

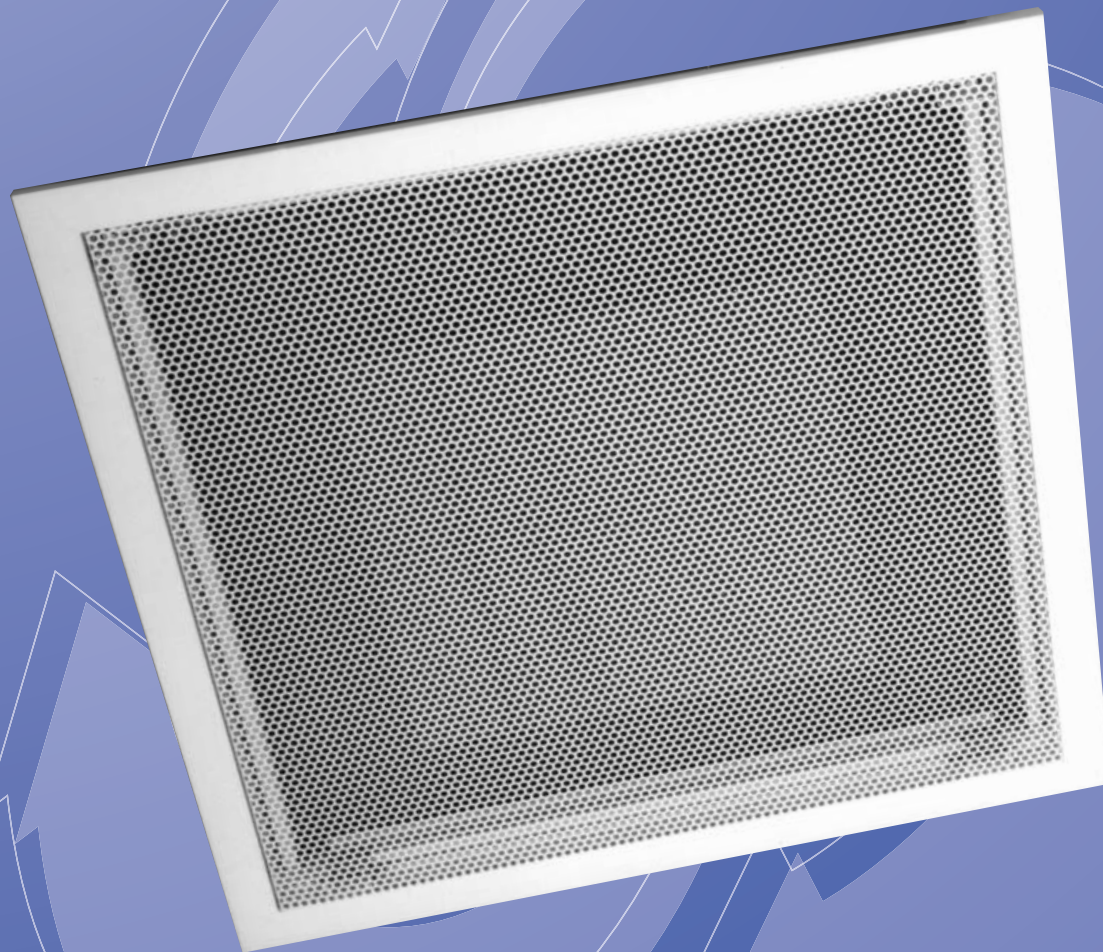
SERIES PG

Perforated Face
Diffuser

PUBLICATION

DIFFUSERS 4

JULY 2015



Features

- Concealed Deflection for 1, 2, 3 or 4 Way Throw.
- Air Pattern Adjustable Core Option
- Hinged Opening Fascia for Access and Cleaning.-
- Quiet, even Air Distribution.
- Top and Side Entry Connection.
- Extruded Aluminium frame with Steel Fascia.



GILBERTS

SERIES PG

Perforated Face Diffuser

Introduction

The PG Series of perforated diffusers provides a modern yet discreet range of diffusers designed to blend effectively with modern ceiling styles and profiles. Offering excellent uniform air distribution patterns the unit comprises of an extruded aluminium frame with a perforated, 50% free area, steel fascia. Concealed behind the fascia, on supply units, are factory fitted air deflection cassettes configured to give a 1, 2, 3 or 4 way discharge as required. Alternatively units can also be specified with a multi directional cassette which allows on site adjustment to any of the standard air patterns. Exhaust units are supplied without cassettes.

Conveniently the diffuser face incorporates a double hinge mechanism which allows for easy access to internals both for cleaning and for damper, or cassette, setting and adjustment.

SERIES OPTIONS:

PG 1, 2, 2E, 3 or 4 way Perforated Face Supply Diffuser complete with air deflection feature and top entry plenum connection box.

PG-R Perforated Face Extract Diffuser without air deflection feature or plenum box.

Standard list sizes range from 227mm to 527mm square with overall sizes to match popular ceiling grids. All supply units are fitted with a top entry connection box with a variety of inlet size options for optimum air distribution performance. Side entry boxes are also available as an optional extra.

Standard volume control is available using a screwdriver operated opposed blade (extract) damper or a rotary damper (supply) fitted at the diffuser neck. Damper adjustment and setting is achieved by lowering the hinged fascia for straight forward access. Quadrant operated spigot dampers can also be fitted to the plenum inlet where side entry boxes are selected.

The standard diffuser finish is polyester powder white with matt black internals. Other colours and finishes available on request.

Features

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- Air Pattern Adjustable Core Option
- Hinged Opening Fascia for Access and Cleaning.-
- Quiet, even Air Distribution.
- Top and Side Entry Connection.
- Extruded Aluminium frame with Steel Fascia.



Selection Procedure

Having established the position where air terminals can be located, select the required number of air directions per diffuser. Knowing the volume and throw for each diffuser in question then check:

(a) Recommended limit of volume per

direction with the throw of air required lying between the max. and min. values.

(b) Note sound level from performance data.

(c) Determine the pressure drop

from the performance data charts.

* For applications deviating from standard sizes or data, please contact our technical department.

Performance Data

The performance data tables on pages 7, 8 & 9 are information for cooling, ventilation and heating applications. They are intended to be aids to heating and air conditioning engineers.

REFERENCES USED

- PRESSURE All pressures are in Pa (N/m²)
SP = Static Pressure
-SP = Negative Static Pressure
- THROW The first figure is the throw that corresponds to 0.5m/s, and the second figure is the throw that corresponds to 0.25m/s.
- SOUND The NC values are based on a hard room with limited absorption and for one diffuser.

NOTE: For 3 way blow diffusers the pressures and noise levels are the same as 1, 2 and 4 way units for the same Total air volume. To use the sizing tables for 3 way blow take the total air volume and use the 4 way charts to obtain throws for 2 directions. Use this same volume to obtain the throw for the last direction from the 2 way tables.

EXAMPLE:

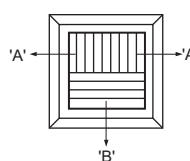
Volume per diffuser = 0.156 M³/s (Supply, Inlet size 315 dia)

From 4 way blow tables

Throws in directions 'A' = 3 metres to 0.25 m/s Isothermal

From 2 way blow tables

Throw in direction 'B' = 6 metres to 0.25 m/s Isothermal



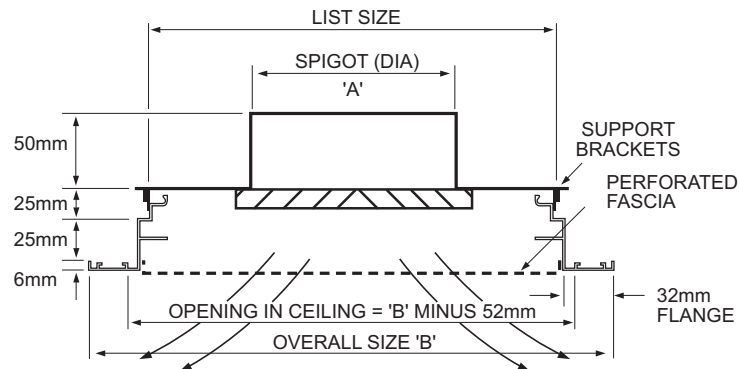
The performance data for all Gilberts products is derived using a Gilberts plenum design and specification. Performance cannot be guaranteed where alternative plenum designs are used.

Gilberts Supply Diffusers have been tested within the range of +/- 10°C (as recommended in the HEVAC Guide to Air Distribution Technology). For any other temperature differential requirements please contact our Technical Department.

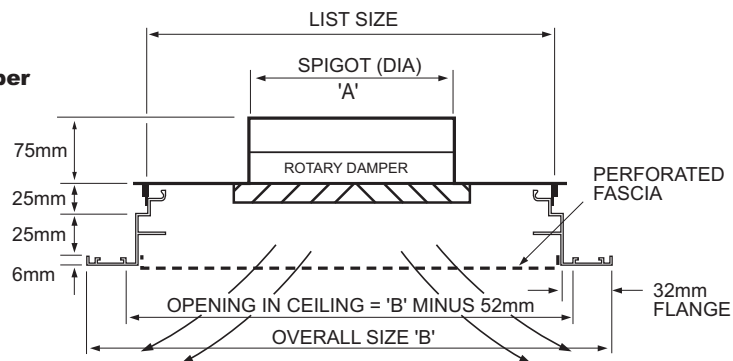


Series PG (Supply)

SERIES PG Supply



Supply Diffuser c/w Rotary Damper

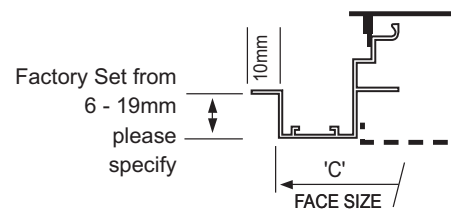


List Size Type PG	List Size Type PGT	A Spigot Size (Dia)	B Overall Size	C Face Size (Type PGT)
227 x 227		160	299 x 299	
327 x 327		160 200	399 x 399	
422 x 422	412 x 412	160 200 250	494 x 494	484 x 484
427 x 427		160 200 250	499 x 499	
522 x 522	512 x 512	160 200 250 315	594 x 594	584 x 584
527 x 527		160 200 250 315	599 x 599	

Spigot Connections are male ie: outside size = A - 3mm

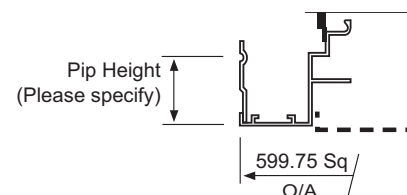
Series PGT Tegular Ceiling

The PG-T option for the perforated diffuser features a border frame specially designed to suit modern 'tegular' type ceiling grids. This border, available on supply 1, 2, 3 or 4 way units as well as extract models, features a factory adjusted edge detail to suit drops of between 6 - 19mm allowing it to match with most popular ceiling types (please provide full ceiling details).



Series PGB Clip-in Ceiling

The PG-B option for the perforated diffuser features a border frame specially designed to suit popular clip-in type ceiling grids. Simply specify the ceiling pip height (normally 19 or 25mm) or provide full details of ceiling and we will include appropriate location/alignment clips to suit.

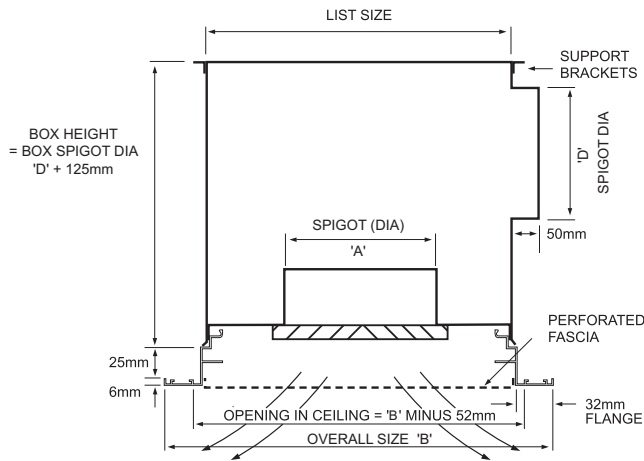


SERIES PG

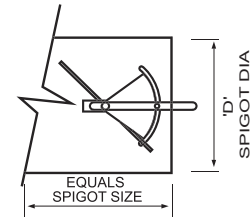
Perforated Face Diffuser

Series PG (Supply)

SERIES PG/SEB - SIDE ENTRY Supply



Quadrant Damper Option Inlet Spigot

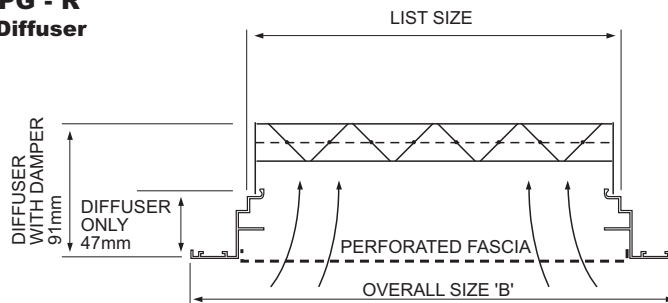


Note: Spigot Connections are male ie: outside size = A - 3mm

List Size Type PG	List Size Type PGT	A Spigot Size (Dia)	B Overall Size	C Face Size (Type PGT)
227 x 227		160	299 x 299	
327 x 327		160 200	399 x 399	
422 x 422	412 x 412	160 200 250	494 x 494	484 x 484
427 x 427		160 200 250	499 x 499	
522 x 522	512 x 512	160 200 250 315	594 x 594	584 x 584
527 x 527		160 200 250 315	599 x 599	

Series PG (Extract)

SERIES PG - R Exhaust Diffuser



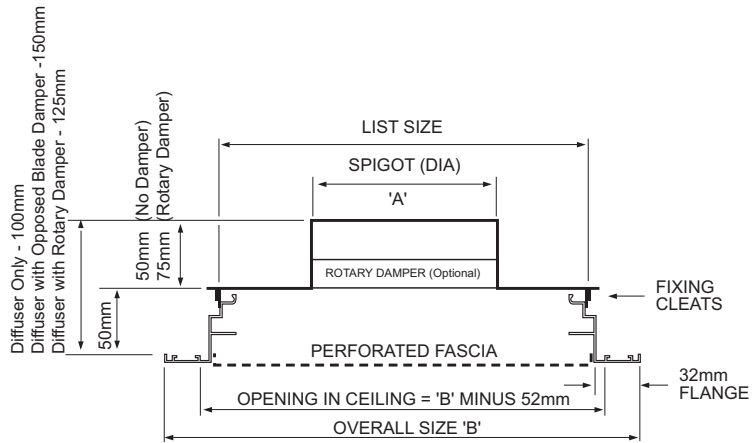
List Size	B Overall Size	C Face Size (Type PGT)
227 x 227	299 x 299	
327 x 327	399 x 399	
422 x 422	494 x 494	484 x 484
427 x 427	499 x 499	
522 x 522	594 x 594	584 x 584
527 x 527	599 x 599	

Note: Spigot Connections are male ie: outside size = A - 3mm

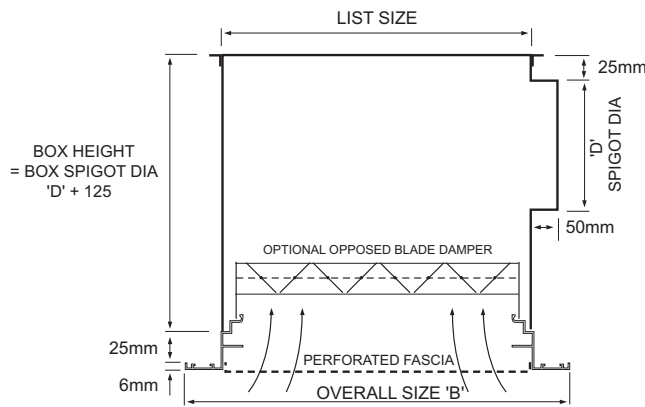


Series PG
(Extract)

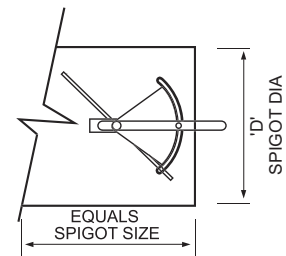
SERIES PG - R - TCB
Exhaust Diffuser c/w Top Connection Box



SERIES PG - R SEB
Exhaust Diffuser c/w Side Entry Box



Quadrant Damper
Option
Outlet Spigot



List Size	A Spigot Size (Dia)	B Overall Size	C Face Size (Type PGT)
227 x 227	160	299 x 299	
327 x 327	160 200	399 x 399	
422 x 422	160 200 250	494 x 494	484 x 484
427 x 427	160 200 250	499 x 499	
522 x 522	160 200 250 315	594 x 594	584 x 584
527 x 527	160 200 250 315	599 x 599	

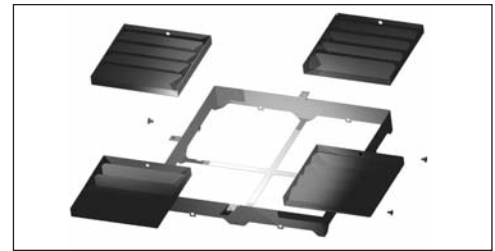
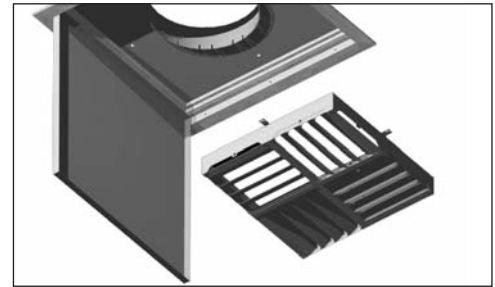
Note: Spigot Connections are male ie: outside size = A - 3mm

SERIES PG

Perforated Face Diffuser

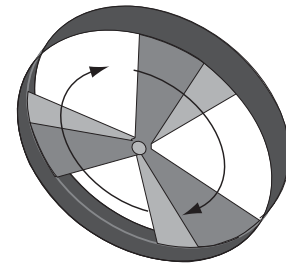
Air Pattern Cassettes

To ensure correct air pattern control and air distribution performance all Series PG supply units are fitted with air deflection cassettes. On standard 1, 2, 3 and 4 way units a single cassette provides the air pattern and therefore cannot be reset to other patterns on site. The Multi Direction (MD) pattern however comprises 4 cassettes which does allow on site adjustment to a 1, 2 3 or 4 way air pattern as required. Access to the air pattern cassettes is achieved by opening the hinged diffuser face (see opening instructions below). This gives clear access to the cassettes which can simply be unscrewed and repositioned as required



Rotary Dampers

The Rotary damper is a new alternative to fitting a quadrant damper on the plenum inlet allowing damper adjustment from the diffuser face. The damper can simply be manually adjusted/rotated to the required position using the tabs on the damper face. For access to the damper the hinged diffuser face must first be opened (see opening instructions below) and the air pattern cassettes must then be removed. The Air pattern cassettes are easily unscrewed and dropped out for damper adjustment.

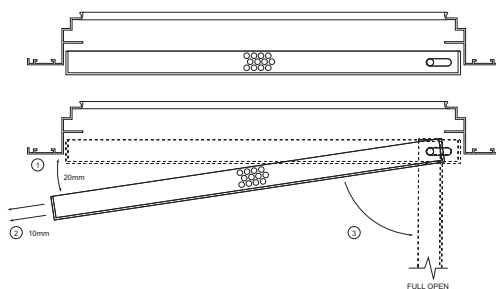


Hinged Access Feature

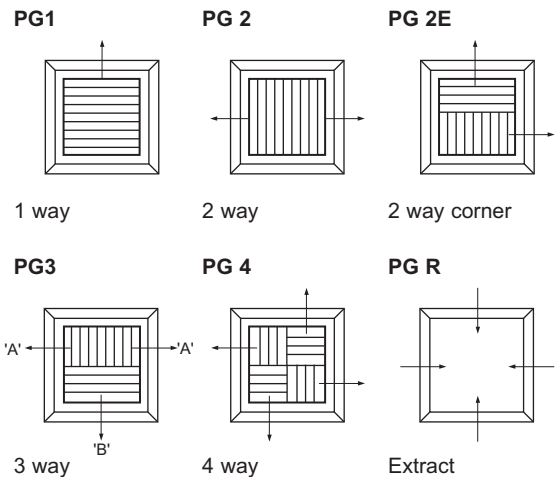
The perforated fascia on all PG Series diffusers is hinged to allow easy access to the dampers for adjustment and setting or for access to internals for cleaning.

Opening Instructions (see illustration)

- 1 Pull down to disengage spring clips only until perforated face is clear of frame, ie: 20mm
- 2 Move face forward by 10mm to allow the hinge side of the fascia to clear the diffuser frame before lowering any further.
- 3 Once the fascia is safely clear of the frame continue the downward movement to the open position.



Air Pattern Options



Inlet Size 160 Dia

1 Way Blow

Volume flow rate (M ³ /S)	0.02	0.03	0.04	0.05	0.06
Pressure drop SP (top or side entry) (Pa)	4	7	10	16	25
Dt +10	0.7	1.2	1.5	2.0	2.5
Dt +5	0.6	1.0	1.3	1.7	2.2
Throw to 0.50 m/s Isothermal (M)	0.5	0.9	1.1	1.5	2.0
Dt -5	0.4	0.7	0.8	1.2	1.6
Dt -10	0.3	0.5	0.6	0.9	1.2
Dt +10	1.3	2.8	4.0	5.2	6.4
Dt +5	1.2	2.4	3.5	4.6	5.6
Throw to 0.25 m/s Isothermal (M)	1.0	2.1	3.0	4.0	4.8
Dt -5	0.8	1.6	2.4	3.2	3.8
Dt -10	0.6	1.2	1.8	2.4	2.8
Noise level (top or side entry) (NC)	15	20	20	25	35

2 Way Blow

Volume flow rate (M ³ /S)	0.02	0.03	0.04	0.05	0.06
Pressure drop SP (top or side entry) (Pa)	4	7	10	16	25
Dt +10	0.3	0.8	1.0	1.2	1.3
Dt +5	0.2	0.7	0.9	1.0	1.2
Throw to 0.50 m/s Isothermal (M)	0.2	0.6	0.8	0.9	1.0
Dt -5	0.2	0.4	0.6	0.7	0.8
Dt -10	0.1	0.3	0.5	0.5	0.6
Dt +10	0.7	1.0	1.9	2.6	3.2
Dt +5	0.6	0.9	1.7	2.4	2.8
Throw to 0.25 m/s Isothermal (M)	1.0	0.8	1.5	2.0	2.5
Dt -5	0.4	0.6	1.2	1.6	2.0
Dt -10	0.3	0.5	0.9	1.2	1.5
Noise level (top or side entry) (NC)	15	20	20	25	35

4 Way Blow

Volume flow rate (M ³ /S)	0.02	0.03	0.04	0.05	0.06
Pressure drop SP (top or side entry) (Pa)	4	7	10	16	25
Dt +10	N/A	N/A	N/A	0.5	0.7
Dt +5	N/A	N/A	N/A	0.4	0.6
Throw to 0.50 m/s Isothermal (M)	N/A	N/A	N/A	0.3	0.5
Dt -5	N/A	N/A	N/A	0.2	0.4
Dt -10	N/A	N/A	N/A	0.2	0.3
Dt +10	N/A	0.4	0.6	1.0	1.2
Dt +5	N/A	0.3	0.5	0.9	1.1
Throw to 0.25 m/s Isothermal (M)	N/A	0.2	0.4	0.8	1.0
Dt -5	N/A	0.2	0.3	0.6	0.8
Dt -10	N/A	0.2	0.2	0.4	0.6
Noise level (top or side entry) (NC)	15	20	20	25	35

Inlet Size 200 Dia

1 Way Blow

Volume flow rate (M ³ /S)	0.031	0.047	0.062	0.078	0.094
Pressure drop SP (top or side entry) (Pa)	3	8	15	24	36
Dt +10	1.0	1.5	1.8	2.4	2.9
Dt +5	0.9	1.3	1.5	2.1	2.5
Throw to 0.50 m/s Isothermal (M)	0.8	1.1	1.3	1.8	2.2
Dt -5	0.7	0.8	1.0	1.4	1.8
Dt -10	0.6	0.6	0.8	1.0	1.3
Dt +10	1.4	3.8	4.6	5.5	8.0
Dt +5	1.3	3.3	4.0	4.8	7.0
Throw to 0.25 m/s Isothermal (M)	1.2	2.8	3.5	4.2	6.0
Dt -5	1.0	2.1	2.8	3.3	4.8
Dt -10	0.8	1.6	2.0	2.5	3.5
Noise level (top or side entry) (NC)	15	20	25	35	40

2 Way Blow

Volume flow rate (M ³ /S)	0.031	0.047	0.062	0.078	0.094
Pressure drop SP (top or side entry) (Pa)	3	8	15	24	36
Dt +10	N/A	0.8	1.0	1.4	1.6
Dt +5	N/A	0.7	0.8	1.2	1.4
Throw to 0.50 m/s Isothermal (M)	N/A	0.6	0.7	1.0	1.2
Dt -5	N/A	0.5	0.6	0.8	1.0
Dt -10	N/A	0.4	0.5	0.6	0.8
Dt +10	N/A	1.8	3.2	3.7	5.0
Dt +5	N/A	1.6	2.8	3.2	4.5
Throw to 0.25 m/s Isothermal (M)	N/A	1.4	2.4	2.8	3.8
Dt -5	N/A	1.1	1.9	2.2	3.0
Dt -10	N/A	0.8	1.4	1.6	2.3
Noise level (top or side entry) (NC)	15	20	25	35	40



Inlet Size 200 Dia continued

4 Way Blow

Volume flow rate (M ³ /S)	0.031	0.047	0.062	0.078	0.094
Pressure drop (SP) (top or side entry) (Pa)	3	8	15	24	36
Dt +10	N/A	0.5	0.6	1.0	1.4
Dt +5	N/A	0.4	0.5	0.9	1.2
Throw to 0.50 m/s Isothermal (M)	N/A	0.3	0.4	0.6	1.0
Dt -5	N/A	0.2	0.3	0.6	0.8
Dt -10	N/A	0.1	0.2	0.5	0.6
Dt +10	N/A	0.9	1.8	2.6	3.5
Dt +5	N/A	0.8	1.5	2.3	3.0
Throw to 0.25 m/s Isothermal (M)	N/A	0.7	1.0	2.0	2.6
Dt -5	N/A	0.6	0.9	1.6	2.0
Dt -10	N/A	0.5	0.8	1.2	1.5
Noise level (top or side entry) (NC)	15	20	25	35	40

Inlet Size 250 Dia

1 Way Blow

Volume flow rate (M ³ /S)	0.049	0.073	0.098	0.122	0.147
Pressure drop (SP) (top or side entry) (Pa)	5	10	16	25	36
Dt +10	1.6	2.1	3.3	5.0	6.6
Dt +5	1.4	1.9	2.9	4.4	5.8
Throw to 0.50 m/s Isothermal (M)	1.2	1.6	2.5	3.8	5.0
Dt -5	1.0	1.2	2.0	3.0	4.2
Dt -10	0.7	0.9	1.5	2.3	3.0
Dt +10	3.5	5.2	7.0	9.0	12.0
Dt +5	3.0	4.6	6.0	8.0	10.5
Throw to 0.25 m/s Isothermal (M)	2.6	4.0	5.2	6.8	9.0
Dt -5	2.0	3.2	4.1	5.4	7.2
Dt -10	1.5	2.4	3.1	4.0	5.4
Noise level (top or side entry) (NC)	15	20	25	30	45

2 Way Blow

Volume flow rate (M ³ /S)	0.049	0.073	0.098	0.122	0.147
Pressure drop (SP) (top or side entry) (Pa)	5	10	16	25	36
Dtt +10	0.7	1.0	1.7	2.5	3.3
Dt +5	0.6	1.3	1.5	2.2	2.9
Throw to 0.50 m/s Isothermal (M)	0.5	0.8	1.3	1.9	2.5
Dt -5	0.4	0.6	1.0	1.4	2.0
Dt -10	0.3	0.5	0.8	1.1	1.5
Dt +10	2.0	3.5	5.3	6.6	8.5
Dt +5	1.8	3.0	4.6	5.8	7.5
Throw to 0.25 m/s Isothermal (M)	1.5	2.6	4.0	5.0	6.4
Dt -5	1.2	2.0	3.2	4.2	5.1
Dt -10	0.9	1.5	2.4	3.0	3.8
Noise level (top or side entry) (NC)	15	25	30	35	45

4 Way Blow

Volume flow rate (M ³ /S)	0.049	0.073	0.098	0.122	0.147
Pressure drop (SP) (top or side entry) (Pa)	5	10	16	25	36
Dt +10	0.6	0.9	1.3	2.0	2.8
Dt +5	0.5	0.8	1.1	1.8	2.4
Throw to 0.50 m/s Isothermal (M)	0.3	0.5	1.0	1.5	2.0
Dt -5	0.2	0.4	0.8	1.2	1.6
Dt -10	0.1	0.3	0.6	1.0	1.2
Dt +10	1.6	2.5	3.6	4.0	4.6
Dt +5	1.4	2.2	3.2	3.5	4.0
Throw to 0.25 m/s Isothermal (M)	1.0	1.9	2.7	3.0	3.5
Dt -5	0.9	1.5	2.1	2.4	2.8
Dt -10	0.7	1.1	1.6	1.8	2.1
Noise level (top or side entry) (NC)	15	20	25	30	45



Supply Units Inlet Size 315 Dia

1 Way Blow

Volume flow rate (M ³ /S)	0.078	0.117	0.156	0.195	0.234
Pressure drop (SP) (top or side entry) (Pa)	5	10	16	25	36
Dtt +10	2.0	4.7	7.3	9.0	10.5
Dt +5	1.7	4.2	6.4	7.8	9.3
Throw to 0.50 m/s Isothermal (M)	1.5	3.6	5.5	6.7	8.0
Dt -5	1.2	2.8	4.4	5.5	6.4
Dt -10	0.9	2.1	3.3	4.0	4.8
Dt +10	5.0	7.8	12.0	14.5	17.0
Dt +5	4.4	6.7	10.5	13.0	15.5
Throw to 0.25 m/s Isothermal (M)	3.8	6.0	9.0	11.2	13.5
Dt -5	3.0	4.8	7.1	8.9	10.8
Dt -10	2.3	3.5	5.4	6.7	8.0
Noise level (top or side entry) (NC)	20	25	30	35	45

2 Way Blow

Volume flow rate (M ³ /S)	0.078	0.117	0.156	0.195	0.234
Pressure drop (SP) (top or side entry) (Pa)	5	10	16	25	36
Dt +10	1.6	2.4	3.7	6.0	8.0
Dt +5	1.4	2.2	3.2	5.2	7.0
Throw to 0.50 m/s Isothermal (M)	1.0	1.8	2.8	4.5	6.0
Dt -5	1.0	1.4	2.2	3.6	4.8
Dt -10	0.7	1.0	1.7	2.7	3.6
Dt +10	3.8	5.3	8.0	9.0	10.0
Dt +5	3.1	4.6	7.0	8.0	9.0
Throw to 0.25 m/s Isothermal (M)	2.8	4.0	6.0	7.0	8.0
Dt -5	2.3	3.2	4.7	5.5	6.4
Dt -10	1.7	2.4	3.5	4.0	4.8
Noise level (top or side entry) (NC)	20	25	30	35	45

4 Way Blow

Volume flow rate (M ³ /S)	0.078	0.117	0.156	0.195	0.234
Pressure drop (SP) (top or side entry) (Pa)	5	10	16	25	36
Dt +10	0.7	1.3	2.0	2.9	4.0
Dt +5	0.6	1.1	1.8	2.5	3.5
Throw to 0.50 m/s Isothermal (M)	0.5	1.0	1.5	2.2	3.0
Dt -5	0.4	0.8	1.2	1.7	2.4
Dt -10	0.3	0.6	1.0	1.3	1.8
Dt +10	2.0	3.0	4.0	5.0	6.0
Dt +5	1.8	2.6	3.5	4.4	5.2
Throw to 0.25 m/s Isothermal (M)	1.5	2.2	3.0	3.8	4.5
Dt -5	1.2	1.7	2.4	3.0	3.6
Dt -10	0.9	1.3	1.8	2.2	2.7
Noise level (top or side entry) (NC)	20	25	30	35	45

Extract Units (522/527sq with TCB)

160 Dia Outlet	Volume flow rate (M ³ /S)	0.002	0.03	0.04	0.05	0.06
	Pressure drop (top entry) -SP (Pa)	1.5	2.7	4.7	8.0	12.5
	Noise level (NC)	15	15	20	20	20
200 Dia Outlet	Volume flow rate (M ³ /S)	0.031	0.047	0.062	0.078	0.094
	Pressure drop (top entry) -SP (Pa)	1.5	2.7	4.7	8.0	12.5
	Noise level (NC)	15	15	20	20	20
250 Dia Outlet	Volume flow rate (M ³ /S)	0.049	0.073	0.098	0.122	0.147
	Pressure drop (top entry) -SP (Pa)	1.5	2.7	4.7	8.0	12.5
	Noise level (NC)	15	15	20	20	20
315 Dia Outlet	Volume flow rate (M ³ /S)	0.078	0.117	0.156	0.195	0.234
	Pressure drop (top entry) -SP (Pa)	1.5	2.7	4.7	8.0	12.5
	Noise level (NC)	15	15	20	20	20

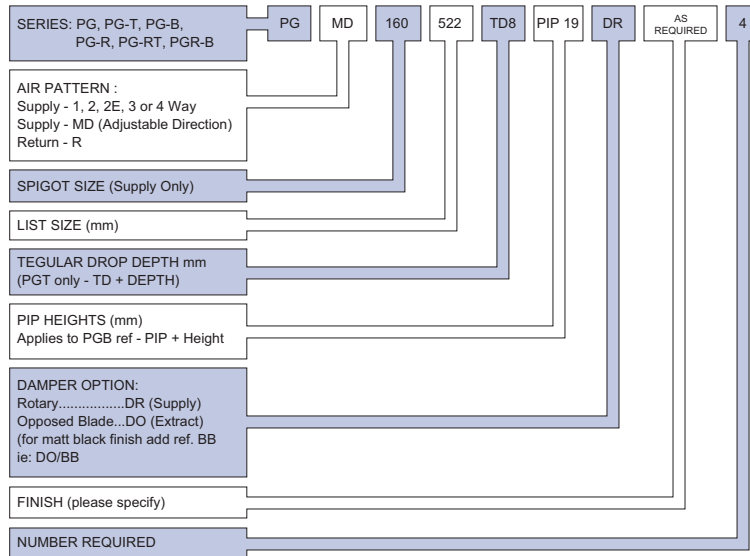
Extract Units (no plenum)

227 x 227	Volume flow rate (M ³ /S)	0.05	0.07	0.10	0.12	0.15
	Pressure drop (top entry) -SP (Pa)	2	4	9	13	23
	Noise level (NC)	25	30	35	35	40
327 x 327	Volume flow rate (M ³ /S)	0.10	0.16	0.21	0.26	0.32
	Pressure drop (top entry) -SP (Pa)	3	4	10	15	24
	Noise level (NC)	25	30	35	35	40
422 x 422 427 x 427	Volume flow rate (M ³ /S)	0.18	0.27	0.36	0.45	0.54
	Pressure drop (top entry) -SP (Pa)	3	5	11	17	25
	Noise level (NC)	25	30	35	35	40
522 x 522 527 x 527	Volume flow rate (M ³ /S)	0.27	0.41	0.55	0.68	0.82
	Pressure drop (top entry) -SP (Pa)	3	7	13	20	27
	Noise level (NC)	25	30	30	40	45

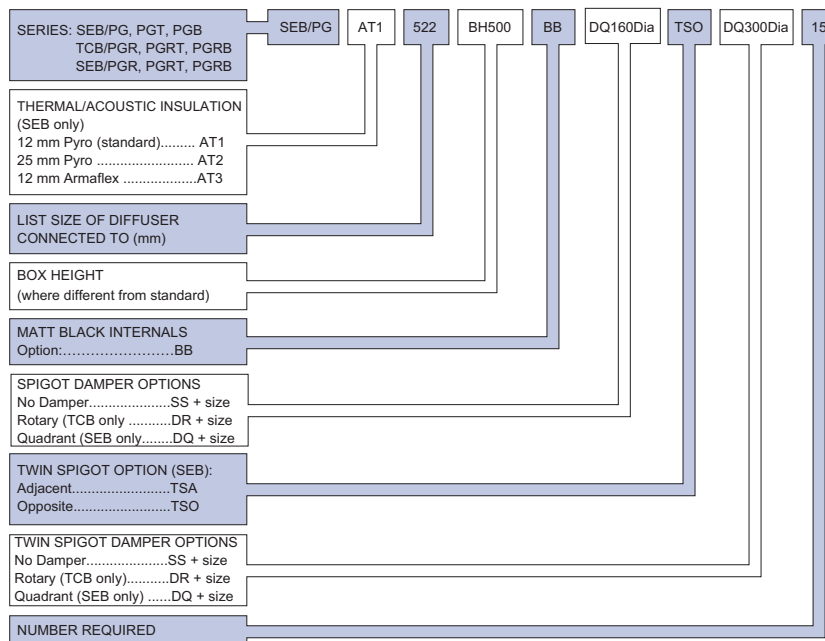
SERIES PG

Perforated Face Diffuser

Ordering Specification (Diffuser)



Ordering Specification (Plenum Box)



FIXING

Standard fixing is via drop rods (by others) to support brackets at rear.

FINISH

Standard finish: PPC White Ral 9010 20% gloss.
Special finish: PPC to Stock BS or RAL colour.

Note: Internals matt black

GILBERTS

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