

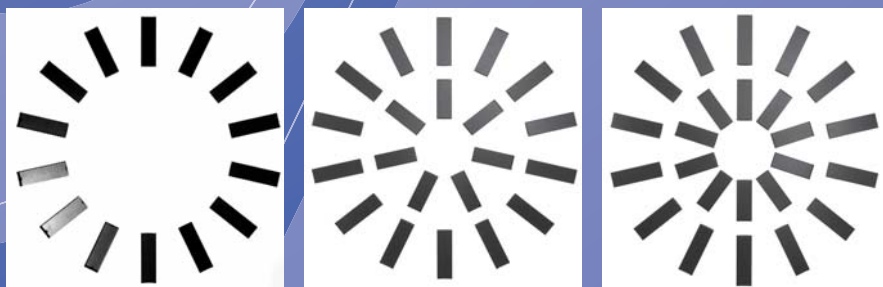
# SERIES GB

Adjustable Slot  
Swirl Diffusers

PUBLICATION

DIFFUSERS 14

OCTOBER 2014



## Features

- Distinctive slotted architectural design
- Individually adjustable slots
- 4 Swirl Pattern options
- Versatile Directional Control
- Border styles compatible with modern ceiling designs



**GILBERTS**

# SERIES GB

## Adjustable Slot Swirl Diffusers

### Introduction

Series GB provides a new added dimension to our popular and effective swirl diffuser theme. Complimenting Gilberts existing swirl diffuser range the new GB series has been introduced to provide a wider range of architectural and design style swirl diffuser options which combine appealing aesthetics with cost effective alternative design. Primarily the diffuser offers a fixed size square fascia designed to fit both

plaster ceilings and standard 600mm sq ceiling grids. A choice of four different "List Size" radial blade pattern configurations provide for a wide range of different air volume selections. Each model provides a high performance swirl air distribution effect which allows them to deliver high volumes of air into the conditioned space taking advantage of its rapid entrainment and mixing capabilities.

### Series Options

#### Border Options

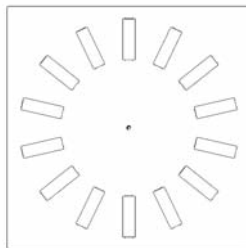
**Series GB-A** - Swirl diffuser suitable for plaster ceiling applications

**Series GB-B** - Swirl diffuser with clip in border edge detail

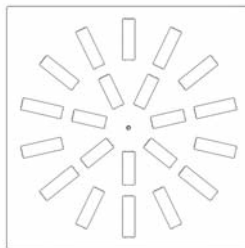
**Series GB-C** - Swirl diffuser with borderless frame suitable for lay-in ceiling grid application.

**Series GB-D** - Swirl diffuser with step flange border frame suitable for tegular ceiling grids.

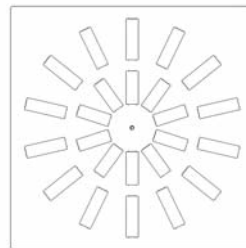
### Face Styles



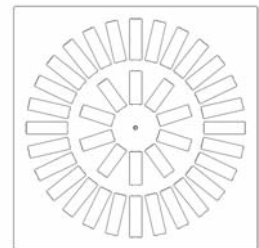
250 Pattern



315 Pattern



500 Pattern



600 Pattern

All units are fabricated from galvanised steel and are available with a matching range of top and side entry plenum boxes. Volume control can be achieved using Quadrant flap type or Iris Dampers on the plenum inlet spigots.

There are just 4 "List Sizes" defined by the primary swirl area with 250, 315, 500 and 600 patterns. All patterns are built

into a 600 sq fascia using four alternative border styles to suit popular ceiling grid designs. Standard fixing uses a central screw into a secondary bracket built within the plenum box. Special 'LB' fixing for installations without plenum are also available. Standard diffuser finish is Polyester Powder White. Other colours available on request.

### Selection Procedure

The following selection procedure is to be used within areas with ceiling heights between 2.5 and 4 m and is based on an evenly distributed layout of diffusers.

1. Try if possible to construct in plan an imaginary square ceiling grid. This will enable the Designer to position each diffuser at each square centre so that the distribution is even in all directions.
2. The total volume of air should then be divided by the number of outlets and the volume per diffuser established.
3. The performance chart should then be used to select the size of diffuser based upon the volume and throw requirements. For high ceiling applications an over-blow situation can be acceptable.
4. Check pressure loss and noise levels from the design chart to confirm acceptability.

#### EXAMPLE:

Take a 6 x 9 m open plan office area with a total required air volume to be supplied of 0.6 m<sup>3</sup>/s. Divide this area up into 6 equal spaced segments, each measuring 3 x 3m, and position a diffuser in the centre of these imaginary grids. If we divide the total volume by 6, then this will equate to 100 l/s per diffuser. From the chart for a size 500 in a horizontal distribution, we can select a unit handling 100 l/s which gives a noise level of NC25, and a static pressure drop of 13 Pa. Throw in isothermal conditions of 0.8m at 0.5m/s and 1.5m at 0.25m/s terminal velocity, which is very similar whether in a heating or cooling mode. This should be an acceptable selection for this area assuming a standard room height.

### Performance Data

The performance tables that are illustrated in the brochure give a tabulated performance for each listed size of diffuser, together with their design. The figures given relate to cooling, ventilation and heating applications and are given for a horizontal distribution.

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.

#### References Used

**Pressure:** All pressures are given in Pascals (Pa) (Newton per m<sup>2</sup>).

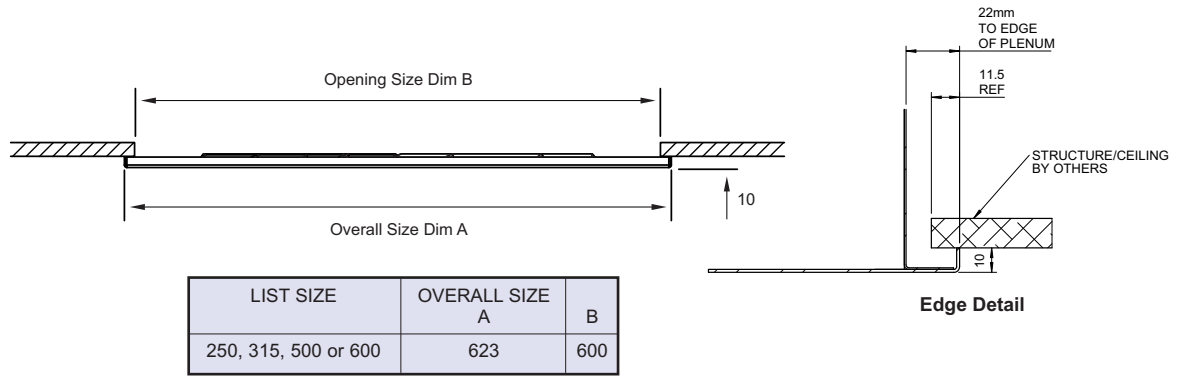
**Throw:** The horizontal distances are given for both 0.5 and 0.25 m/s terminal velocities and are based upon ceiling effect for horizontal distribution.

**Sound:** The noise values are peak values taken on the relevant curves.

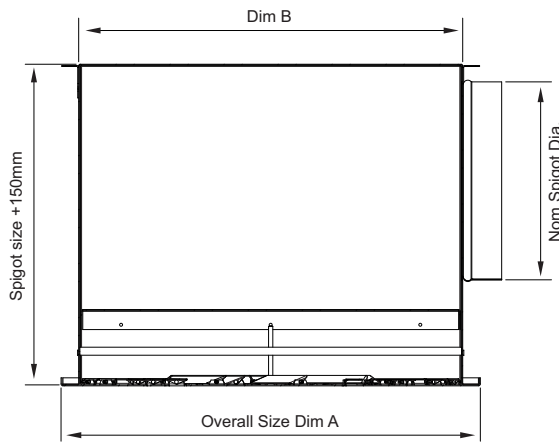


# Type GB-A

## Diffuser

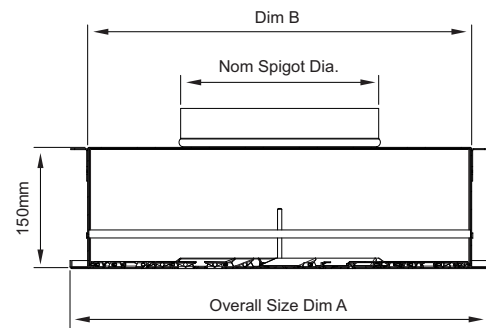


## Diffuser with Side Entry



LIST SIZE	OVERALL SIZE A	B
250, 315, 500 or 600	623	579

## Diffuser with Top Entry



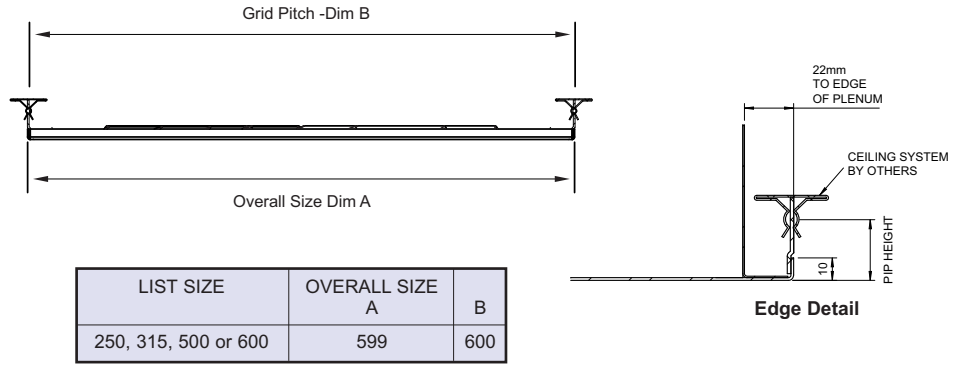
LIST SIZE (swirl diameter)	OVERALL SIZE A	B
250, 315, 500 or 600	623	579

# SERIES GB

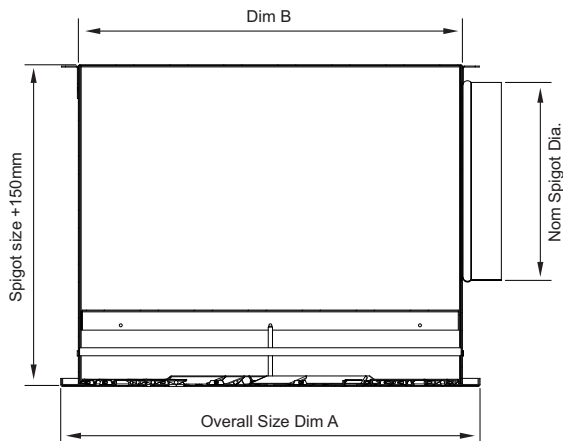
Adjustable Slot Swirl Diffusers

## Type GB-B

### Diffuser

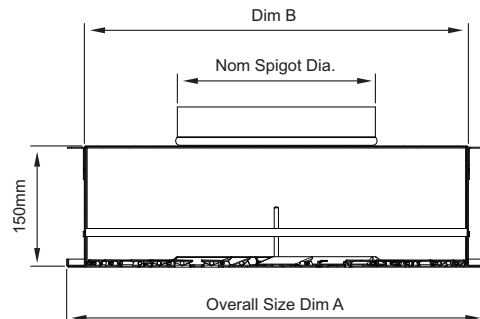


### Diffuser with Side Entry



LIST SIZE	OVERALL SIZE A	B
250, 315, 500 or 600	599	555

### Diffuser with Top Entry

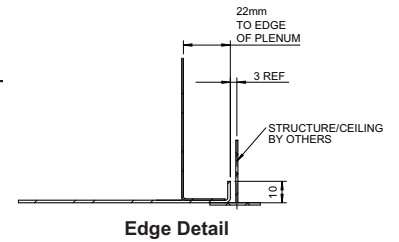
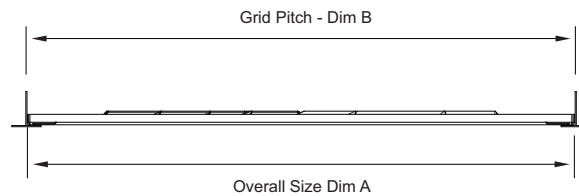


LIST SIZE	OVERALL SIZE A	B
250, 315, 500 or 600	599	555



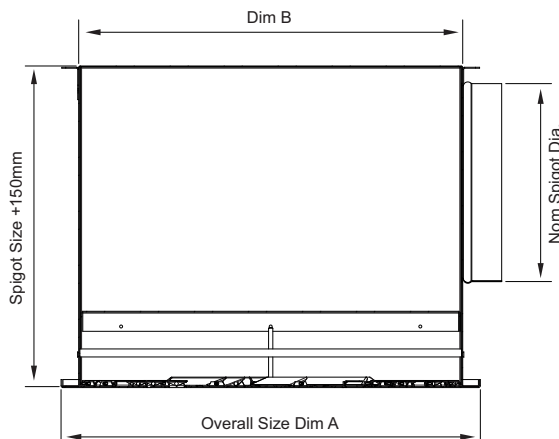
# Type GB-C

## Diffuser



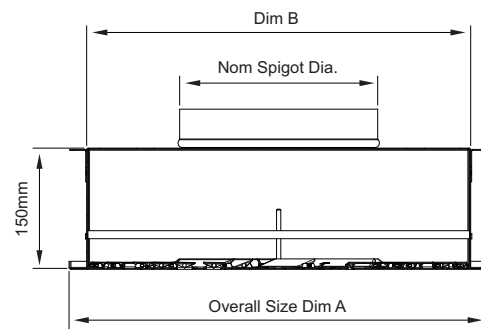
LIST SIZE	OVERALL SIZE A	B
250, 315, 500 or 600	594	600

## Diffuser with Side Entry



LIST SIZE	OVERALL SIZE A	B
250, 315, 500 or 600	594	550

## Diffuser with Top Entry



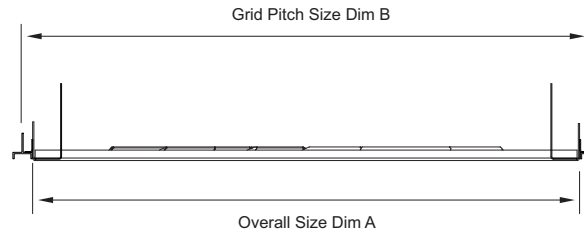
LIST SIZE	OVERALL SIZE A	B
250, 315, 500 or 600	594	550

# SERIES GB

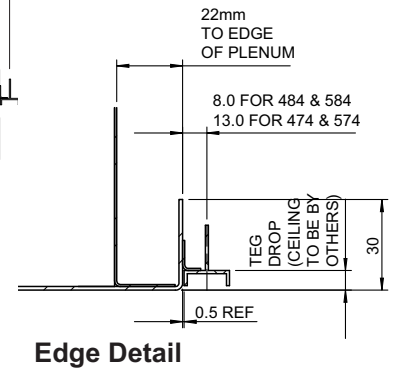
Adjustable Slot Swirl Diffusers

## Type GB-D

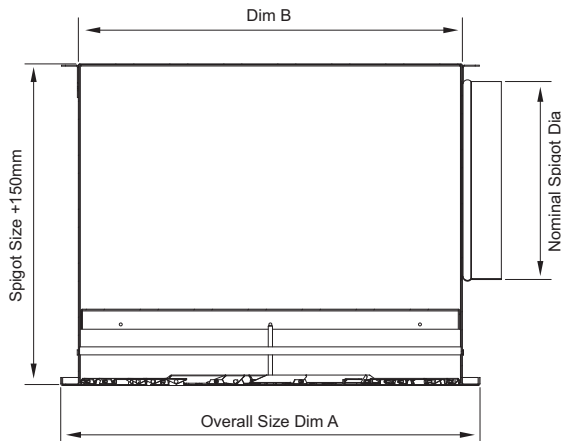
### Diffuser



LIST SIZE	FACE SIZE A	B
250, 315, 500 or 600	574 584	600

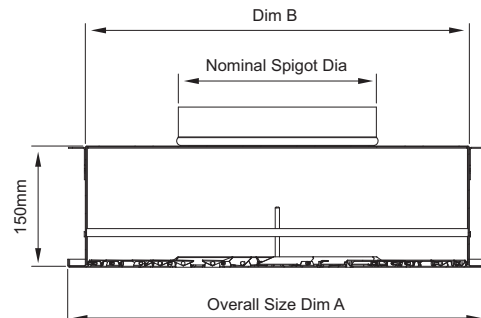


### Diffuser with Side Entry



LIST SIZE	FACE SIZE A	B
250, 315, 500 or 600	574 584	530 540

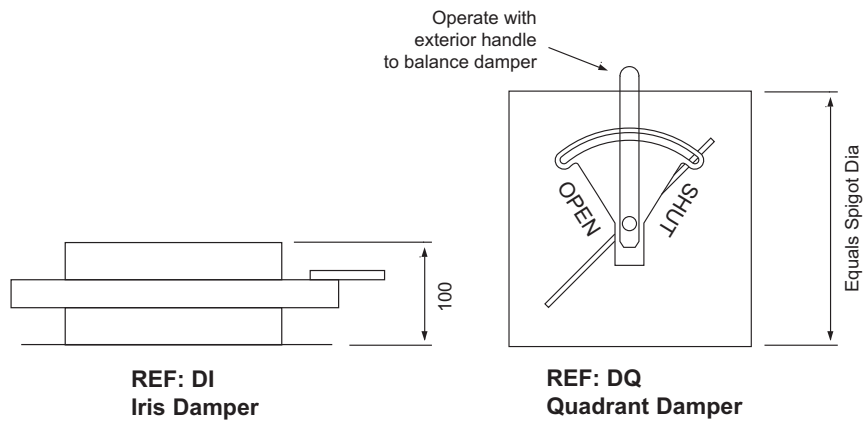
### Diffuser with Top Entry



LIST SIZE	FACE SIZE A	B
250, 315, 500 or 600	574 584	530 540



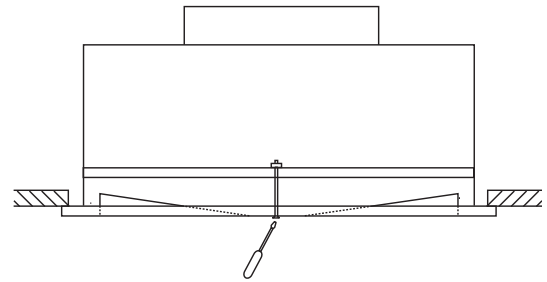
## Volume Control Options



## Fixing

### STANDARD (WITH PLENUM)

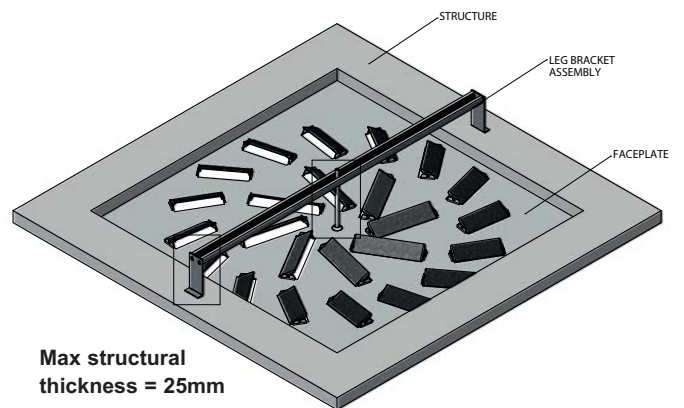
All units are fixed to the plenum using a central screw that drives into a secondary bracket in the plenum box neck. The exposed screw head is finished to match the diffuser face to maintain aesthetics.



### SPECIAL (WITHOUT PLENUM)

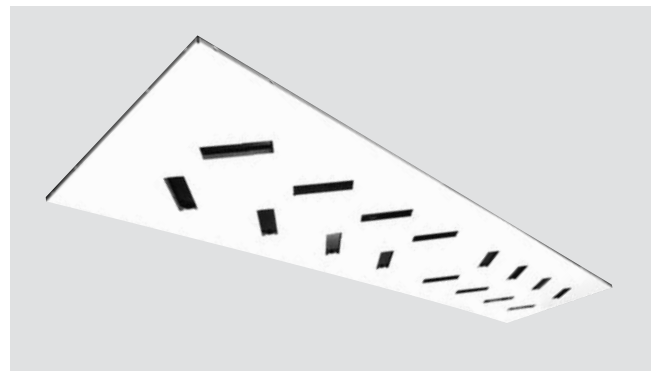
For plasterboard ceiling applications without plenum box we can provide LB type fixing which again screws through face of diffuser into a secondary support bracket.

Please take care not to overtighten.



## Bespoke Patterns

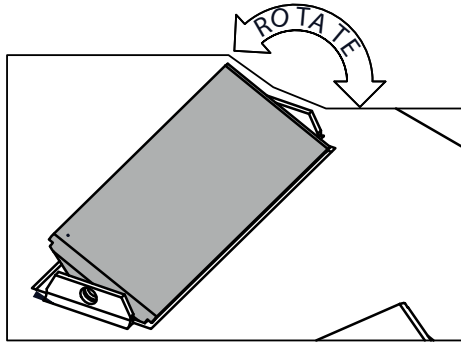
GB blade patterns can be punched in many different combinations and patterns to create unique bespoke designs and can also be formed into linear rows.





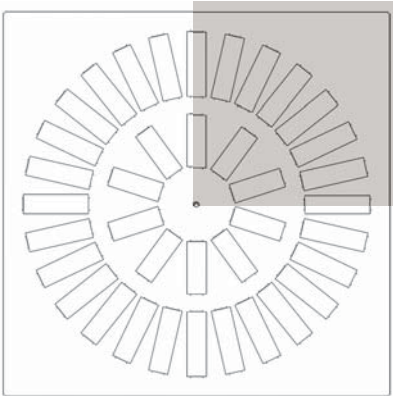
## Directional Blanking

Series GB allows simple on site user adjustment of directional discharge by adjusting the individual diffuser blades to either of its two set positions by rotating the blade.

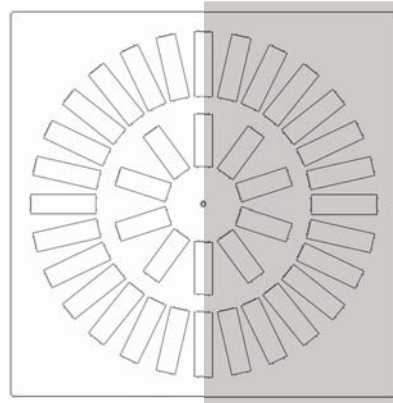


All units are dispatched with all blades open to provide four way swirl distribution effect.  
By adjusting the blades to a closed position. The following directional patterns can be achieved (volume to be reduced per unit depending on remaining active free area).

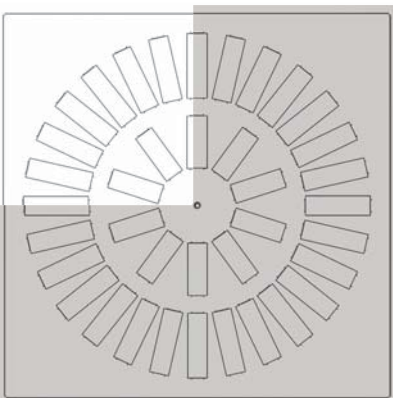
### 3 way



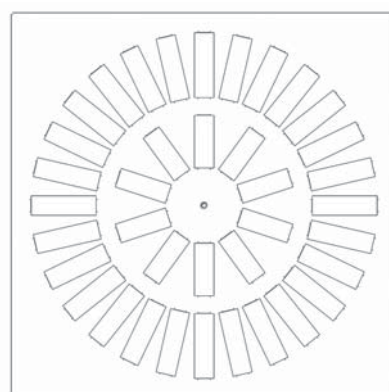
### 2 Way



### 1 way



### 4 Way Pattern-Not Blanked (Std)







## Sizing Table

### 250

Air Volume L/s	Pressure drop Pa	Noise dBA	Noise N.C.	Noise N.R.	Throw to 0.5 m/s	Throw to 0.25 m/s
					+10k 0.7 +5k 0.6 0.5	+10k 1.2 +5k 1.1 1.0
30	5.0	21	25	24	-5k 0.4 -10k 0.3	-5k 0.9 -10k 0.8
					+10k 1.0 +5k 0.9 0.8	+10k 1.7 +5k 1.6 1.5
40	8.0	24	30	26	-5k 0.7 -10k 0.6	-5k 1.4 -10k 1.3
					+10k 1.4 +5k 1.3 1.2	+10k 2.2 +5k 2.1 2.0
50	13	29	30	28	-5k 1.1 -10k 1.0	-5k 1.9 -10k 1.8
					+10k 1.7 +5k 1.6 1.5	+10k 2.7 +5k 2.6 2.5
60	18	32	35	33	-5k 1.4 -10k 1.3	-5k 2.4 -10k 2.3

### 315

Air Volume L/s	Pressure drop Pa	Noise dBA	Noise N.C.	Noise N.R.	Throw to 0.5 m/s	Throw to 0.25 m/s
					+10k 0.7 +5k 0.6 0.5	+10k 1.2 +5k 1.1 1.0
50	5.5	25	25	24	-5k 0.4 -10k 0.3	-5k 0.9 -10k 0.8
					+10k 1.0 +5k 0.9 0.8	+10k 1.7 +5k 1.6 1.5
75	12	35	35	34	-5k 0.7 -10k 0.6	-5k 1.4 -10k 1.3
					+10k 1.4 +5k 1.3 1.2	+10k 2.2 +5k 2.1 2.0
105	24	38	35	35	-5k 1.3 -10k 1.2	-5k 1.9 -10k 1.8
					+10k 1.7 +5k 1.6 1.5	+10k 2.7 +5k 2.6 2.5
130	43	45	40	42	-5k 1.4 -10k 1.3	-5k 2.4 -10k 2.3

### 500

Air Volume L/s	Pressure drop Pa	Noise dBA	Noise N.C.	Noise N.R.	Throw to 0.5 m/s	Throw to 0.25 m/s
					+10k 0.7 +5k 0.6 0.5	+10k 1.2 +5k 1.1 1.0
70	6	24	20	22	-5k 0.4 -10k 0.3	-5k 0.9 -10k 0.8
					+10k 1.0 +5k 0.9 0.8	+10k 1.7 +5k 1.6 1.5
100	13	28	25	25	-5k 0.7 -10k 0.6	-5k 1.4 -10k 1.3
					+10k 1.4 +5k 1.3 1.2	+10k 2.2 +5k 2.1 2.0
130	21	34	30	31	-5k 1.1 -10k 1.0	-5k 1.9 -10k 1.8
					+10k 1.7 +5k 1.6 1.5	+10k 2.7 +5k 2.6 2.5
170	36	42	40	37	-5k 1.4 -10k 1.3	-5k 2.4 -10k 2.3

### 600

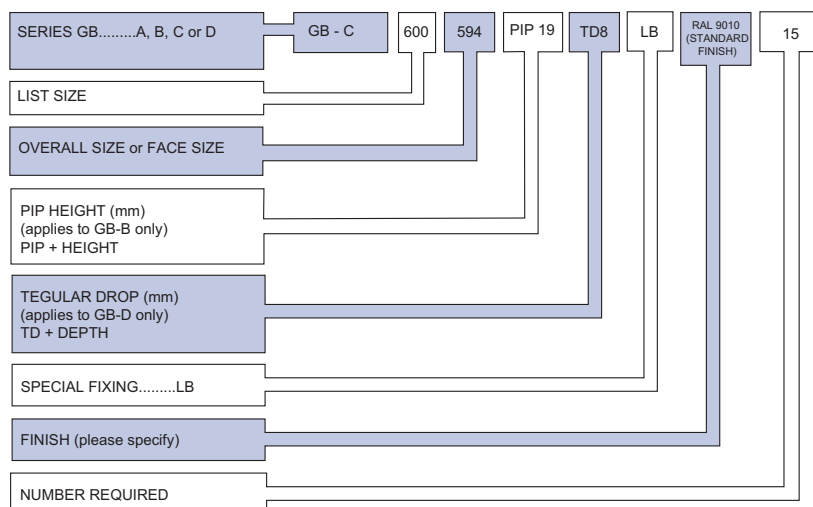
Air Volume L/s	Pressure drop Pa	Noise dBA	Noise N.C.	Noise N.R.	Throw to 0.5 m/s	Throw to 0.25 m/s
					+10k 1.4 +5k 1.3 1.2	+10k 2.2 +5k 2.1 2.0
160	10	25	25	24	-5k 1.1 -10k 1.0	-5k 1.9 -10k 1.8
					+10k 1.7 +5k 1.6 1.5	+10k 2.7 +5k 2.6 2.5
200	17	34	35	32	-5k 1.4 -10k 1.3	-5k 2.4 -10k 2.3
					+10k 2.2 +5k 2.1 2.0	+10k 3.2 +5k 3.1 3.0
240	28	38	35	36	-5k 1.9 -10k 1.8	-5k 2.9 -10k 2.8
					+10k 2.7 +5k 2.6 2.5	+10k 3.7 +5k 3.6 3.5
270	33	40	40	38	-5k 2.4 -10k 2.3	-5k 3.4 -10k 3.2

**Extract:** If units are used for extract purposes then the following correction factors should be applied

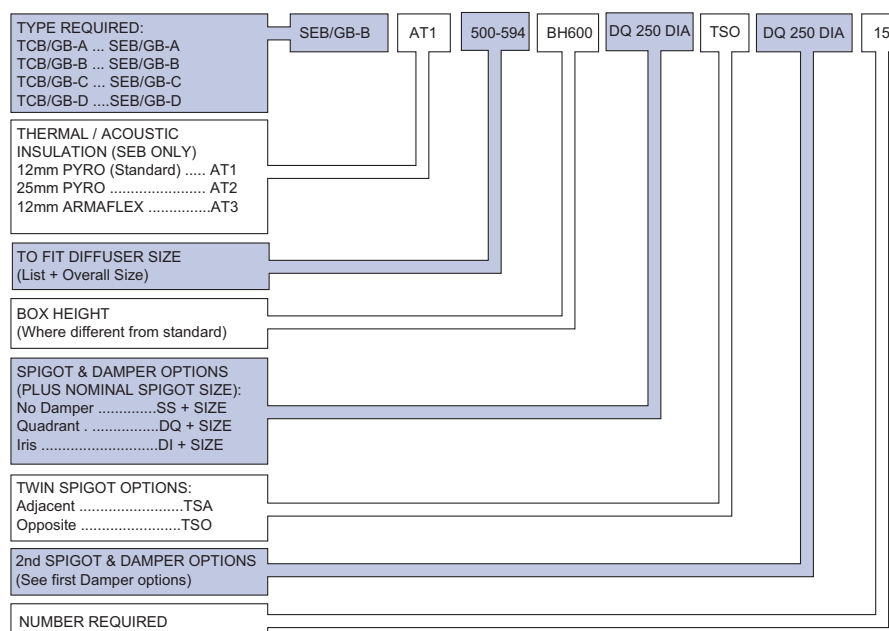
- Pressure values as for supply x 2.75
- Noise values as for supply + 10 NC



## Ordering Specification (Diffuser)



## Ordering Specification (Plenum)



### Finish

**Standard Finish:**  
Polyester Powder Coat White  
RAL 9010 20% Gloss.

**Special Finishes:**  
PPC to Stock BS or RAL colour.

### Plenum

Gilberts Plenums are balanced with integral airflow features that match this diffuser. Performance cannot be guaranteed where alternative manufacturers plenums are utilised.

### Size Range

Available in four standard List Sizes 250, 315, 500 and 600 Dia.

### Fixing

All units are fixed to the plenum using a central screw that drives into a secondary bracket in the plenum box neck. The exposed screw head is finished to match the diffuser face to maintain aesthetics.

For plasterboard ceilings without Plenum the 'LB' special fixing option can be specified.

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