

# SERIES GD

Square &  
Circular  
Fixed Swirl  
Diffusers

PUBLICATION

DIFFUSERS 18

MARCH 2008



## Features

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



**GILBERTS**



# SERIES GD

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

## Face Styles



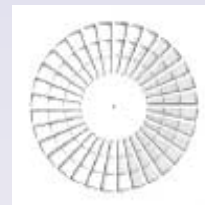
**PATTERN 1**



**PATTERN 2**



**PATTERN 3**



**PATTERN 4**

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. Swirl diffuser List Sizes are limited to 500mm, 500(600) and

600mm dia. The 500(600) size provides the smaller 500 dia swirl pattern in the larger 600 size frame configuration. Four different edge border options are also available to suit popular ceiling grid designs. 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.

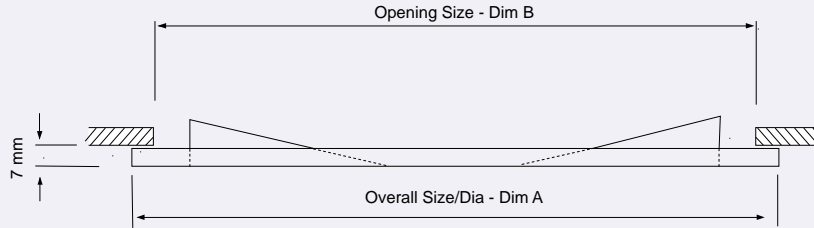


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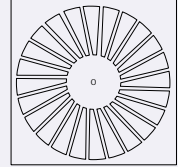
Type GDS-A  
& GDC-A

## SQUARE & CIRCULAR FRAME

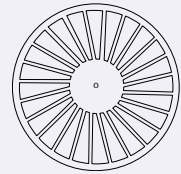
Diffuser



Type GDS-A (Square)

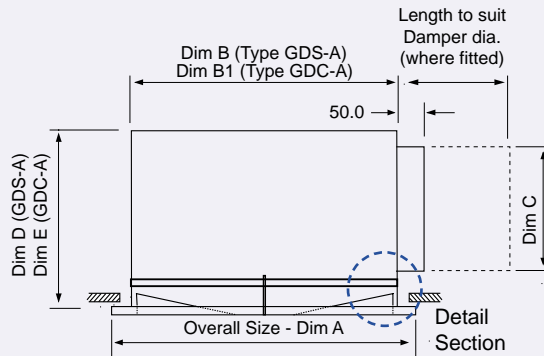


Type GDC-A (Circular)

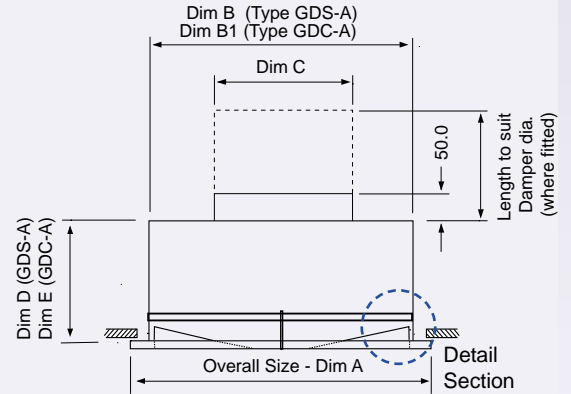


LIST SIZE	A	B
500	523	500
500 (600)	623	600
600	623	600

Diffuser with Side Entry



Diffuser with Top Entry

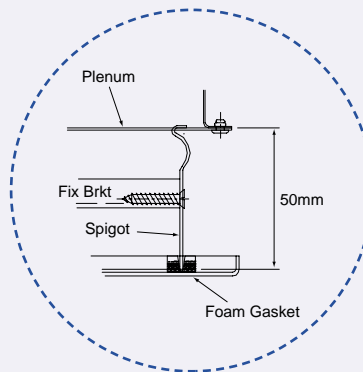


### Detail Section

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	A	B	B1	C	D	E
500	523	452	470	250	350	400
500 (600)	623	552	570	315	415	465
600	623	552	570	315	415	465

Top Entry

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

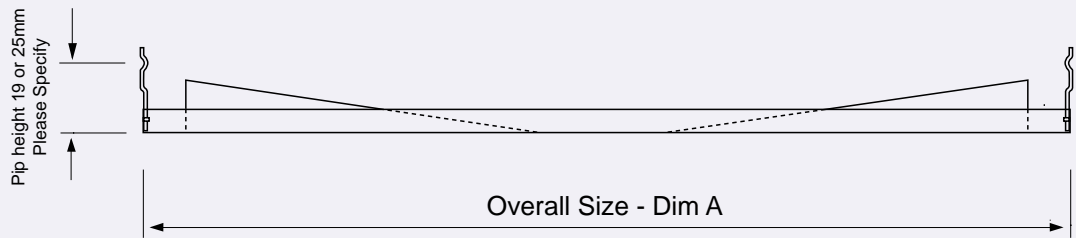
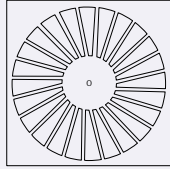


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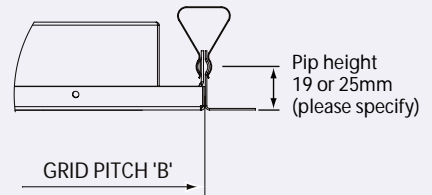
Type GDS-B

## SQUARE FRAME ONLY

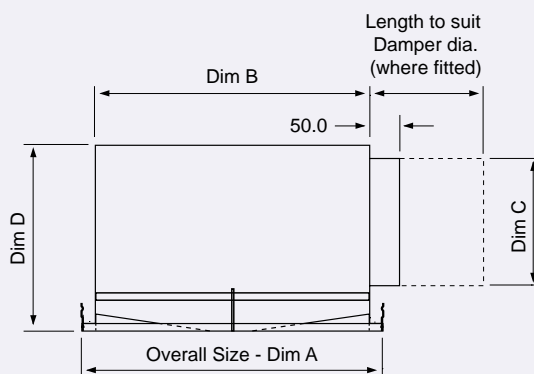
Diffuser



LIST SIZE	A	B
500	499	500
500 (600)	599	600
600	599	600

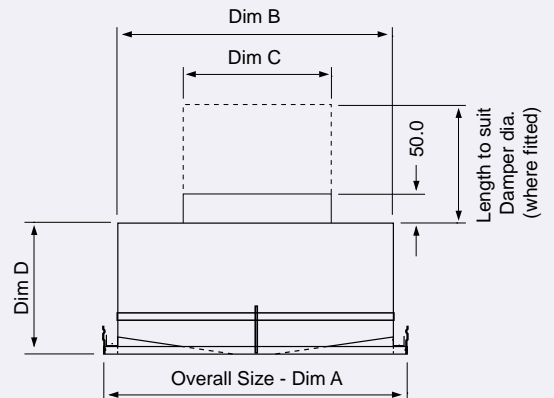


## Diffuser with Side Entry



LIST SIZE	A	B	C	D
500	499	452	250	350
500 (600)	599	552	315	415
600	599	552	315	415

## Diffuser with Top Entry



LIST SIZE	A	B	C	D
500	499	452	250	250
500 (600)	599	552	315	250
600	599	552	315	250

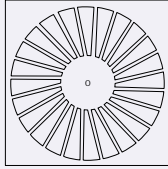


# SERIES GD

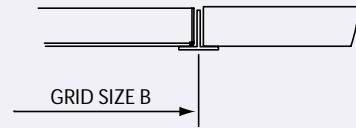
Type GDS-C

## SQUARE FRAME ONLY

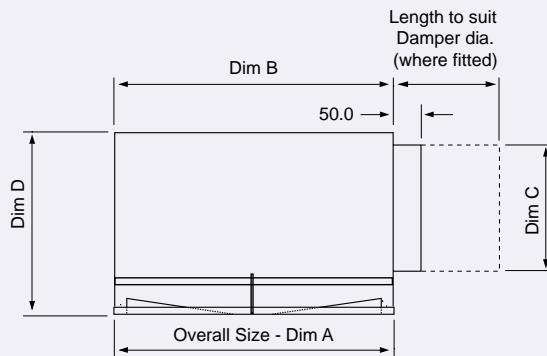
Diffuser



LIST SIZE	A	B
500	494	500
500 (600)	594	600
600	594	600

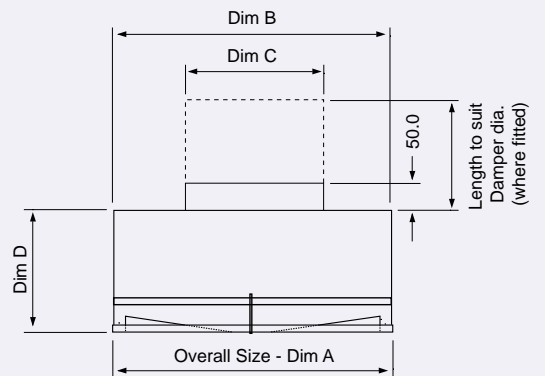


## Diffuser with Side Entry



LIST SIZE	A	B	C	D
500	494	452	250	350
500 (600)	594	552	315	415
600	594	552	315	415

## Diffuser with Top Entry



LIST SIZE	A	B	C	D
500	494	452	250	250
500 (600)	594	552	315	250
600	594	552	315	250

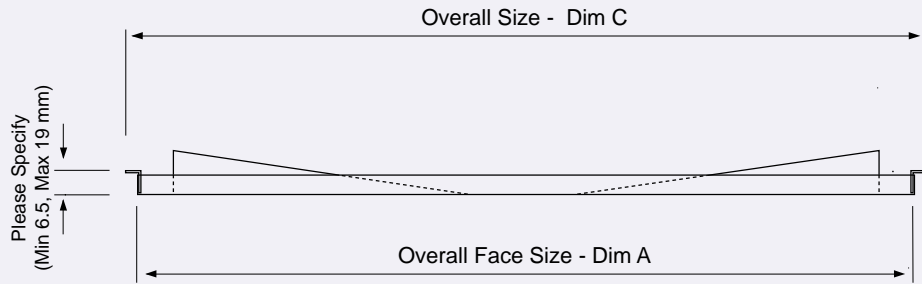
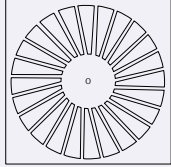


# SERIES GD

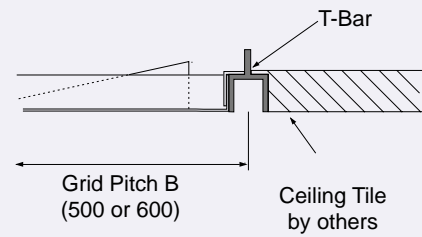
Type GDS-D

## SQUARE FRAME ONLY

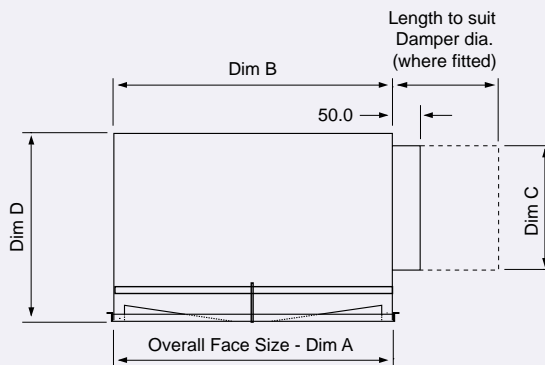
Diffuser



SIZE	A	B	C
500	474	500	484
	484		494
500(600)	574	600	584
	584		594
600	574	600	584
	584		594

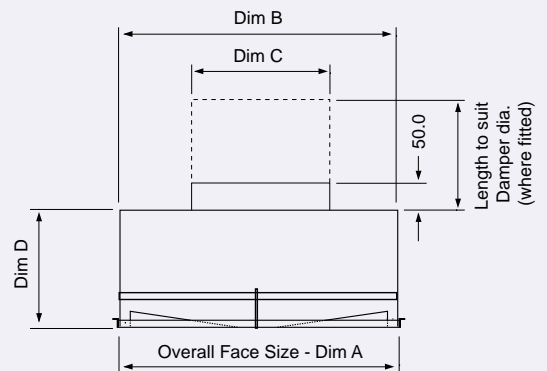


## Diffuser with Side Entry

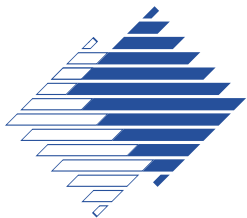


LIST SIZE	A	B	C	D
500	474	452	250	350
	484			
500 (600)	574	552	315	415
	584			
600	574	552	315	415
	584			

## Diffuser with Top Entry

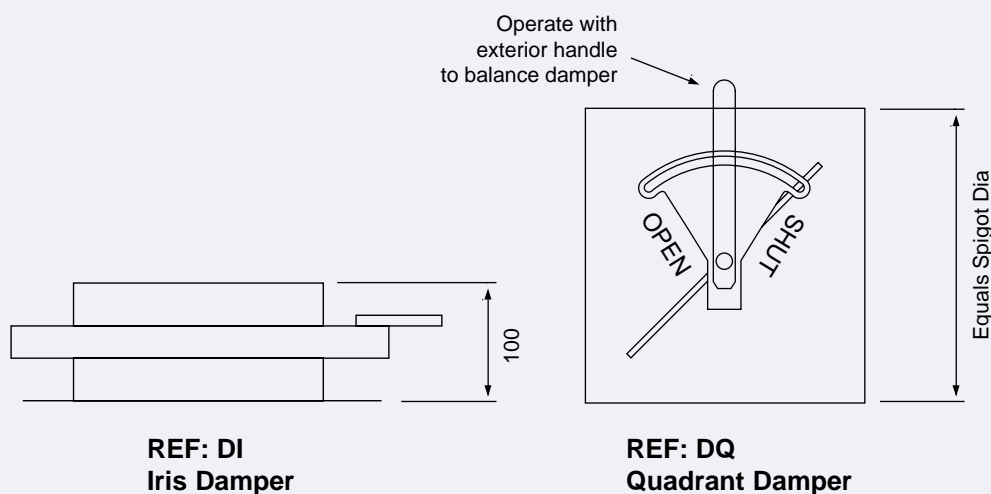


LIST SIZE	A	B	C	D
500	474	452	250	250
	484			
500 (600)	574	552	315	250
	584			
600	574	552	315	250
	584			



# SERIES GD

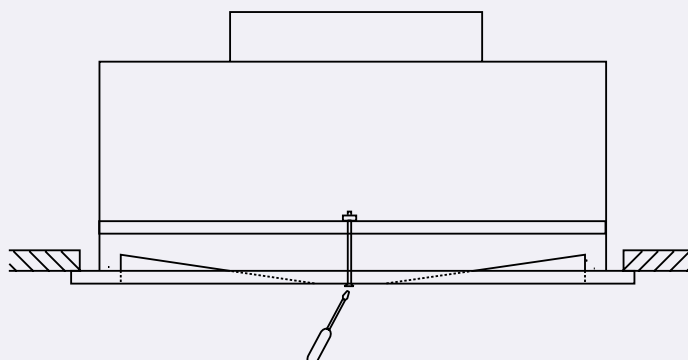
## Volume Control Options



## Fixing

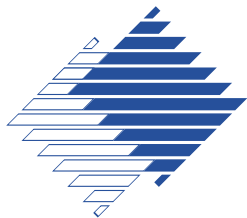
All units are fixed to the plenum using a central screw that drives into a secondary bracket in the plenum box neck. The exposed screw head is finished to match the diffuser face to maintain aesthetics.

This type of fixing is the only suitable method for this product and therefore plenum boxes will always be required.



## Sizing Table

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	
FACE STYLE 3	NC	20	25	30	40	
	Pa	6	14	25	39	
FACE STYLE 4	NC	20	25	30	35	
	Pa	5	11	20	30	
	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



# SERIES GD

## Ordering Specification (Diffuser)

SERIES GDS.....A, B, C or D SERIES GDC.....A	GDS - B	1	500	PIP 19	TD8	RAL 9010 (STANDARD FINISH)	15
FACE STYLE 1, 2, 3, or 4							
LIST SIZE 500, 500(600) or 600							
PIP HEIGHT (mm) (applies to GDS-B only) PIP + HEIGHT							
TEGULAR DROP (mm) (applies to GDS-D only) TD + DEPTH							
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.

### SIZE RANGE

Available in two standard List Sizes  
of 500, 500 (600) and 600mm 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.  
This type of fixing is the only  
suitable method for this product and  
therefore plenum boxes will always  
be required.

## Contact

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