

# SERIES GD

Square and Circular Fixed  
Swirl Diffusers

PUBLICATION

DIFFUSERS 18

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## Features

- Distinctive architecturally appealing designs
- Two swirl pattern options
- Border styles compatible with modern ceiling designs
- Circular or square face formats
- Cost effective design & construction



**GILBERTS**

# SERIES GD

## Square and Circular Fixed Swirl Diffusers

### Introduction

Series GD provides a new extra dimension on the popular and effective swirl diffuser theme. Complimenting Gilberts existing swirl diffuser range the new GD series has been introduced to provide a wider range of architectural and design style swirl options which combine appealing aesthetics with cost effective design. Primarily the diffuser

offers the choice of either a square or circular face plate design but there is then a choice of two different radial blade pattern configurations. Each configuration 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

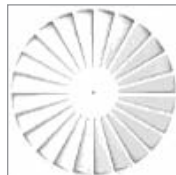
#### Square Face

- Series GDS-A** - Swirl diffuser with 32mm flange border suitable for plaster ceiling applications with a choice of two different swirl face style
- Series GDS-B** - Swirl diffuser with clip in border edge detail with a choice of two different swirl face style
- Series GDS-C** - Swirl diffuser with borderless frame suitable for lay-in ceiling grid application with a choice of two different swirl face style
- Series GDS-D** - Swirl diffuser with step flange border frame suitable for tegular ceiling grids with a choice of two different swirl face style

#### Circular Face

- Series GDC-A** - Circular swirl diffuser with flange border suitable for plaster ceiling or exposed ductwork with a choice of two different swirl face style

### Face Styles



PATTERN 1



PATTERN 2

All units are fabricated from mild 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 four Swirl diffuser List Sizes including 250, 315, 500 and 600mm diameters. All four swirl sizes are available in both square and circular faceplate configurations with

square designs also including additional border styles to suit popular ceiling grid designs. Standard fixing uses a central screw into a secondary bracket within the plenum box. Special 'CB' 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 of ceiling heights from 2.5 to 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 and type of diffuser based upon the volume and throw requirements. For high ceiling applications an over-blow situation can be acceptable.

4. Check pressure loss, NC levels from design chart to conform acceptability.

#### EXAMPLE:

Take an 8 x 12 m open plan office area with a total required volume to be supplied of 1.2 m<sup>3</sup>/s. Divide this area up into 6 equal spaced segments, each measuring 4 x 4 m, and position a diffuser in the centre of these imaginary grids. If we divide the total volume by 6, then this will equate to 200 l/s per diffuser. From the chart for a size 600 in a horizontal distribution, we can select a unit handling 200 l/s which gives a noise level of NC30, and a static pressure drop of 12 Pa. Throw in isothermal conditions of between 1.4 and 2 m, which is very similar whether in a heating or cooling mode. This should be an acceptable selection for this area.

### Performance Data

The performance tables that are illustrated in the brochure give 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 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.

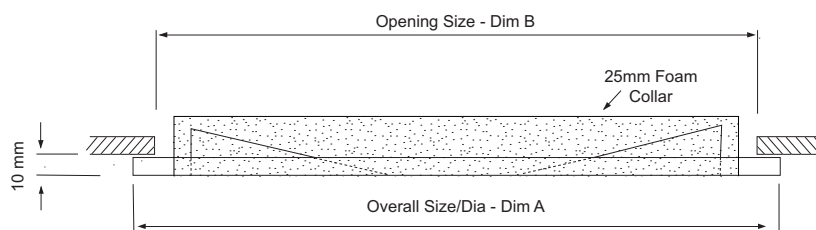
**Sound:** The NC values are peak values on the NC curves.



## Type GDS-A and GDC-A

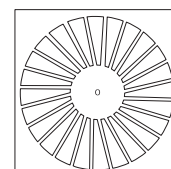
### SQUARE & CIRCULAR FRAME

#### Diffuser

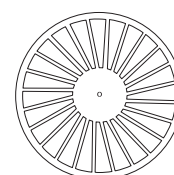


LIST SIZE (swirl diameter)	OVERALL SIZE A	B
250, 315 or 500	523	500
250, 315, 500, or 600	623	600

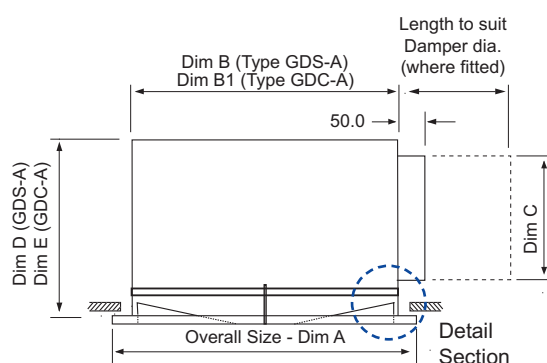
#### Type GDS-A (Square)



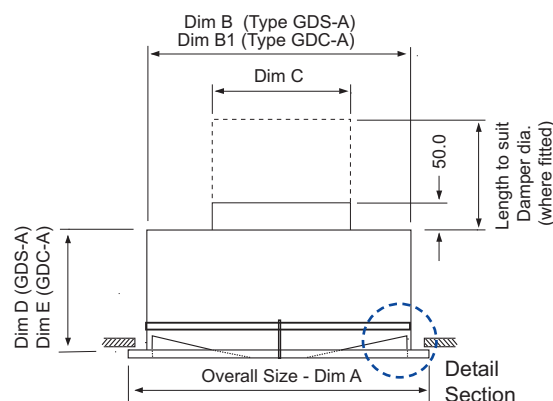
#### Type GDC-A (Circular)



#### Diffuser with Side Entry



#### Diffuser with Top Entry

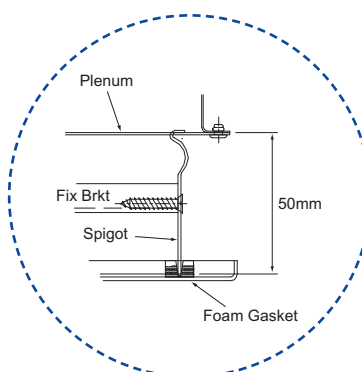


#### Detail Section

Plenum for the circular face diffuser (Type GDC-A) only requires a circular connection to the diffuser (See right).

This adds an extra 50mm to box height (See Dim E)

Applies to both top and side entry plenum boxes



#### Side Entry

LIST SIZE (swirl diameter)	OVERALL SIZE A	B	B1	C	D	E
250, 315 or 500	523	452	470	250	350	400
250, 315, 500, or 600	623	552	570	315	415	465

#### Top Entry

LIST SIZE (swirl diameter)	OVERALL SIZE A	B	B1	C	D	E
250, 315 or 500	523	452	470	250	250	300
250, 315, 500, or 600	623	552	570	315	250	300

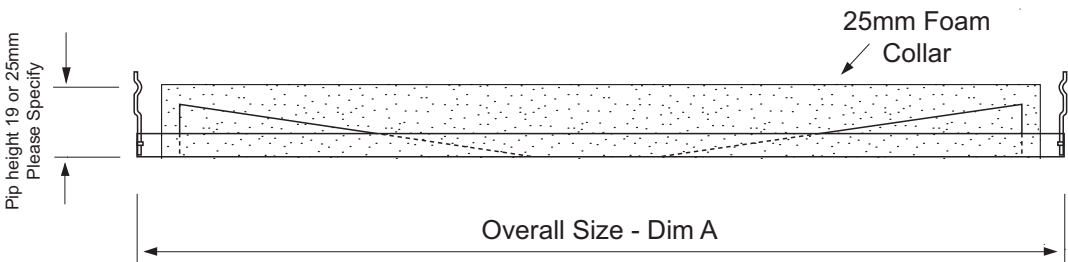
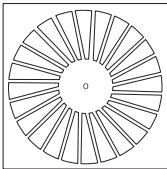
# SERIES GD

Square and Circular Fixed Swirl Diffusers

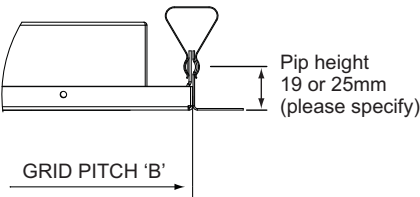
## Type GDS-B

### SQUARE FRAME ONLY

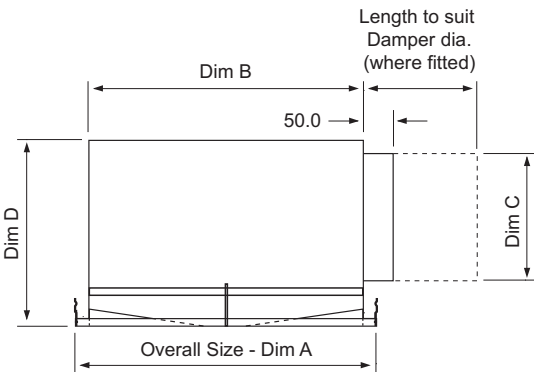
Diffuser



LIST SIZE (swirl diameter)	OVERALL SIZE A	B
250, 315 or 500	499	500
250, 315, 500, or 600	599	600

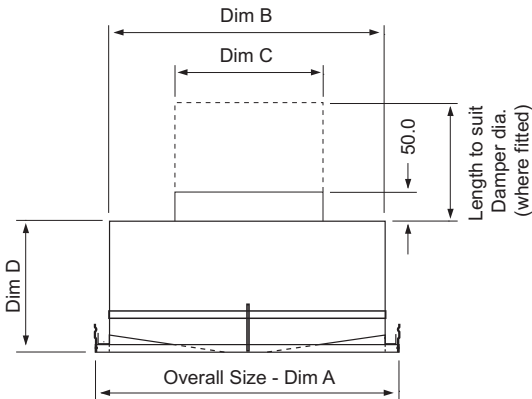


### Diffuser with Side Entry



LIST SIZE (swirl diameter)	OVERALL SIZE A	B	C	D
250, 315 or 500	499	452	250	350
250, 315, 500, or 600	599	552	315	415

### Diffuser with Top Entry



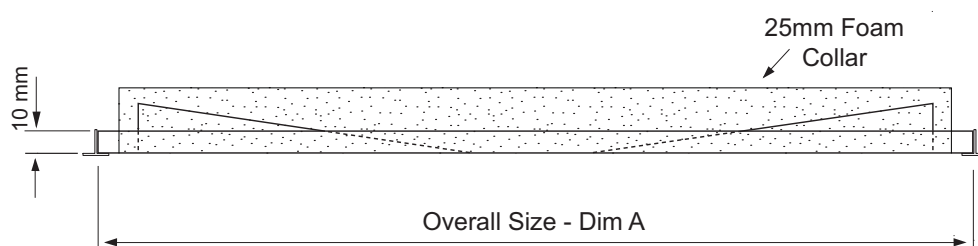
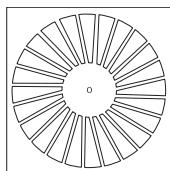
LIST SIZE (swirl diameter)	OVERALL SIZE A	B	C	D
250, 315 or 500	499	452	250	250
250, 315, 500, or 600	599	552	315	250



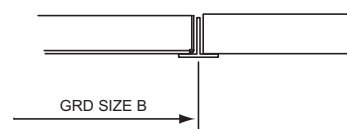
## Type GDS-C

### SQUARE FRAME ONLY

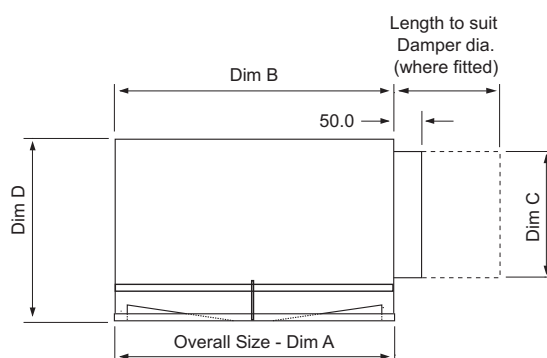
Diffuser



LIST SIZE (swirl diameter)	OVERALL SIZE A	B
250, 315 or 500	494	500
250, 315, 500, or 600	594	600

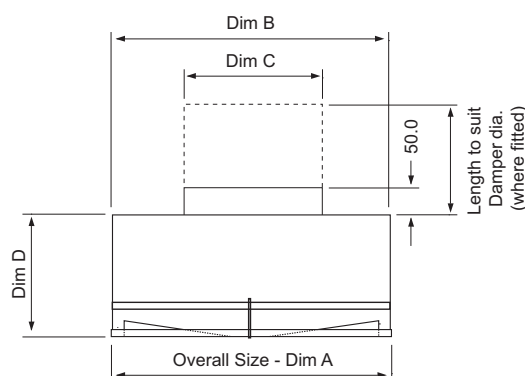


### Diffuser with Side Entry



LIST SIZE (swirl diameter)	OVERALL SIZE A	B	C	D
250, 315 or 500	494	452	250	350
250, 315, 500, or 600	594	552	315	415

### Diffuser with Top Entry



LIST SIZE (swirl diameter)	OVERALL SIZE A	B	C	D
250, 315 or 500	494	452	250	250
250, 315, 500, or 600	594	552	315	250

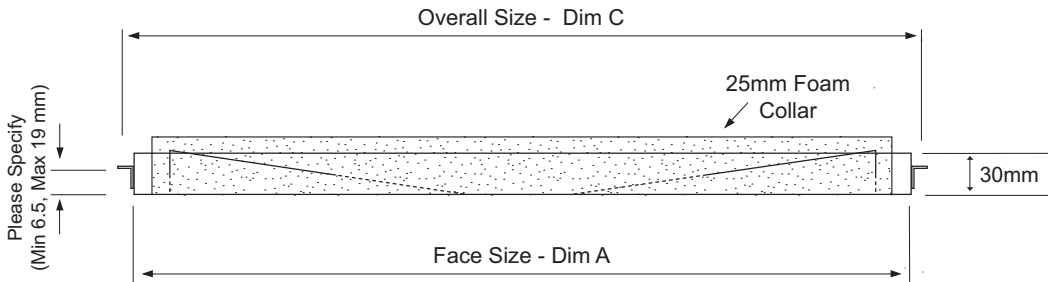
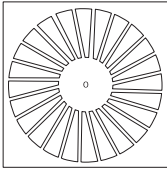
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Square and Circular Fixed Swirl Diffusers

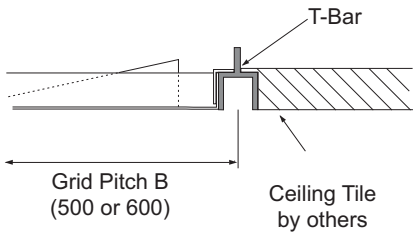
## Type GDS-D

### SQUARE FRAME ONLY

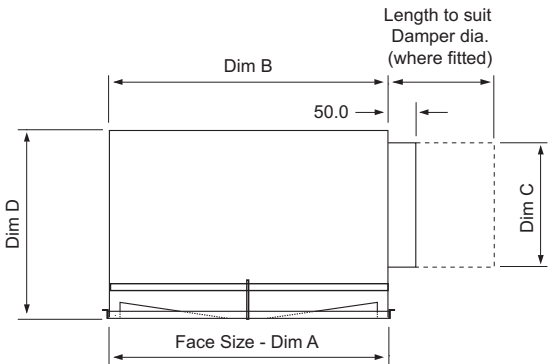
Diffuser



LIST SIZE (swirl diameter)	FACE SIZE A	B	C
250, 315 or 500	474	500	484
	484		494
250, 315, 500, or 600	574	600	584
	584		594

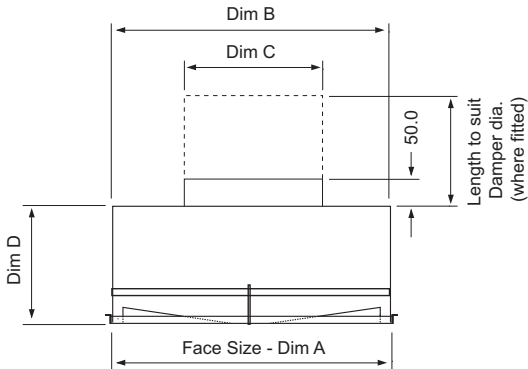


### Diffuser with Side Entry



LIST SIZE (swirl diameter)	FACE SIZE A	B	C	D
250, 315 or 500	474	452	250	350
	484			
250, 315, 500, or 600	574	552	315	415
	584			

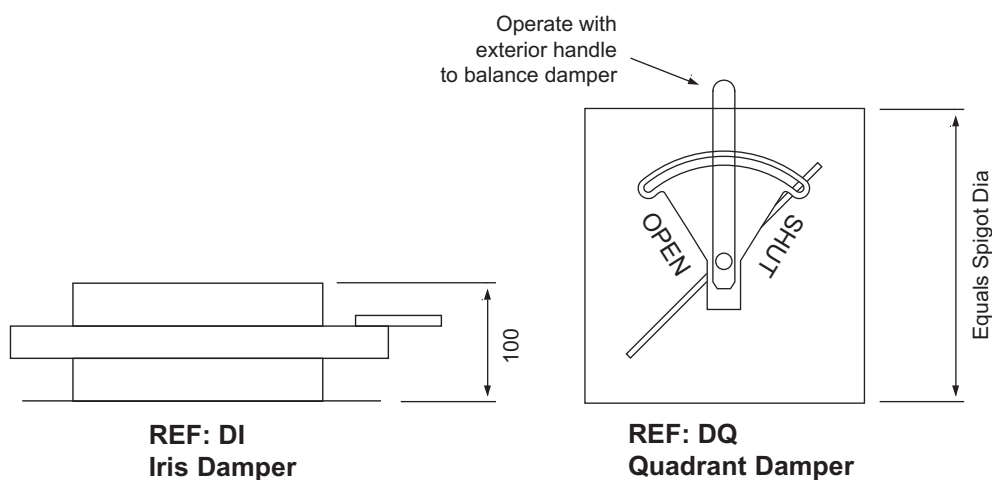
### Diffuser with Top Entry



LIST SIZE (swirl diameter)	FACE SIZE A	B	C	D
250, 315 or 500	474	452	250	250
	484			
250, 315, 500, or 600	574	552	315	250
	584			



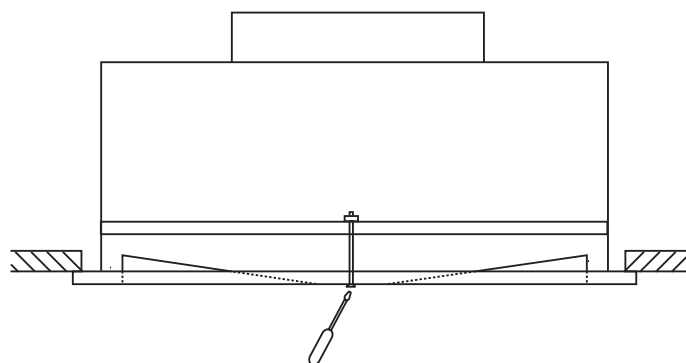
## Volume Control Options



## Fixing

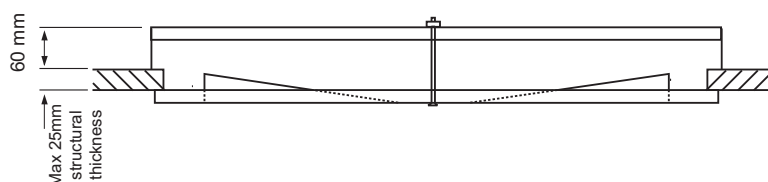
### STANDARD (WITH PLENUM)

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.



## Sizing Table

AIR VOLUME 250 SIZE (l/s)			20	30	40	50
AIR VOLUME 315 SIZE (l/s)			40	60	80	100
AIR VOLUME 500 SIZE (l/s)			70	100	140	170
AIR VOLUME 600 SIZE (l/s)			100	150	200	250
FACE STYLE 1		NOISE NC	20	25	30	35
		PRESSURE Pa	5	10	17	25
FACE STYLE 2		NC	20	25	35	40
		Pa	7	13	29	46
	THROW	At + 10K	0.9/1.5	1.2/1.9	1.6/2.3	1.9/2.6
		At + 5K	0.8/1.4	1.1/1.8	1.5/2.2	1.8/2.5
		ISOTHERMAL	0.7/1.2	1.0/1.6	1.4/2.0	1.7/2.3
		At - 5K	0.6/1.0	0.9/1.5	1.3/1.9	1.6/2.2
		At - 10K	0.5/0.9	0.8/1.4	1.2/1.8	1.5/2.1

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## Ordering Specification (Diffuser)

SERIES GDS.....A, B, C or D	GDS - B	1	600	500	PIP 19	TD8	LB	RAL 9010 (STANDARD FINISH)	15
FACE STYLE 1 or 2									
LIST SIZE									
OVERALL SIZE or FACE SIZE									
PIP HEIGHT (mm) (applies to GDS-B only) PIP + HEIGHT									
REGULAR DROP (mm) (applies to GDS-D only) TD + DEPTH									
SPECIAL FIXING.....LB									
FINISH (please specify)									
NUMBER REQUIRED									

## Ordering Specification (Plenum)

TYPE REQUIRED: TCB/GDS-A ... SEB/GDS-A TCB/GDS-B ... SEB/GDS-B TCB/GDS-C ... SEB/GDS-C TCB/GDS-D ... SEB/GDS-D	SEB/GDS-B	AT1	500-499	BH600	DQ 250 DIA	TSO	DQ 250 DIA	15
THERMAL / ACOUSTIC INSULATION (SEB ONLY) 12mm PYRO (Standard) ..... AT1 25mm PYRO ..... AT2 12mm ARMAFLEX ..... AT3								
TO FIT DIFFUSER SIZE (List + Overall Size)								
BOX HEIGHT (Where different from standard)								
SPIGOT & DAMPER OPTIONS (PLUS NOMINAL SPIGOT SIZE): No Damper ..... SS + SIZE Quadrant ..... DQ + SIZE Cord Operated ..... DC + SIZE Iris ..... DI + SIZE								
TWIN SPIGOT OPTIONS: Adjacent ..... TSA Opposite ..... TSO								
2nd SPIGOT & DAMPER OPTIONS (See first Damper options)								
NUMBER REQUIRED								

### Finish

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

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

### 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.

### Size Range

Available in four standard List Sizes (Swirl Dia) of 250, 315, 500, or 600 Dia.

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