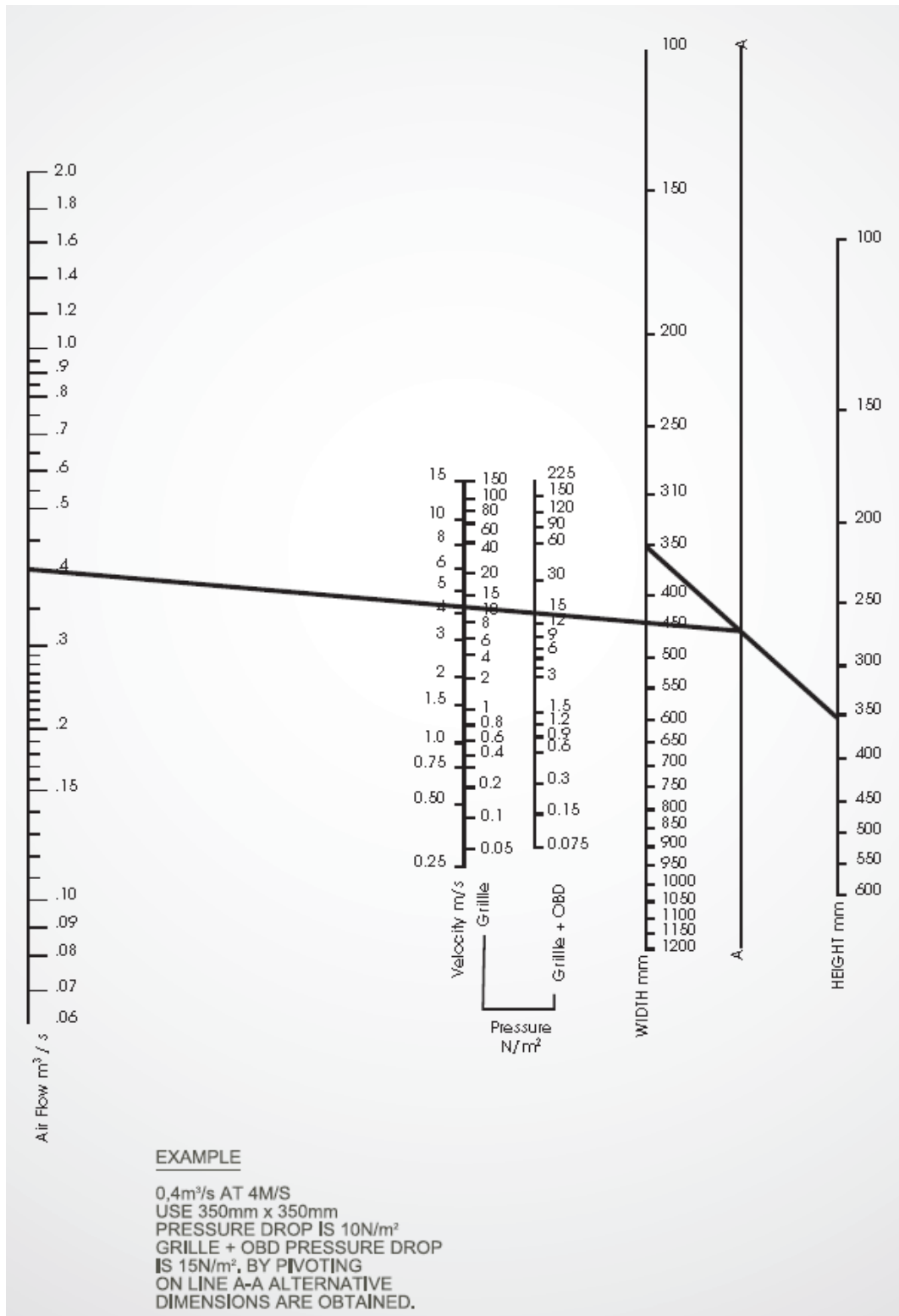
Note: (1) Dimensions given are for over flange size

(2) If 13mm, 19mm, 26mm Blade Spacing required, enter under SPECIAL INSTRUCTIONS

ADVANTAGE AIR®

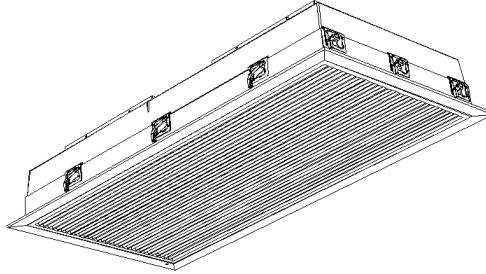
METAL RETURN AIR GRILLES Type-RA

SELECTION DATA



ADVANTAGE AIR®

PLASTIC RETURN AIR GRILLES PURTECH RETURN AIR GRILLE



FEATURES

- Low cost.
- Scratch resistant.
- Removable core for easy cleaning.
- Complete with leak proof return air box.
- Two return air duct connections to ensure even air distribution across grille and filter.
- Electrostatic filters provides 14% more efficiency than standard filters.
- Accepts standard Advantage Air neck adaptors for quick connection.
- Close tolerances ensure the grille does not whistle.
- Attractive elongated eggcrate core reduces pressure drop across core.
- Hidden mechanical latches ensures the core will not drop.
- Plastic box construction reduces risk of condensation and corrosion.
- Three sizes 1200x600, 900x400 and 750x550.
- 1200x600 model will drop into metric ceiling T-bar system.
- Light weight ridged construction.
- Standard ceiling white.
- Paintable.

CONSTRUCTION

- Grille, box and adaptors are all blended engineering plastics.
- Electrostatic filters are a special combination of materials layered to provide the maximum static charge to capture dust particles.
- Can be internally insulated using 6 mm 'closed cell polyethylene adhesive material

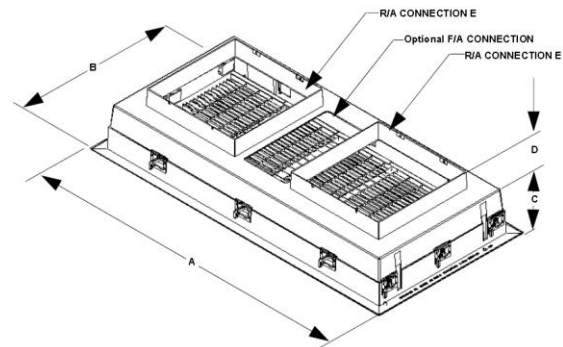
APPLICATIONS

- Ideal for small commercial ducted
- Can be used without filters for air transfer and ventilation systems.

OPTIONAL EXTRAS

- Optional fresh air filter/connection.
- Optional dirty filter alarm to alert owner when filter clean is overdue.
- Optional internal insulation for high humidity climates.
- Optional double layer or 3 layer filter.

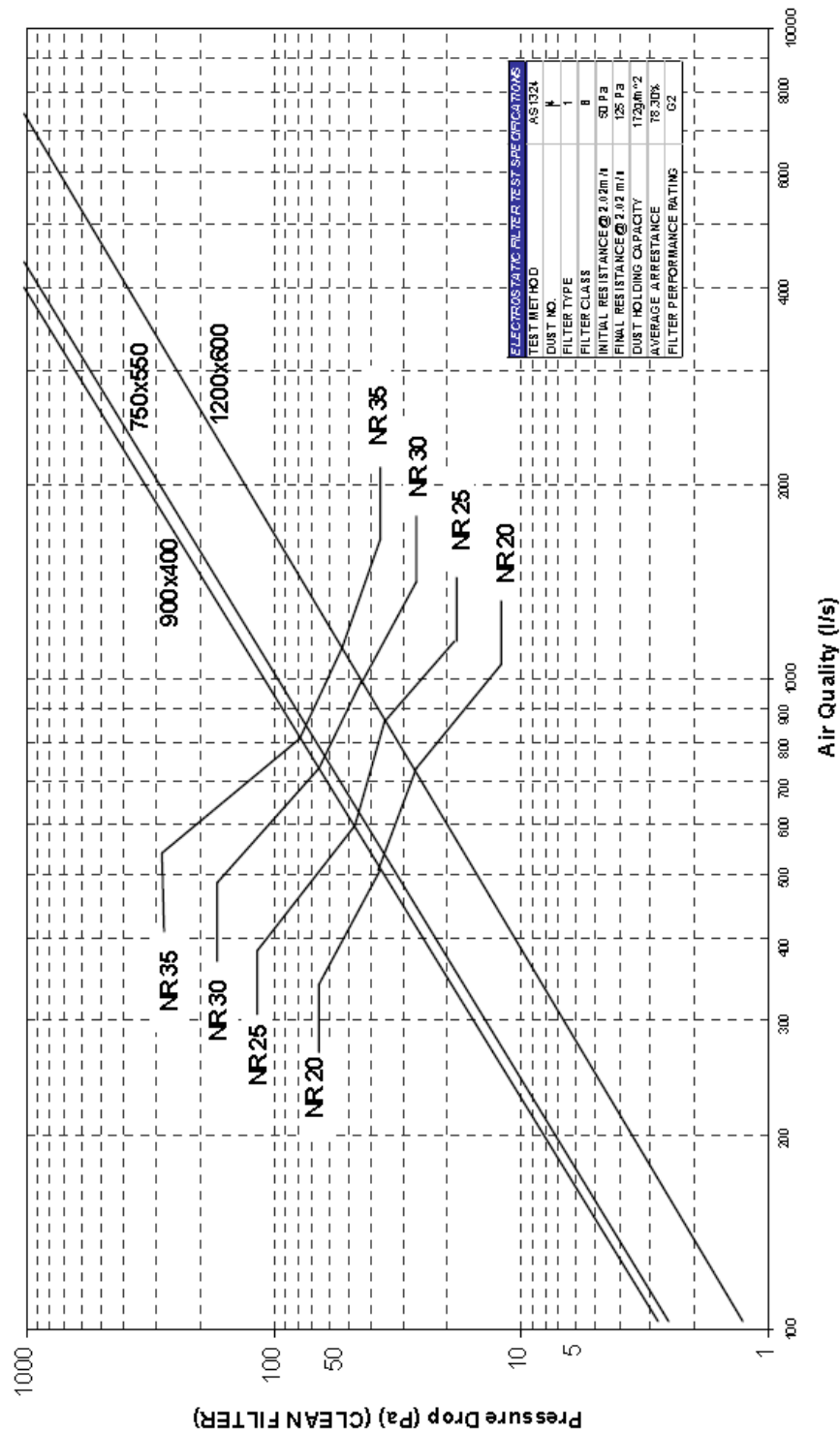
DIMENSIONS



MODEL NO.	A O'all Length mm	B O'all Width mm	C mm	D mm	E R/A Connection mm	F F/A Connection mm	Max O'all Height with Adaptors mm	Effective face area M ²
PUR1260	1195	595	155	60	200 to 400	200 to 300	275	0.529
PUR9040	973	488	155	60	200 to 400	150 to 200	348	0.309
PUR7555	800	595	160	18	200 to 550	150 to 200	281	0.337

PLASTIC RETURN AIR GRILLES PURTECH RETURN AIR GRILLE PERFORMANCE DATA

PURTECH RETURN AIR GRILLE WITH 3 LAYER ELECTROSTATIC FILTER



ADVANTAGE AIR®

PLASTIC RETURN AIR GRILLES SLIMLINE RETURN AIR GRILLE



FEATURES

- Low cost
- Front loading and removal of filter (optional)
- Light weight rigid plastic construction
- Scratch resistant
- Suitable for ceiling installations
- All plastic construction reduces risk of condensation and corrosion.

CONSTRUCTION

- Grille frame is constructed from ABS blended engineering plastics
- Filter frame and media are constructed from Polypropylene plastic to provide maximum static charge to capture dust particles

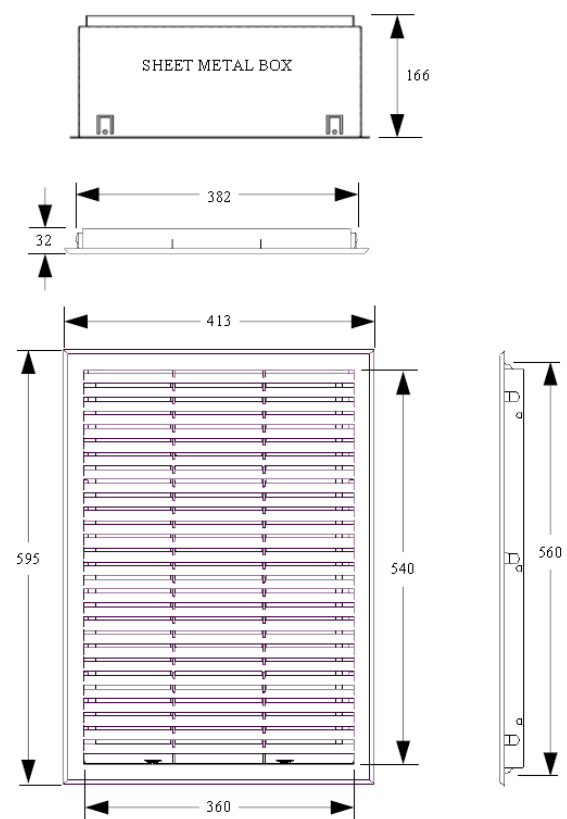
APPLICATIONS

- Ideal for small commercial ducted gas heating and reverse cycle return air systems.
- Can be used without filters for air transfer and ventilation systems

OPTIONAL EXTRAS

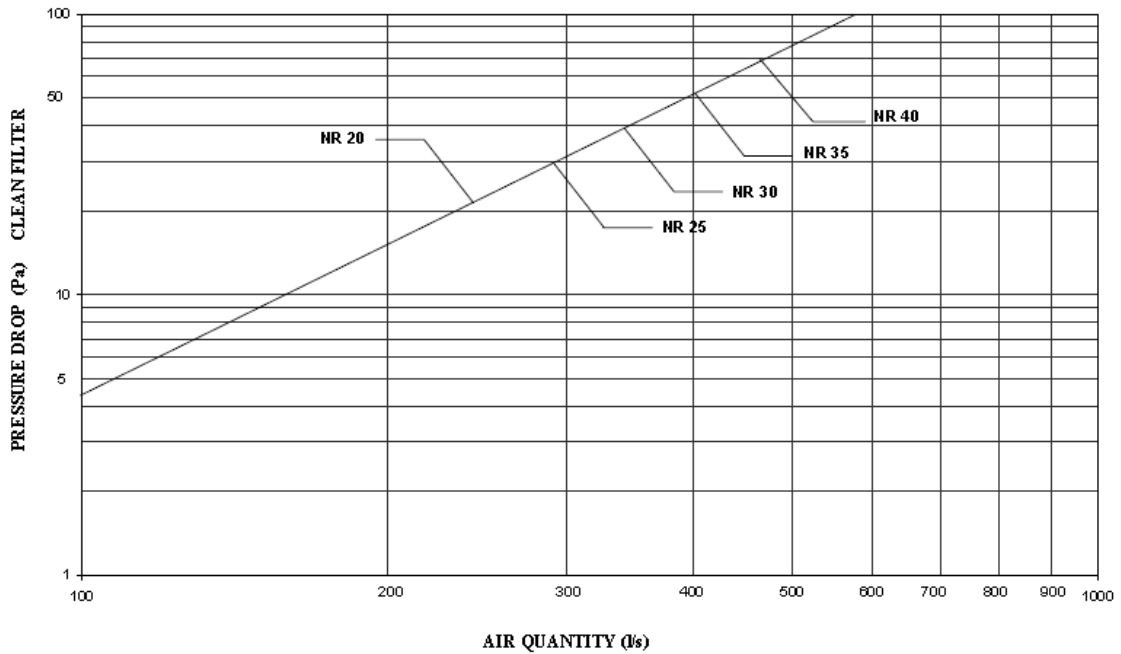
- Removable electrostatic filter
- Sheet metal installation frame
- Sheet metal box for ceiling return air applications.
- Suitable for connection to standard Advantage Air neck adaptors for ducting.

DIMENSIONS



ADVANTAGE AIR®

PLASTIC RETURN AIR GRILLES SLIMLINE PERFORMANCE CHART



HONEYCOMB FILTER TEST SPECIFICATIONS	
TEST METHOD	ASHRAE STANDARD 52.1-1992
TEST DUST	ASHRAE
INITIAL RESISTANCE @ 1.02m/s	10 Pa
FINAL RESISTANCE @ 1.02m/s	250 Pa
AVERAGE ATMOSPHERIC DUST SPOT EFFICIENCY	< 20%
DUST HOLDING CAPACITY	237g/m ²
AVERAGE ARRESTANCE	54.00%

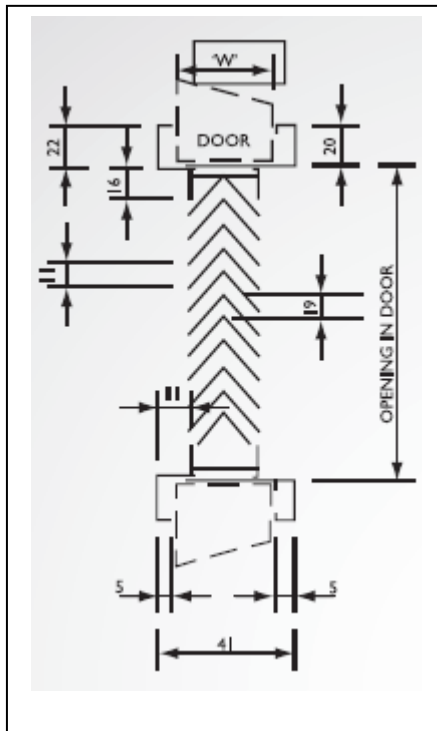
LEGEND

NR - Noise Rating

NB. TEST DATA IS BASED ON THE (GRILLE FRAME + FILTER) CONFIGURATION

ADVANTAGE AIR®

DOOR GRILLES TYPE-DG



STOCK RANGE

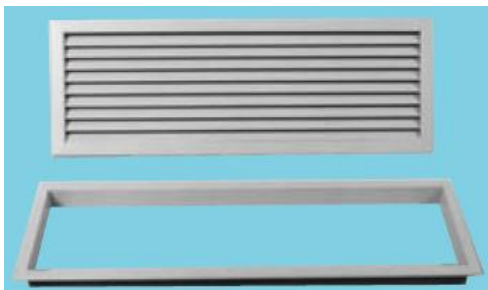
MODEL NO	NOMINAL SIZE mm
DRG300	300*300
DRG4030	400*300
DRG400	400*400

CUSTOM RANGE

TYPE DG Door Grille complete with telescopic back Frame manufactured of extruded Type 50S anodising grade aluminium. These grilles have fixed horizontal Chevron Louvres.

Dimensions **W** = Door Thickness
 Fixing Options **UD** = Undrilled Standard
CF = Spring Clip can be supplied if door thickness W is ACCURATELY provided (Door thicknesses vary considerably)

Note Also available without frames



(Picture for illustration purposes only)

TYPE DG DOOR GRILLE

Frame Options Standard Frame = 20mm
 Telescopic Back Frame = 22mm

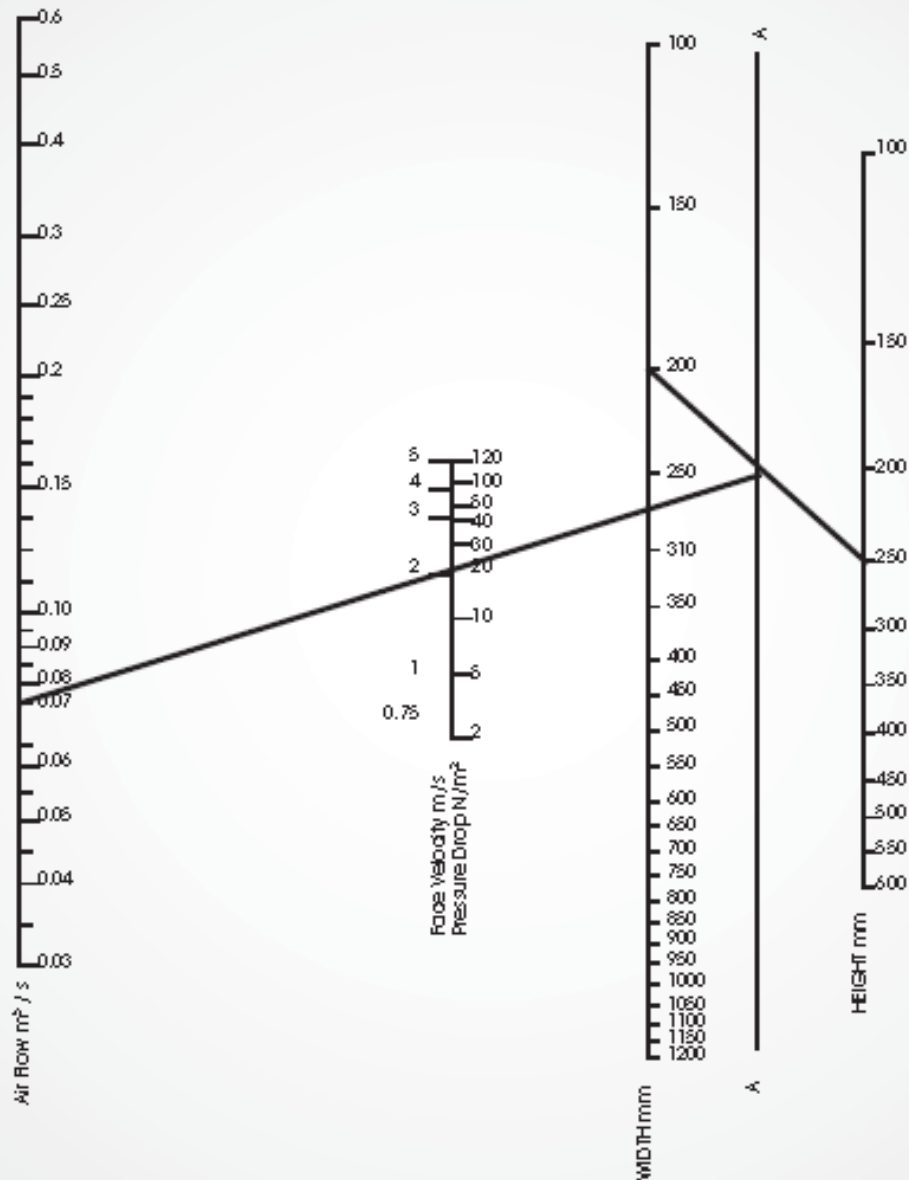
Finish Options **NA** = Natural Anodised
BEW = Baked Enamel White
EPC = Epoxy Powder Coating

Blade Spacing **13mm Standard**
19mm
21mm
26mm

Note: (1) Dimensions given are for opening size into which grille will fit (i.e Normal Duct Size)
 (2) If code "OS" is entered under SPECIAL INSTRUCTIONS, then dimensions given are over flange.
 (3) If 19, 21, 26mm Blade Spacing required, enter under SPECIAL INSTRUCTIONS.

DOOR GRILLES TYPE-DG

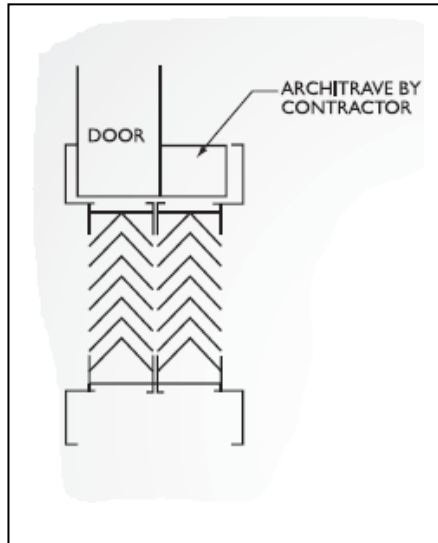
SELECTION DATA



EXAMPLE

0.07m³/s THROUGH A
200mm x 250mm GIVES
PRESSURE DROP OF 20N/m²
FACE VELOCITY OF 2m/s.
ALTERNATE SIZES MAY
BE OBTAINED BY PIVOTING
ON LINE A-A.

DOOR GRILLES TYPE-DG-DR



CUSTOM RANGE

TYPE DG Door Grille without telescopic back frame manufactured of anodising grade aluminium. These grilles have fixed horizontal Chevron Louvres. For dark rooms and other areas where light sensitivity is critical, Type DG-DR is recommended.

TYPE DG-DR DOOR GRILLE

Frame Options	=	22mm Standard
Finish Options	NA =	Natural Anodised
	BEB =	Baked Enamel Matt White
	EPC =	Epoxy Powder Coating Matt Black

Note: (1) Dimensions given are for opening size into which grille will fit
(2) Horizontal dimension is given first.

ADVANTAGE AIR®

EGG CRATE GRILLES

STOCK RANGE

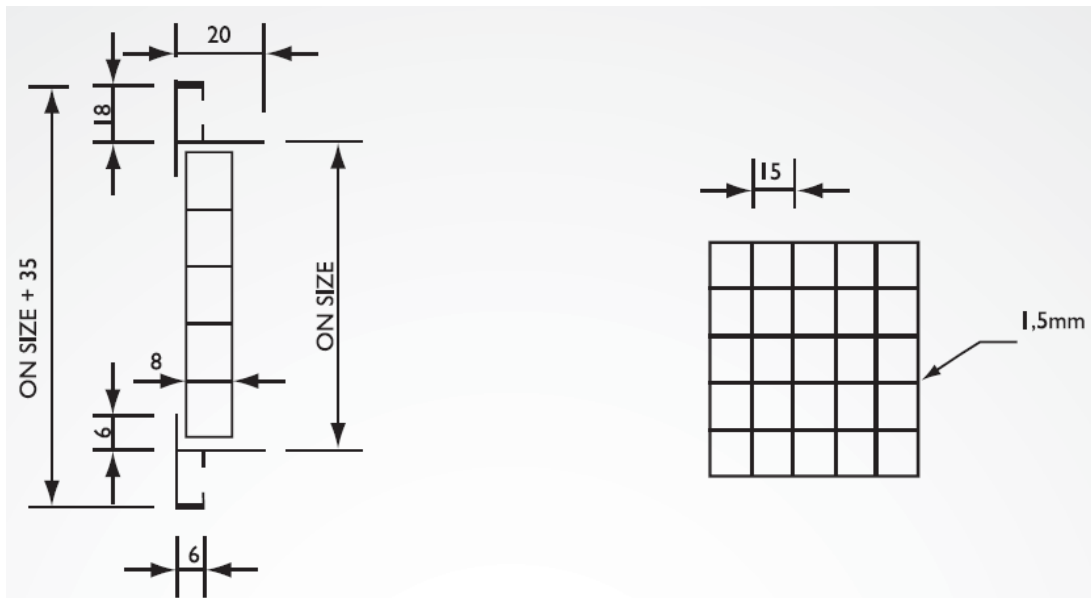
EGG CRATE FILTER FRAME

MODEL NO.	SIZE MM
RAG595/595	595*595
RAG1195/595	1195*595

ALUMINIUM FRAMES & EGGCRATE

MODEL NO.	SIZE MM
EC595	595*595 Eggcrate Grille
EC1195	1195*595 Eggcrate Grille
TF595/595	T-Frame 595*595
TF1195/595	T-Frame 1195*595

CUSTOM RANGE TYPE-ECF



TYPE EC

Egg Crate Grille manufactured with frame of extruded Type 50S anodising grade aluminium and high density styrene core.

Accessories

OBD = Opposed Blade Damper
CF = Concealed Fixing

Dimensions

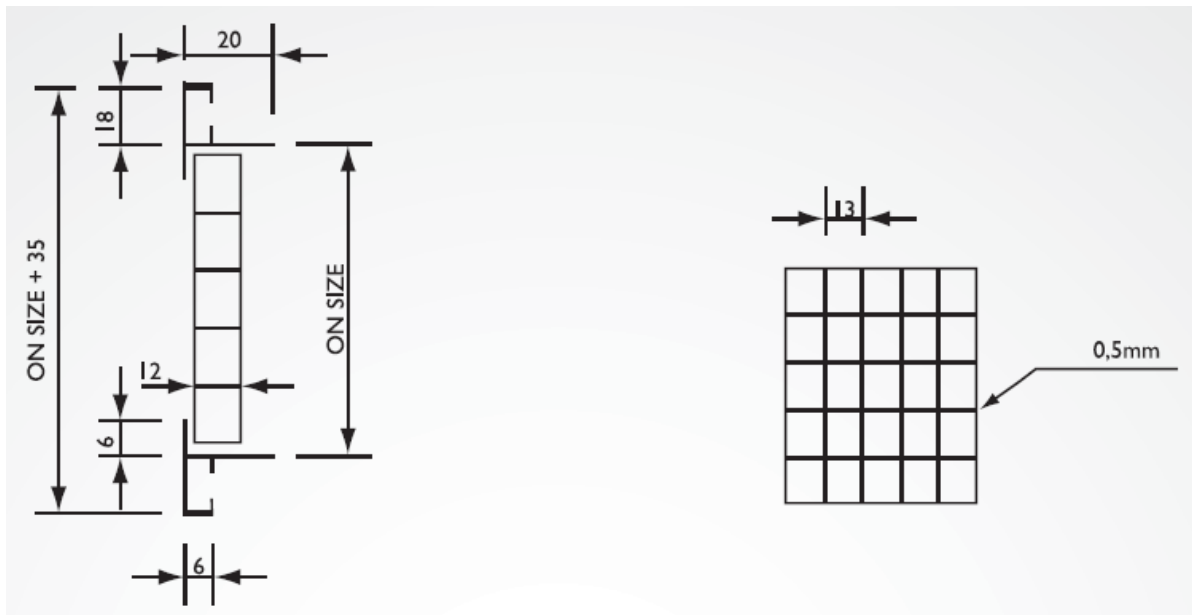
D = ON / Normal Duct Size
 ON - Over Neck Size
 OS - Over Flange

Frame Options **30mm Standard**

Finish Options A) **FRAME NA** = Natural Anodised Aluminium
BEW = Baked Enamel White
 B) **CORE** = High Density Polystyrene
 = Aluminium

Note: (1) Dimensions given are for 'OS' = Over Flange

EGG CRATE GRILLES TYPE-ECA



TYPE ECA

Egg Crate Grille manufactured with frame of extruded Type 50S anodising grade aluminium and the grid manufactured from 0,5mm aluminium sheet.

Accessories

OBD = Opposed Blade Damper
CF = Concealed Fixing

Dimensions

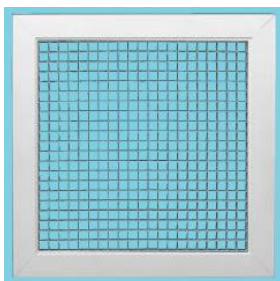
D = ON / Normal Duct Size
 ON - Over Neck Size
 OS - Over Flange

Frame Options

30mm Standard

Finish Options

NA = Natural Anodised Aluminium
BEW = Baked Enamel White
EPC = Epoxy Powder Coating



(Picture for illustration purposes only)

Note: (1) Dimensions given are for 'OS' = Over Flange

EGG CRATE GRILLES CORES

SPECIAL APPLICATIONS

EC & ECA CORES

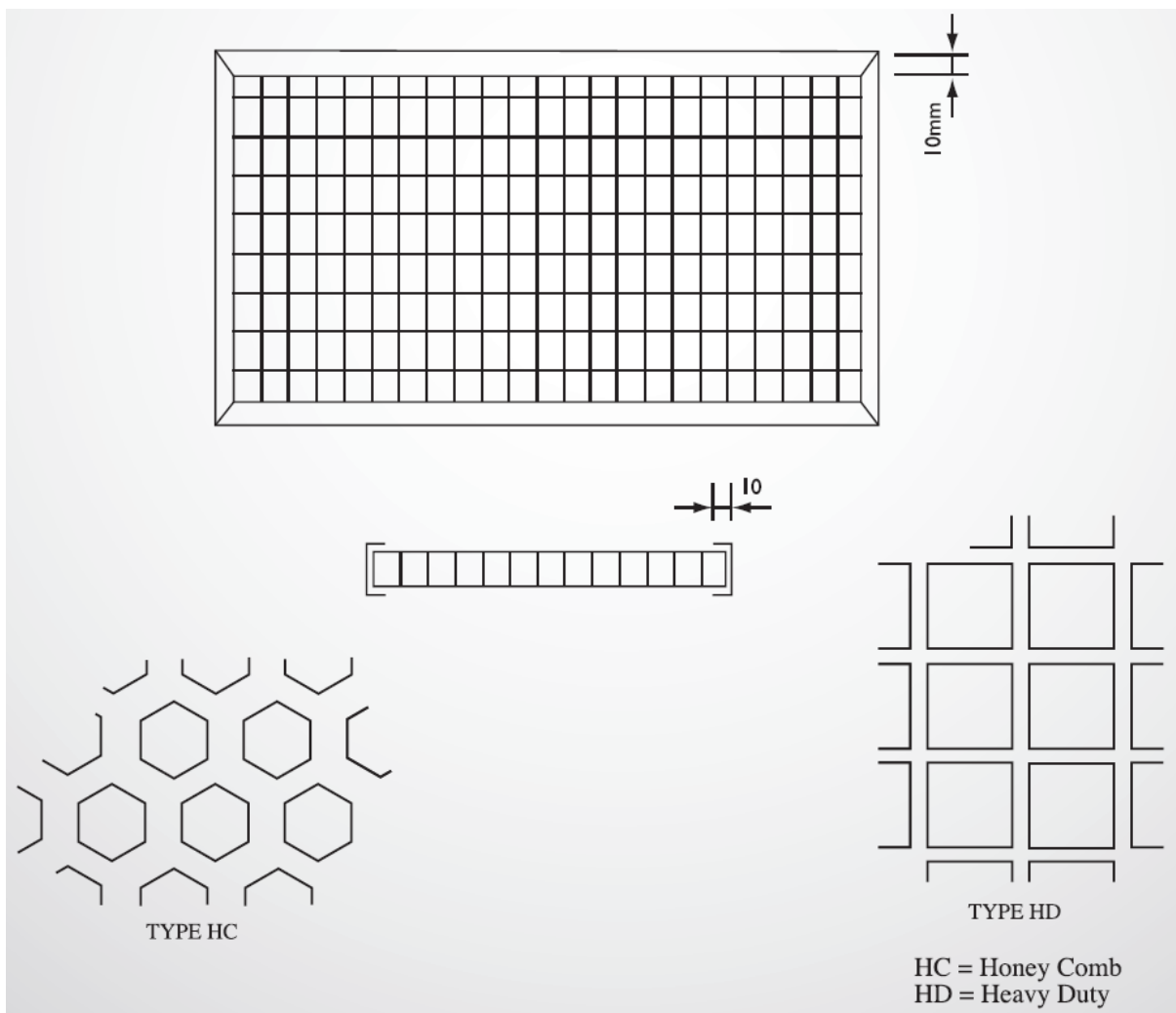
EC & ECA Cores are available with a 10mm channel frame for "Drop In" Ceilings.

The channel frame fabricated of electro galvanised metal and painted.

Mitre cuts are not accurate as it is intended for channel to be hidden by ceiling "T".

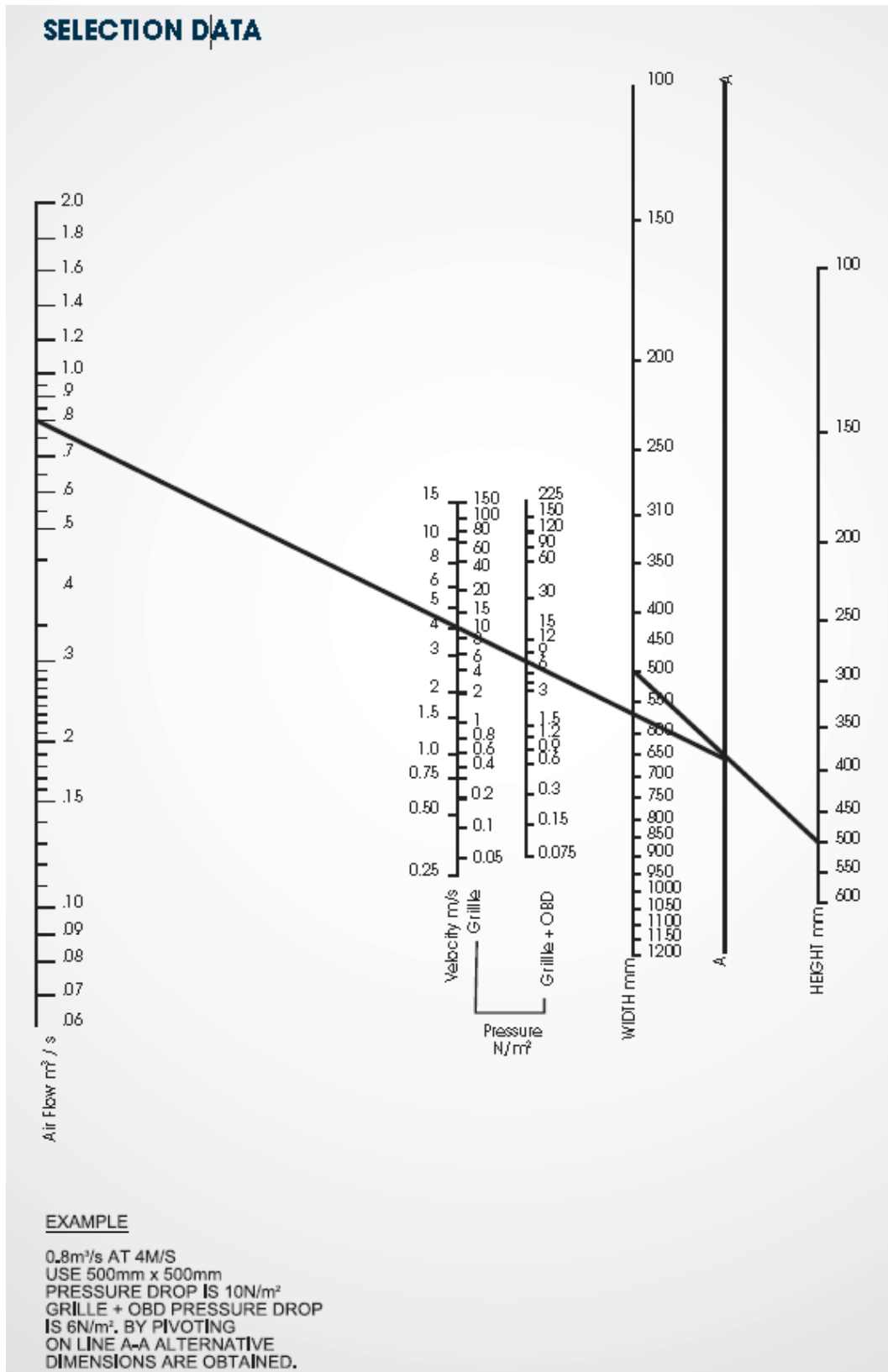
Other Cores are also available on request

- Honeycomb (will required extended lead time to manufacture)
- 45° Angled Louvres
- Chrome Finish - both Matt or Gloss



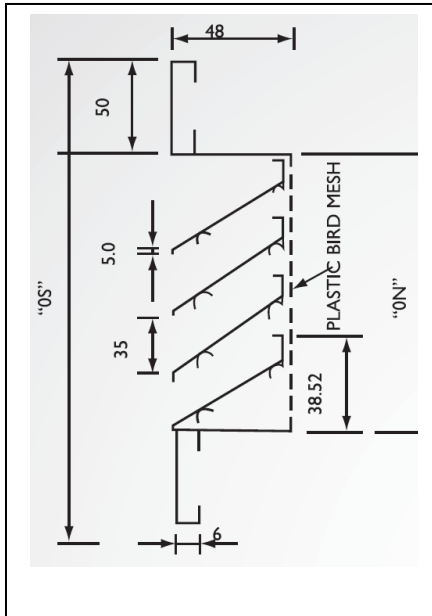
ADVANTAGE AIR®

EGG CRATE GRILLES Details



WEATHER LOUVRES Type – WPL

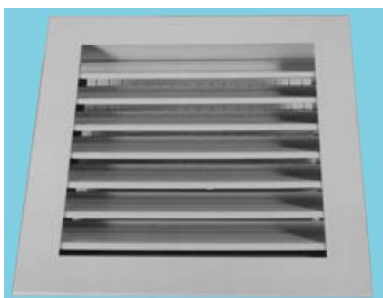
TYPE WLP Weather Louvre manufactured of extruded Type 50S anodising grade aluminium. The fixed horizontal blades are held in place by screws. Blades are spaced 35mm apart.



Standard Spacing	=	Top Blade fits flush with frame. Lip of Bottom Blade overlap frame.
Accessories	WM =	Wire Mesh
	OBD =	Opposed Blade Damper
		NOTE: Adjustment from face of Louvre is not advisable.
		Holes
	FS =	Rear Fixing Straps
Dimensions	ON =	Normal Duct Size
Notes		1) Alternative Meshes available on request.
		2) For Weather Louvres smaller than 450 x 300 we recommend the use of Type RA with RARB Blade with 19mm spacing.

TYPE WLP: WEATHER LOUVRE

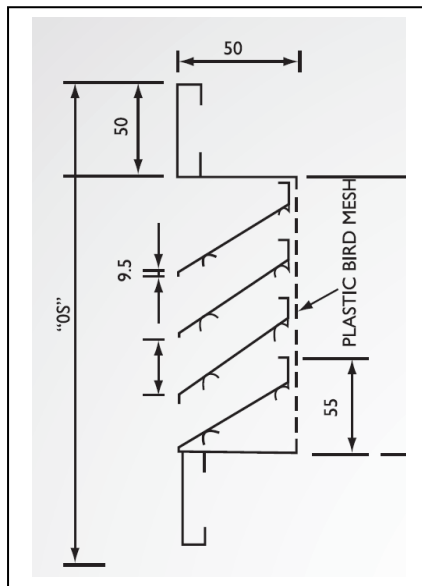
Vermin Protection:	- Plastic Bird mesh - Standard
	- Galvanised wire mesh
Frame Options	50mm Standard
	30mm
Finish Options	NA = Natural Anodised
	BEC = Baked Enamel Colour
	EPC = Epoxy Powder Coating



(Picture for illustration purposes only)

Note: (1) Dimensions given are for opening size into which grille will fit
(2) If Code "OS" is entered under SPECIAL INSTRUCTIONS, then dimensions given are over flange.

WEATHER LOUVRES Type – WL



TYPE WL Weather Louvre manufactured of extruded Type 50S anodising grade aluminium. Can be manufactured from 50 and 32.5mm frames. The fixed horizontal blades are held in place by screws. Blades are spaced 50mm apart.

Standard Spacing = Top Blade fits flush with frame. Lip of Bottom Blade overlap frame.

Accessories **WM** = Wire Mesh
OBD = Opposed Blade Damper
 NOTE: Adjustment from face of Louvre is not advisable.
FS = Rear Fixing Straps

Dimensions **ON** = Normal Duct Size
 Notes **1)** Alternative Meshes available on request.
2) For Weather Louvres smaller than 450 x 300 we recommend the use of Type RA with RARB Blade with 19mm spacing.

TYPE WL: WEATHER LOUVRE

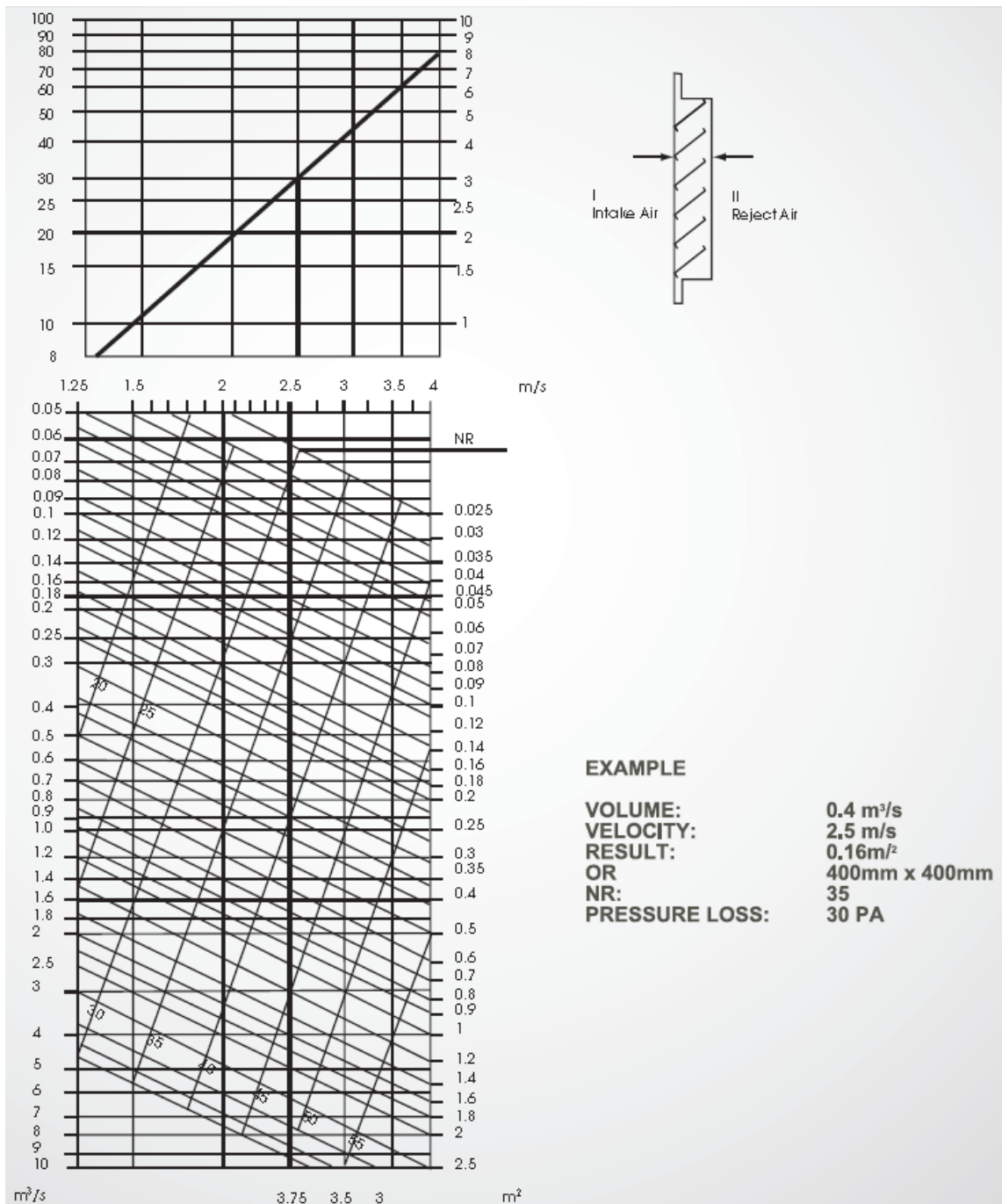
Vermin Protection: - Plastic Bird mesh - Standard
 - Galvanised wire mesh

Finish Options **NA** = Natural Anodised
BEC = Baked Enamel Colour
EPC = Epoxy Powder Coating

Note: (1) Dimensions given are for ON size
 (2) If Code "OS" is entered under SPECIAL INSTRUCTIONS, then dimensions given are over flange

ADVANTAGE AIR®

WEATHER LOUVRES Type – WL



ADVANTAGE AIR®

ALUMINIUM DIFFUSION SUNDRY

Transfer Grilles

MODEL NO	NOMINAL NECK SIZE mm
TG3030	300*300 Transfer Grille
TG2020	200*200 Transfer Grille

INSULATION

DUCT BOARD INSULATION TECHNICAL

GENERAL DESCRIPTION

Fibreglass Duct Board is a rigid high density resin bonded fibreglass board faced externally with a reinforced foil surface. The internal surface can be supplied with either a resin enriched surface or an on-line applied glass fibre tissue. The boards are used to manufacture a cost effective internal duct system incorporating excellent thermal and acoustic properties. The boards are lightweight and safe. Duct Board meets all the elements established for the requirements of a duct material set by TIMA. These include:

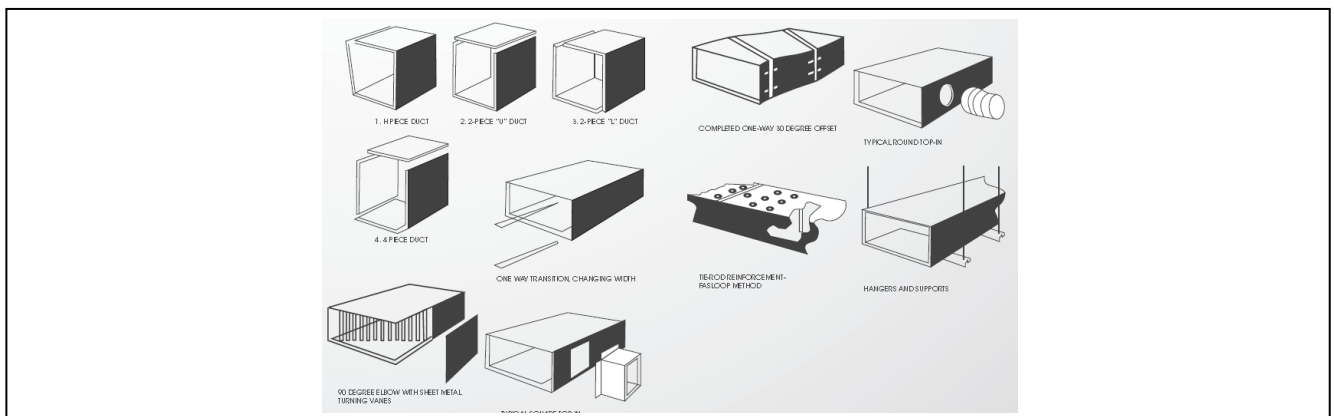
- Dimensional stability, deformation and deflection.
- Containment of the air being conveyed.
- Exposure to damage, weather, temperature extremes, flexibility or other in service condition.
- Support Duct Board is extremely versatile in everyday use. It is broadly accepted and specified for use in standard, thermal and acoustical ducting requirement. Duct Board meets the requirements of internationally recognized standards making bodies such as TIMA and SMACNA.

Duct Board Tools and Accessories

- * Shiplap grooving tools (spare blades available)
- * Carrying case
- * Peeler Knife
- * Male-Female hand tools
- * Round hole cutters
- * Duct lay-out square
- * Fasloop, wireloop banding tool for tie rod reinforcement
- * Staple guns - manual or powered

- * Pressure sensitive tape
- * Washers and screws for all securing needs
- * Turning vanes
- * Simple to install spigots
- * Duct supports

LABEL	SIZE	QTY
200X1 200 -un-lined		Each
2400X1 200X24-tissue-lined		Each
Ductboard Tape	55m	
G.S.S Screws	100	
G.S.P. Wsh. (Pin)	100	
G.S.H. Wsh (Hole)	100	
G.S.H Wsh.(Sqre.)	100	
Staples	5000	
Angle Flange 50X50X2400		Each
Ductboard Spigots	102mm	Each
	127mm	Each
	152mm	Each
	180mm	Each
	203mm	Each
	229mm	Each
	254mm	Each
	305mm	Each
	356mm	Each
	406mm	Each
	457mm	Each
	508mm	Each
Staper-Manual(Loose Sup)		Each
Shiplap Kit-Complete Inc. 1,2,3,4,5 Tools, Construct. Man. Folding Square, Round Hole Cutter, Cutsall (M/F) Tool, PeelerKnife, Wire Loop Tool,Stapler 0 manual and carry case		Each



ADVANTAGE AIR®

INSULATION

Insulation Data Sheet:

Description	Thickness (mm)	Volumetric Mass (kg/m)	Thermal Conductivity (W/m°C)	Temperature Limits	Fire Rating
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External Duct Wrap (FRK):

Duct Wrap 25	25	18	0.040(@35 C)	120 C	Class 1
Duct Wrap 40	40	16	0.040(@35 C)	120 C	Class 1
Duct Wrap 50	50	16	0.040(@35 C)	120 C	Class 1

Internal Acoustic Linings:

Sonic Liner 15	15	32	0.035(@20 C)	120 C	Class 1
Sonic Liner 25	25	24	0.0378(@20 C)	120 C	Class 1

General Data Sheet:

Description	Thickness (mm)	Volumetric Mass (kg/m)	Thermal Conductivity (W/m°C)	Temperature Limits	Fire Rating
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Batt and Rolls:

MP 16 (Eroglite 16)	25 – 75	16	0.040(@24 C)	250 C	Class 1
IM 24 (Eroglite 24)	25 – 75	24	0.0378(@24 C)	250 C	Class 1
IM 475 (Eroglite 475)	25 – 75	47.5	0.033(@24 C)	450 C	Class 1
IM 64 (Eroglite 64)	25 – 75	64	0.0323(@24 C)	450 C	Class 1
IM 96 (Eroglite 96)	25 - 75	96	0.035 (@24 C)	250 C	Class 1

Example of how to calculate the noise attenuation of internal ducting: What will the noise attenuation of a 1m duct with a section of OAO x OAO m in a frequency band of 260Hz, insulated with sonic liner be?

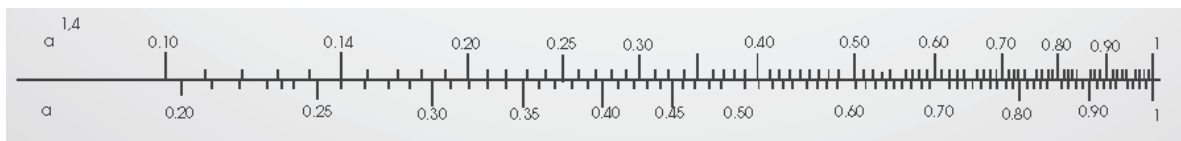
$$\frac{\Delta \text{dB}}{L} = 1,05 \times \alpha^{1,4 \times P/S}$$

Assembled
 $\alpha = 0,51$
 $\alpha^{1,4} = 0,39$

$$\frac{P}{S} = \frac{(0,40 + 0,40) \times 2}{0,40 \times 0,40} = \frac{1,60 \text{ m}}{0,16 \text{ m}^2} = 10$$

$$\frac{\Delta \text{dB}}{L} = 1,05 \times 0,39 \times 10$$

$$= 4,10 \text{ dB per metre.}$$



INSULATION Technical DUCT WRAP



DUCT WRAP THERMAL INSULATION BLANKET

DUCT WRAP is specifically designed as a thermal insulation blanket manufactured from highly resistant, organic glass fibre bonded with a resin. It is faced with an aluminium foil/skrim – reinforced kraft laminate providing a resistant surface finish and an excellent vapour barrier. A 120 mm overlapping flange is provided on one side for a neater appearance and adequate seal. DUCT WRAP is available in standard

APPLICATIONS

Duct Wrap is designed for application to rectangular and round heating, ventilation and air conditioning duct systems where the operating temperature is less than 120°C in commercial, industrial and residential buildings.

BENEFITS

Energy conservation, lower operating costs, ease of installation, greater

CODE	DISCRIPTION
IDW02100	DUCTWRAP (FRK) 10M X 1.2M X 25MM
ISOVER - FRK	DUCTWRAP (FRK) 10M X 1.2M X 50MM

SONIC LINER



APPROVED ACOUSTIC BLANKET

SONIC LINER is an approved flexible fibreglass blanket faced with an acoustically permeable black woven glass cloth on the air stream surface. SONIC LINER is specifically designed as an acoustical and thermal liner for sheet metal ducting and is fully approved by consulting engineers. SONIC LINER is inert, ensuring long life; it is fire safe and erosion resistant. SONIC LINER is available in 15mm, 25mm and 50mm thickness to meet your design requirements.

APPLICATIONS

Sonic Liner is specifically designed as an interior acoustical installation liner for sheet metal ducts in heating, ventilation and air conditioning systems operating at temperatures of up to 120°C and air velocities up to 20m/s.

BENEFITS

Designed and tested, sound absorption, convenience, fire safe, longer erosion resistant and environmental control.

CODE	DISCRIPTION
ION025100	SONIC LINER 10M X 1.2M X 25MM
IONO50100	SONIC LINER 10M X 1.2M X 50MM

INSULATION Technical

There are a variety of products available in both fibre glass and mineral wool (rockwool) suited to any application. The products can be supplied with a combination of facing materials to meet different specifications.

FIBRE GLASS

Specifically designed as thermal or acoustic blankets and batts, manufactured from highly resistant, inorganic glass fibre or bonded with thermo-setting resin. They are made in board-form (type 1M) and roll-form (Type IW). The products are available in different thicknesses and densities that permit selection of a product to meet the majority of applications.

I.P. INSULWOOL (ROCKWOOL)

Insulwool is composed of a unique specialised mineral fibre; spun by a special process from molten rock and slag having high silica and alumina values. They are bonded into various thicknesses and densities with specifically formulated moisture resistant resins. The method of manufacture results in a highly versatile, inexpensive, all purpose thermal and acoustic insulating product.

SIZE	GEN. INSUL.
1200 x 600 x 25	IM24 Eneremlite 24)
1200 x 600 x 40	IM24 Eneremlite 24)
1200 x 600 x 50	IM24 Eneremlite 24)
1200 x 600 x 75	IM24 Eneremlite 24)
1200 x 600 x 100	IM24 Eneremlite 24)
8000 x 1200 x 40	IM24 Eneremlite 24)
5000 x 1200 x 50	IM24 Eneremlite 24)
3000 x 1200 x 75	IM24 Eneremlite 24)
1200 x 600 x 25	IM475 (Eneremlite 475)
1200 x 600 x 40	IM475 (Eneremlite 475)
1200 x 600 x 50	IM475 (Eneremlite 475)
10000 x 1200 x 25	IM475 (Eneremlite 475)
8000 x 1200 x 40	IM475 (Eneremlite 475)
5000 x 1200 x 50	IM475 (Eneremlite 475)
1200 x 600 x 25	(Eneremlite 64)
1200 x 600 x 40	(Eneremlite 64)
1200 x 600 x 50	(Eneremlite 64)
1200 x 600 x 25	(Eneremlite 96)
10000 x 1200 x 40)	(Eneremlite 16)
5000 x 1200 x 50	(Eneremlite 16)
10000 x 1200 x 25	(Eneremlite 18)
5000 x 1000 x 40	Insulfelt 60
5000 x 1000 x 50	Insulfelt 60
1000 x 500 x 40	Insulboard 60
1000 x 500 x 50	Insulboard 60
1000 x 500 x 75	Insulboard 60
1000 x 500 x 100	Insulboard 60



DAMPERS

OPPOSED BLADE DAMPER - Type – OBD

Determine the sound level which results from the combined effects of several sound sources is not as difficult as it is confusing.

- The NY data for diffusers given contains an allowance for the sound absorbing properties of the average room and its contents.
- This absorption is assumed to be 8 db with sound power level referenced to 10-12 Watts. (The absorption is 18 db referenced to 10-13 Watts)?
- For relatively small spaces - about 76.2m² or less floor area and ceiling height of 3.0m or less – the following simplified method for estimating NC levels produced by a combination of supply diffusers and return registers or grilles can be used:
 1. Determine the difference in NC level between the supply outlets or return intakes having the highest NC and the second highest NC level.
 2. From Table 9 determine the number of decibels to be added to the NY level of the unit having the highest NC level. This sum is the combined NC level generated by the two units.
 3. If three units serve the space, determine the difference between the combined NC levels of the first two units and the NC level of the third unit. Determine the NC addition as above, and add this to the combined NC level of the first two units.

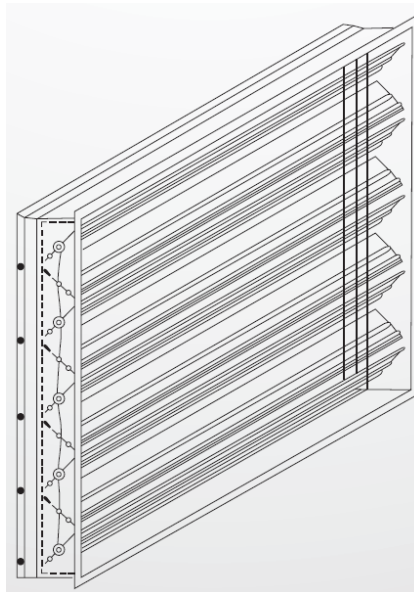
If the difference between NC levels of two units is 10 db or more, the sound generated by the quieter unit will not affect the space NC.

EXAMPLE

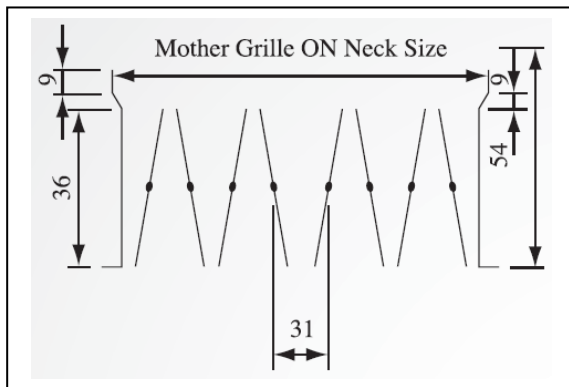
Two supply diffusers having an NC level of 30 and a return grille having an NC level of 35 serve a room. What is the combined NC level?

SOLUTION

The return has the highest NC level 35 db. The second highest is one of the diffusers at 30 db. The difference between them is 5 db. From Table 6, the NC addition for a 5 db difference is about one. Adding this to the higher NC gives a combined NC of 36. To take the second diffuser into consideration, follow the same procedure as above. The NC calculated above is 36. The NC of the diffuser is 30. The difference between them is 6. The NC addition for this difference is 1, and the combined effect of the two diffusers and the return grille is NC 37.



OPPOSED BLADE DAMPER



TYPE OBD: Opposed Blade Damper manufactured from extruded aluminium Blades. Blades are held in place by spring wire and starlock push on fix.

The OBD blades are linked and lever or slot operated.

OBD suits all standard grilles and diffusers.

BLADE OPTIONS: Standard as per sketch

FINISH OPTIONS:

PR = Primed Black (optional)
MF = Mill Finish (standard)

BLADE SPACING: 25mm Standard

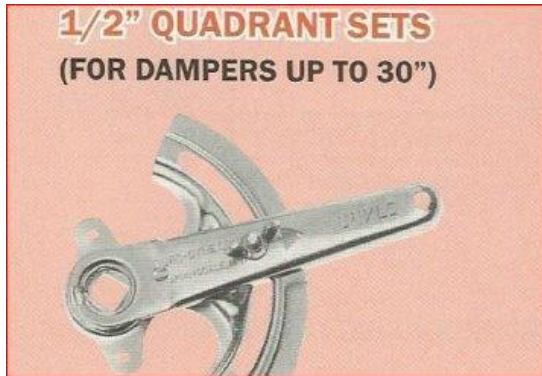
Note: (1) Dimensions given are for - To fit ON of mother grille
(2) If OBD to fit grille, indicate type of grille, outside neck size.

ADVANTAGE AIR®

DAMPER HARDWARE TECHNICAL

Heavy gauge plated steel quadrants with wing
Nuts for locking of damper. Frame marked to
Indicate exact position of damper

MODEL KS 12



Suitable for dampers up to 760mm.
Set consists of:

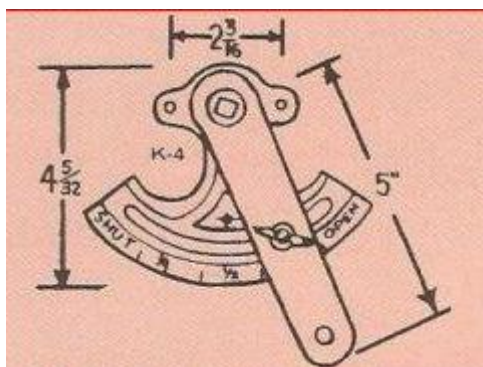
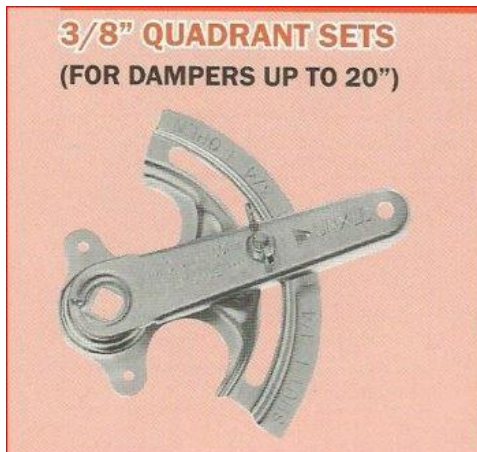
- 13mm Quadrant
- KP 10 R Round end bearing
- KP 10 S Square end bearing

ADVANTAGE AIR®

DAMPER HARDWARE

MODEL KS 385

These heavy gauge Plated Steel quadrants are designed with excellent handle action as well as quick wing nut adjustment and locking of the damper. The frame is marked to show the exact position of the damper. For use on square or round ducts.



Suitable for dampers up to 500mm.

Set consists of:

- 10mm Quadrant
- KP 7 Spring end bearing
- KP 9 S Square end bearing

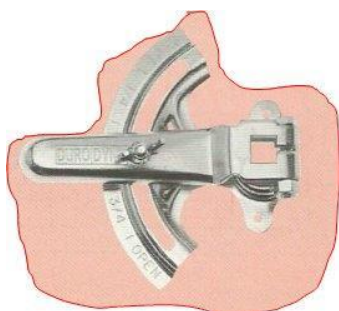
DAMPER HARDWARE

MODEL KL 7 (R)

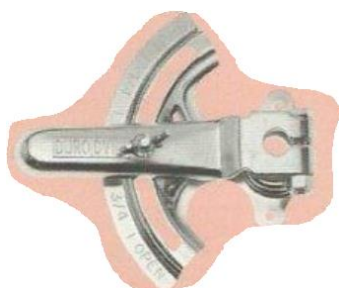
1/2" SHAFT LOC QUADRANT SETS - (FOR DAMPERS UP TO 30")

"Shaft Loc" Quadrants are stamped of heavy gauge steel and clearly indicate the position of the damper. The quadrant handle (available for either the 1/2" square or round shafts) is unique in that it locks the shaft of the damper to it by means of a powerful friction holding device strong enough to cut into the damper shaft eliminating damper rattle. The shaft is easily locked with 1/2" open end wrench. Available for square or round ducts.

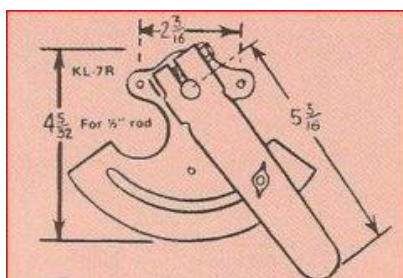
1/2" SHAFT LOC QUADRANT SETS		
ITEM#	MODEL	SHAFT DESCRIPTION
8063	KL7	1/2" Square loc quadrant
8064	KL7R	1/2" Round loc quadrant
PACKED 100 PER CARTON		



KL7



KL7R



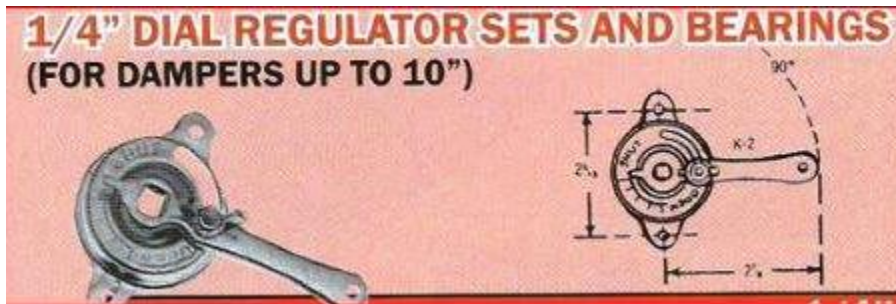
KL7R Section view

ADVANTAGE AIR®

DAMPER HARDWARE

MODEL KS 145

These heavy gauge plated steel regulators are among the most popular on the market. They minimize air leakage and reduce rattle. A wing nut locks the damper in position, yet permits quick readjustment. The dial shows the damper position at a glance. The regulator mounts easily on round or square ducts.



Suitable for dampers up to 250mm.

Set consists of:

- 6mm Regulator
- KP 6 Spring end bearing

KP 8 S Square end bearing

ACCESSORIES ACCESS DOORS TECHNICAL

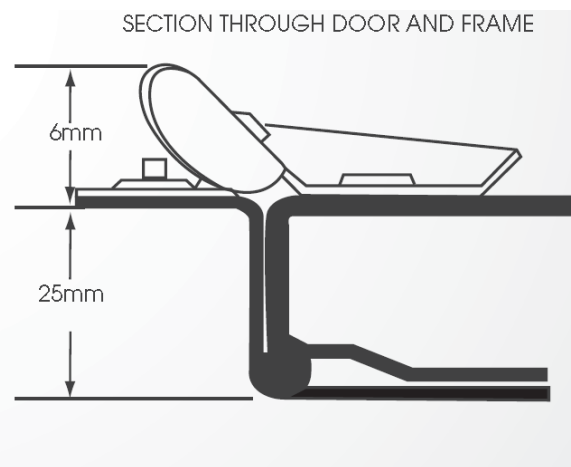
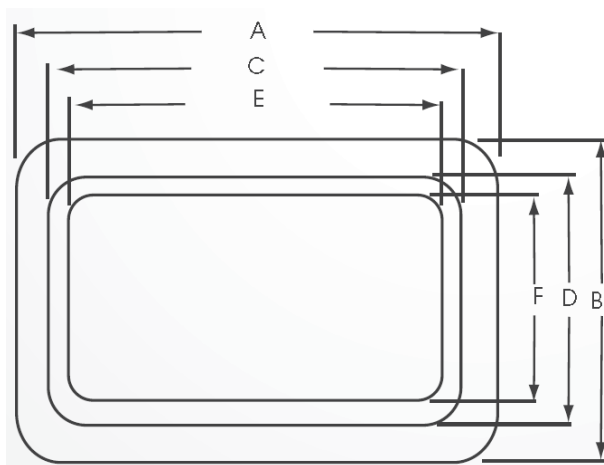
Access panels

The four sizes of access door provide a broad range of "accessibility options" for fire dampers, coils, filters and controls etc. The large APO and API are designed for "torso entry" whereas the AP2 and AP3 for two-handed and single handed access respectively. As the doors are deep formed they are dimensionally uniform and eliminate air leakage up to 200mm W.O. The design enables fast installation and the plated sash fasteners allow for speedy and simple access



CONSTRUCTION

FRAME	0,8mm Galvanised Steel
PANEL	Outer panel 0.8mm Galvanised Steel Inner panel 0.6mm Galvanised Steel
INSULATION	25mm Fibreglass
GASKET	Heat welded PVC Extrusion
GASTENERS	Sashtype Zinc Plated



MODEL	NOM. SIZE	A x B	C x D	E x F
AP0	650 x 510	698 x 546	648 x 500	610 x 464
AP1	500 x 375	546 x 419	500 x 268	464 x 327
AP2	375 x 240	419 x 286	375 x 241	330 x 197
AP3	240 x 150	289 x 194	241 x 149	206 x 116

ADVANTAGE AIR insulated access doors shall be supplied and installed for access to all fire dampers etc. mounted within the ductwork. Doors shall be deep drawn from prime quality galvanised steel and shall incorporate a heat welded tubular P.VC. gasket mechanically fixed to eliminate air leakage up to 200mm W.G Doors shall be removable and selected to match duct sizes. The maximum size door shall be installed to provide easiest access

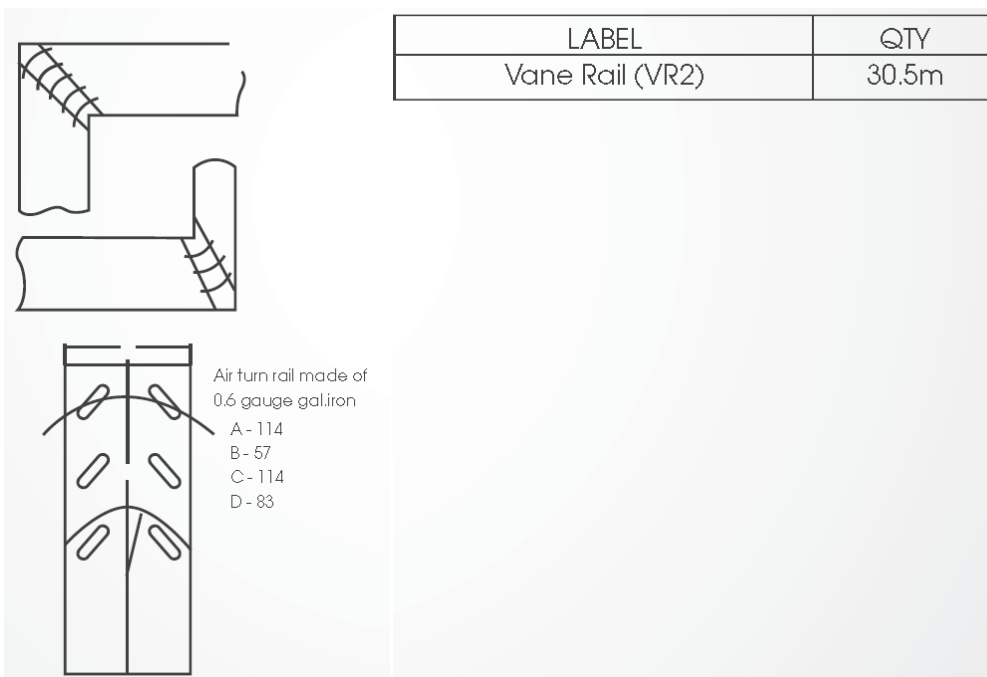
ADVANTAGE AIR®

AIRTURN RAIL TECHNICAL

Air travelling throughout a duct is slowed up when it reaches a right angle turn. The "Slow-up" is detrimental to the efficiency of the duct system, therefore air turning vane assemblies are used to guide air evenly around such turns. With today's high labour costs, it is expensive for shops to produce their own air turning assemblies. That's why Airturn rail is a major contribution to sheet metal shops that require efficiency, yet inexpensive air turning vane assemblies.

FAST, LOW COST ASSEMBLY

With Airturn Rail, which is a pre-fabricated side rail, layout time is eliminated. Vanes can be sheared from scrap metal without tab cutting, and quickly assembled to rails with only one blow of a ball pen-hammer.



DUCTLOK FLANGING & FASTENERS

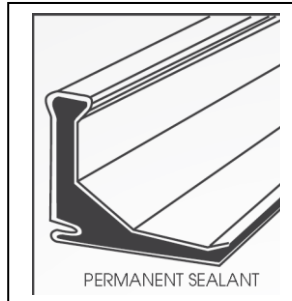
TECHNICAL

THE TOTAL DUCT FLANGE SYSTEM

FLEXIBLE DUCTING

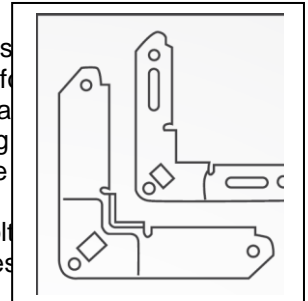
DUCTLOK FLANGE

A roll formed galvanized steel angle incorporating a permanent non hardening sealant, which guarantees a dependable air tight connection - eliminates the need for post installation sealing of the duct.



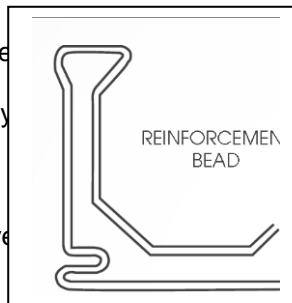
CORNER PIECE

The Ductlok corner piece is ribbed and edged flanged for extra rigidity and features an embossed dimple ensuring extra tight corner joint. The bolt hole is suitable for carriage type or normal bolt corners, available in 2 sizes Junior and Senior.



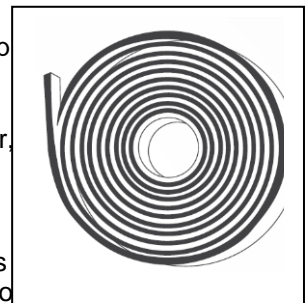
REINFORCEMENT BEAD

The unique DUCTLOK REINFORCEMENT bead makes the flange stronger than conventional flanges, thereby reducing the necessity for many different gauges of flange profiles. DUCTLOK produces only 2 sizes to cover all applications. (DUCTLOK JUNIOR - 25mm x 0.8mm, DUCTLOK SENIOR - 35mm x 1.00mm).



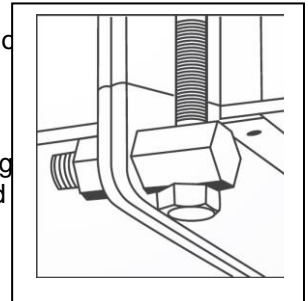
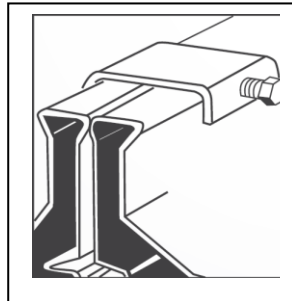
GASKET TAPE

A Butyl rubber sealant strip for insertion between Ductlok flanges. Easily installed. The tape is water, heat and UV resistant.



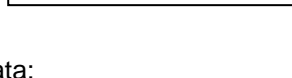
HANGER BOLT

The Ductlok Hanger Bolt is a new concept in reducing your duct hanging costs. When fitted to the Ductlok corner piece in place of a normal carriage bolt, a length of threaded duct hanging rod can be fitted through the hanger bolt, thus permitting the duct hanger to be fixed to the corner piece.

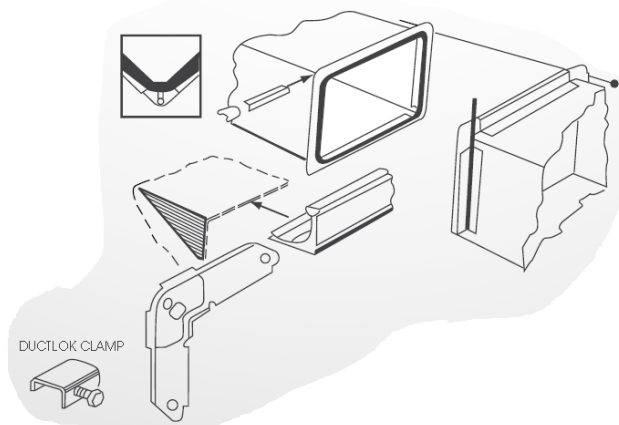


JOINING CLAMP

Ductlok Bolt-on flange clamp for clamping of duct flange joints.



Assembly and installation data:

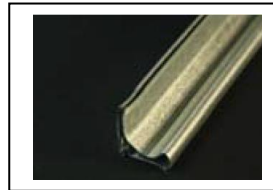


ADVANTAGE AIR®

DUCTLOK FLANGING & FASTENERS TECHNICAL

Assembly and installation data: (continued)

CODE	DUCTLOK	QTY
FLANGE - JNR	Junior flange (25mm)	5 metre
FLANGE - SNR	Senior flange	5 metre
DLC JNR	Junior Corner	100
DLC SNR	Senior Corner	100
DLC	Ductlok Clamp	100



DUCTLOK	QTY
Gasketing (5mm)	10 metre
Eurostick Gasket (6mm)	60 metre
Ductlok Hanger Bolt	10

DUCTLOK	QTY
Bar Cleat (reinforced cleat)	2400 mm
Drive Cleat	2400 mm
S Cleat	2400 mm



ADVANTAGE AIR CODE	DESCRIPTION
SH01	HAND STRAPPING 12MM X 1500MTR - BLACK
BP01	PLASTIC BUCKLES 12MM P/1000
CANCOLLAR	CANVAS COLLAR (DUCT CONNECTOR) 25MTR
QUICKTIE	Q-BAND 25MTR
QUICKCLIP	Q-CLIPS PACK OF 100

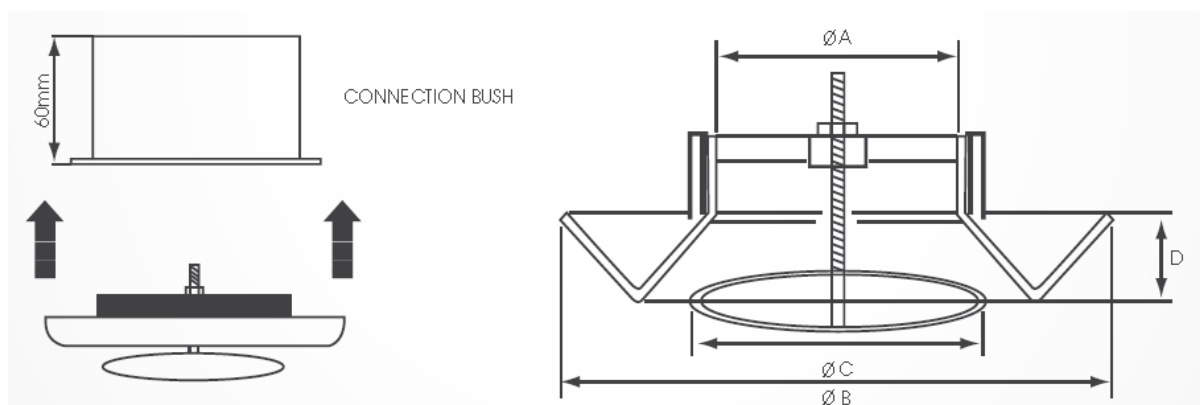
Advantage Air is able to offer, effective and economical insulation fastening systems to meet your needs. These range from pins and washers, clip pins and hand held spotters, right through to automatic rolling and bulk feed pinspotters. The PN spotter pin and washer are used with the lightweight hand held LF2000 pin spotter - the industry standard . The CP clip pins with an integral nail washer are used with the MFPT, PBFS and other automatic pinspotters. CP clip pins by Duro Dyne have "lathe cut" points to ensure uniformly precise points and easy push through. Avoid imitations and settle for the leader.

PLASTIC EXHAUST

PLASTIC AIR VALVE WITH CONNECTION BUSH.

PRODUCT PROPERTIES

- * Diameter range 100, 125, 150 and 200 mm
- * Manufactured from white polypropylene (RAL 9003) with a heat resistance up to 100 degrees Celsius
- * Suitable for rooms with a high air humidity (e.g. kitchen and bathroom)
- * Easy to remove for cleaning purposes
- * Air quantity can be adjusted continuously



DIMENSIONS (IN MILLIMETRES)

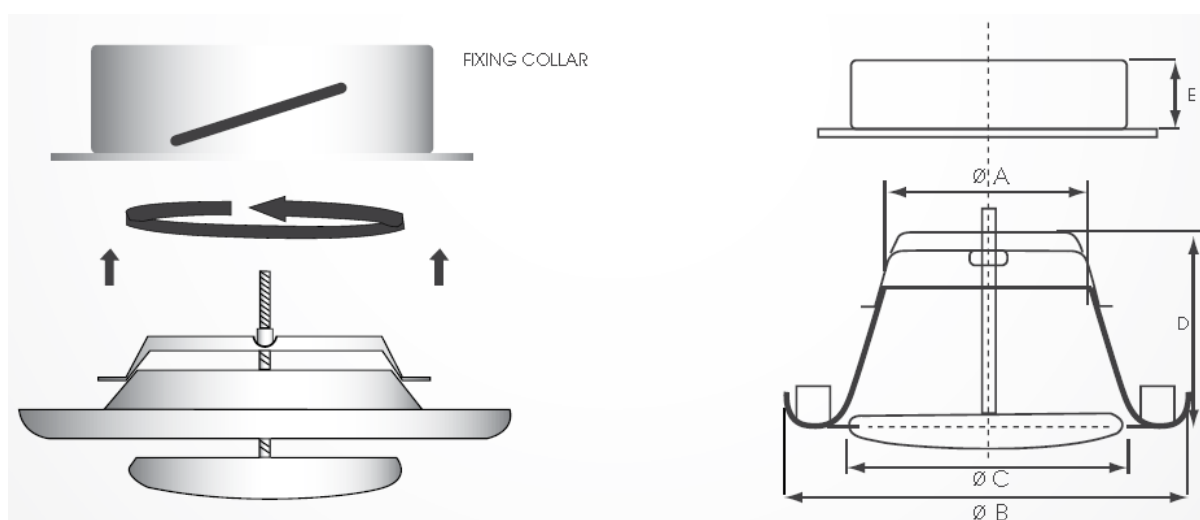
DVK	Ø100	Ø125	Ø150	Ø200
A	80	100	118	171
B	148	168	186	240
C	87	106	130	178
D	20	20	20	20

METAL EXHAUST

METAL EXHAUST AIR VALVE WITH FIXING COLLAR.

PRODUCT PROPERTIES

- * Diameter range 100, 125, 150 and 200 mm
- * Manufactured from powder coated steel
- * Standard colour white (RAL 9010)
- * Air quantity can be adjusted continuously
- * The combination of fixing collar with bayonet catch and sealing tape provides an optimal sealing
- * A fixing collar is included



DIMENSIONS (IN MILLIMETRES)

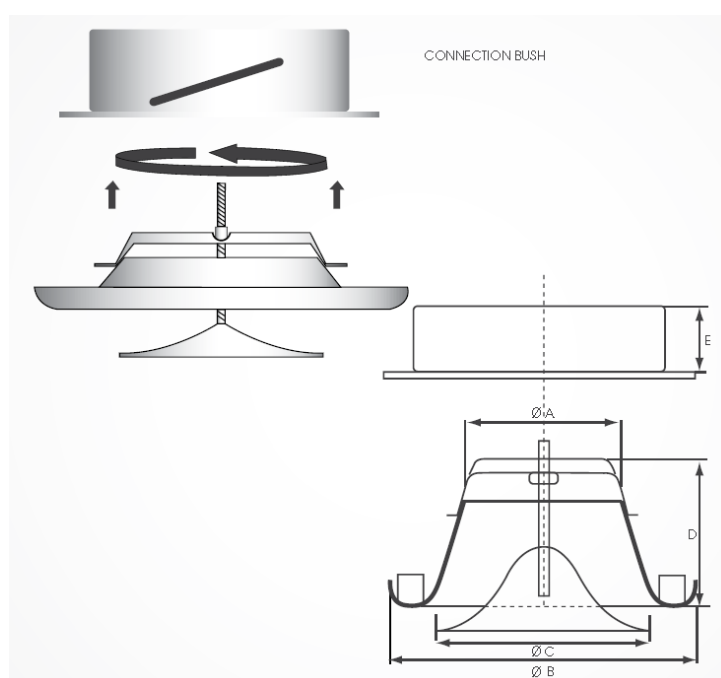
DVS	∅ 100	∅ 150	∅ 200
A	74	174	155
B	139	202	248
C	94	135	194
D	47	60	63
E	50	50	50

METAL EXHAUST

METAL SUPPLY AIR VALVE WITH FIXING COLLAR.

PRODUCT PROPERTIES

- * Diameter range 100, 150 and 200 mm
- * Manufactured from powder coated steel
- * Standard colour white (RAL 9010)
- * With adjustable, centric, rotating valve for regulation of the air quantity.
- * Optimal sealing is achieved by the sealing ring
- * A connection bush is included



DVS -	∅ 100	∅ 150	∅ 200
A	74	117	155
B	139	202	248
C	94	135	194
D	47	60	63
E	50	50	50

STOCK RANGE

ADVANTAGE AIR CODE	DESCRIPTION
DVS100	DISC VALVE STEEL 100MM DIA
DVS125	DISC VALVE STEEL 125MM DIA
DVS150	DISC VALVE STEEL 150MM DIA
DVS200	DISC VALVE STEEL 200MM DIA
VEF-10	DISC VALVE PLASTIC 100MM DIA
VEF-12	DISC VALVE PLASTIC 125MM DIA
VEF-16	DISC VALVE PLASTIC 150MM DIA
VEF-20	DISC VALVE PLASTIC 200MM DIA

SUNDRY ITEMS

PINS & WASHERS

ADVANTAGE AIR CODE	DESCRIPTION
WELD PINS	WELD PINS FTC12 P/5000
WELD P2	WELD PINS FTC12 P/5000
SPOTPIN	PN114 SPOTTER PINS FOR 1" DUCTLINER P/1000
EC2 WASHER	EC2 WASHERS P/1000
ADH SELF	SELF ADHESIVE PINS & WASHERS P/500
SPOTCLIP	PC1 SPOTTER CLIPS FOR PN PINS P/1000
SPOTPIN2	PN200 SPOTTER CLIPS FOR 2" DUCTLINER P/1000
SPOTPIN1-2	PN34 SPOTTER PINS FOR 1/2" DUCTLINER P/1000
CAM-LOK	CAMLOK P/EA

FILTER MEDIA

NL100150	FILTER MEDIA 100G SOLD PER METRE
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ADHESIVES / SILICONE / SEALERS

B611 INSULATION	B611 - INSULATION ADHESIVE 20LTR
M622 - DUCT SEAL	M622 - DUCT SEALER 5LTR
280ML DUCT SEAL	M622 DUCT SEALER CARTRIDGE 280ML (12 per box)
TBE2 - BITUMEN	TBE2 - BITUMEN EMULSION 20LTR
B603 - POLYSTYRENE	B603 - POLYSYRENE ADHESIVE 5LTR
V435 ADHESIVE	V435 - SUPER GRADE CONTACT ADHESIVE 25LTR
M634J JAYCOSTIC	M634J - JAYCOSTIC 6MM X 60M
M77/4 - 280ML	280ML SILICONE GREY
HM73 - GLUE STICKS	HM73 - GLUE STICKS 10KG
VAP-01	GEN PURPOSE VAPOUR BARRIER 5LTR P2191

TAPE

DT	PVC DUCT TAPE
SATF3001ADVA48	ALUMINIUM FOIL TAPE 48mm x 50m
VEN1599B	VENTURE TAPE
SC171VADVA48	GREY CLOTH TAPE 48mm x 25m

SILICONE

892317010	SILICONE - CLEAR
892317011	SILICONE - WHITE

CONDENSER BRACKETS

223AC450P	450 Powder Coated bracket
223AC450H	450 Galvanised bracket
223AC600P	600 Powder Coated bracket
223AC60H	600 Galvanised bracket

CASTELLATED COLLAR

ADVANTAGE AIR CODE	DESCRIPTION
CC10	100 DIA
CC15	150 DIA
CC20	200 DIA
CC25	250 DIA
CC30	300 DIA
CC35	350 DIA
CC40	400 DIA
CC45	450 DIA
CC50	500 DIA
CC55	550 DIA

DUCT JOINERS

DJ10	100 DIA
DJ15	150 DIA
DJ20	200 DIA
DJ25	250 DIA
DJ30	300 DIA
DJ35	350 DIA
DJ40	400 DIA
DJ45	450 DIA
DJ50	500 DIA
DJ55	550 DIA

CLAMPS

100HFGS60	100 DIA CLAMP
100HFGS92	150 DIA CLAMP
10HFGS112	175 DIA CLAMP
10HFGS128	200 DIA CLAMP
10HFGS160	250 DIA CLAMP
10HFGS188	300 DIA CLAMP
10HFGS224	350 DIA CLAMP
10HFGS252	400 DIA CLAMP
10HFGS284	450 DIA CLAMP
10HFGS316	500 DIA CLAMP
10HFGS340	550 DIA CLAMP

ADVANTAGE AIR®

NOTES