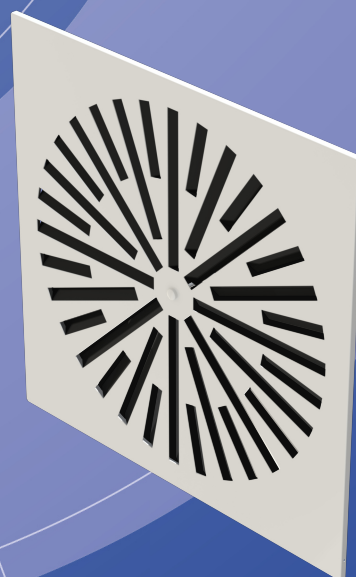
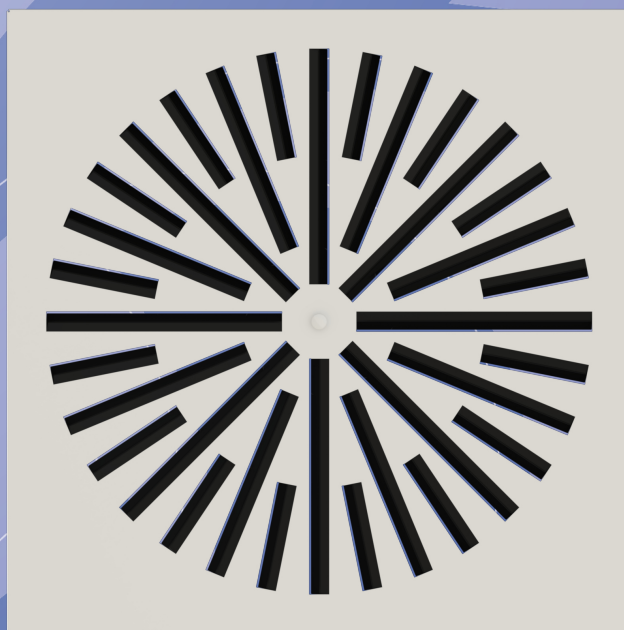
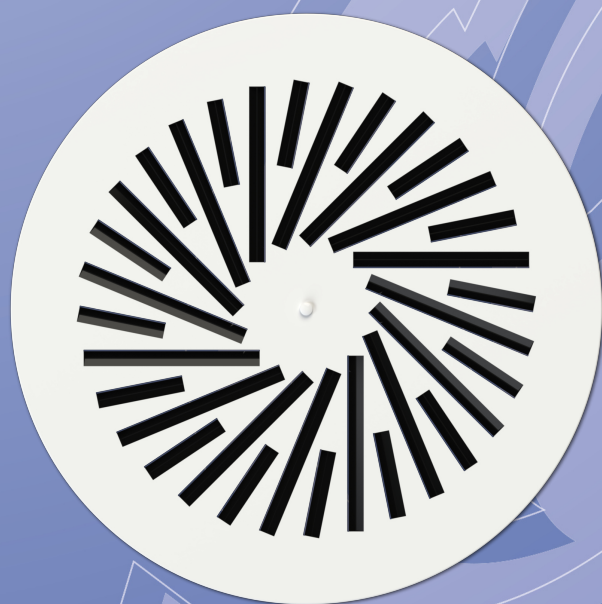


SERIES GBS

Slimline Swirl Diffuser



Features

- Slimline architectural swirl design
- 1- to 4-way directional airflow
- Fabricated from galvanised steel
- 600 x 600 nominal size compatibility
- Low pressure drop & quiet operation
- Square lay-in grid & exposed options
- Wide operating range for varied conditions



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SERIES GBS

Slimline Swirl Diffuser

Introduction

This range of slimline swirl diffusers is designed to deliver high performance air distribution with a clean, unobtrusive appearance suited to modern ceiling systems.

Incorporating fixed blade swirl patterns, the diffusers provide effective air mixing and consistent performance across a range of operating conditions. A key feature of the design is its directional capability, offering 1- to 4-way air supply to suit installation constraints, making it particularly effective in areas with limited ceiling space such as perimeter zones.

The range includes square lay-in and circular exposed options, providing flexibility across different ceiling types while maintaining a consistent aesthetic. Border options align with standard ceiling interfaces to support straightforward specification.

Engineered for typical commercial applications, the diffusers accommodate a broad range of air volumes with low pressure drop and quiet operation, ensuring comfortable internal environments.

Suitable for offices and a wide range of commercial spaces, the range combines design flexibility with dependable performance.

Series Options

Border options

Series GBSC-A - Circular swirl diffuser suitable for exposed or plaster ceiling applications.

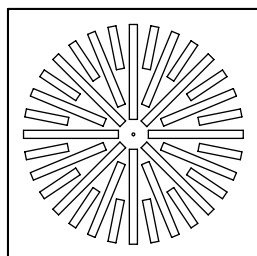
Series GBSS-A - Swirl diffuser suitable for plaster ceiling applications.

Series GBSS-B - Swirl diffuser with clip in border edge detail.

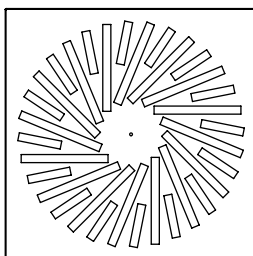
Series GBSS-C - Swirl diffuser with borderless frame suitable for lay-in ceiling grid application.

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

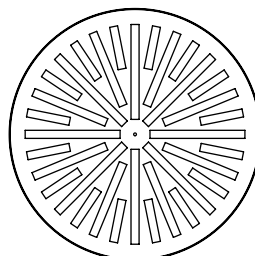
Face Styles



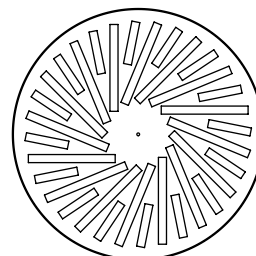
600 Pattern - 1
GBSS all borders



600 Pattern - 2
GBSS all borders



600 Pattern - 1
GBSC-A border only



600 Pattern - 2
GBSC-A border only

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.

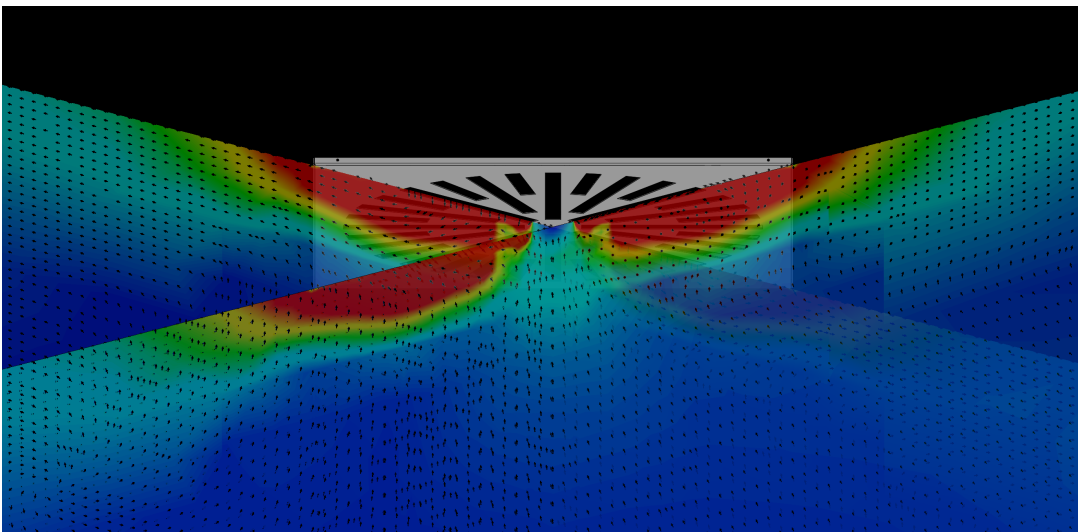
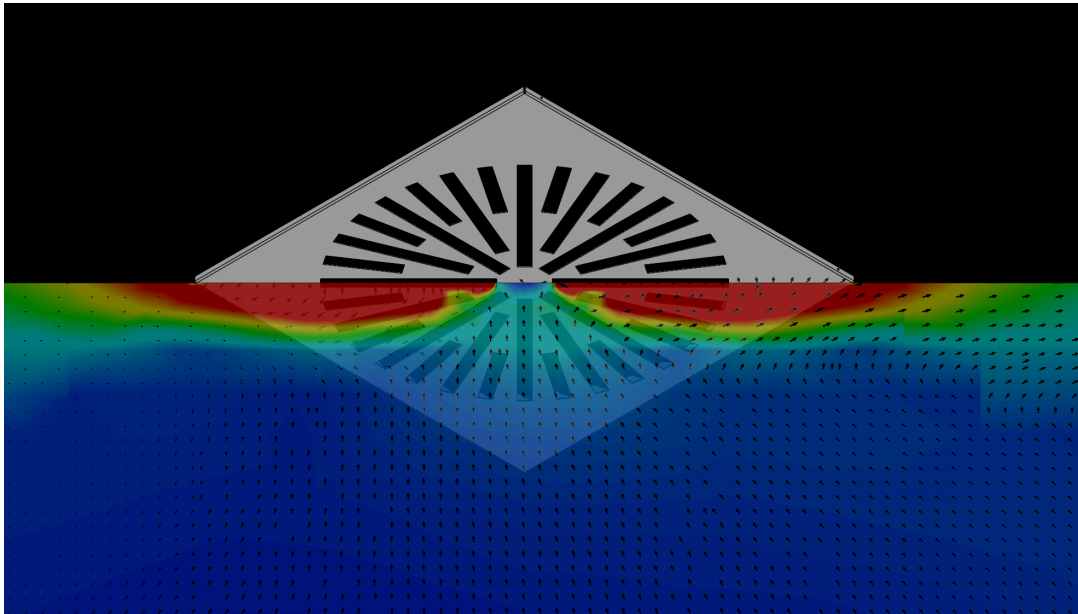
The list size is 600 pattern and is built into a 623 or 723Ø fascia or 600 sq fascia using four alternative border styles to suit popular ceiling grid designs. Standard fixing uses a central screw into a secondary bracket built within the plenum box. Special 'LB' fixing for installations without plenum are also available. Standard diffuser finish is polyester powder white. Other colours are available on request.

SERIES GBS

Slimline Swirl Diffuser

Air Flow Illustration

In the Computational Fluid Dynamics (CFD) below, the detail shows velocities at the face of the diffuser in isothermal distribution. Rapid entrainment means the velocities are greatly reduced within a short distance allowing the diffusers to be positioned more closely than traditional diffusers.

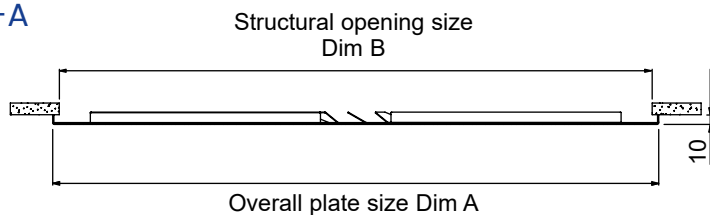


SERIES GBS

Slimline Swirl Diffuser

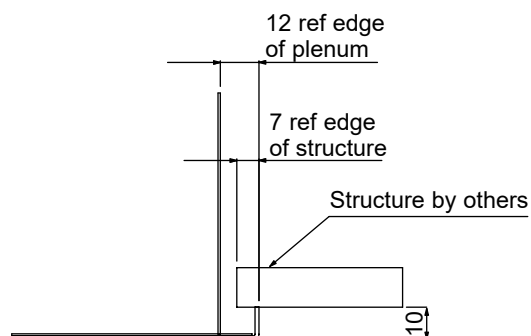
Type GBSS-A/ GBSC-A

Diffuser

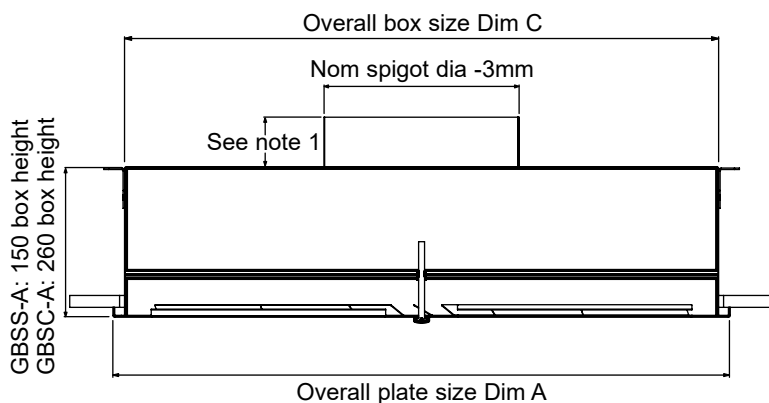


Type	Size	Dim A	Dim B
GBSS-A	600-623	623	609
GBSC-A	600-623	623 Ø	609 Ø
GBSC-A	600-723	723 Ø	709 Ø

Border style 'A' edge detail



Diffuser with top connection box

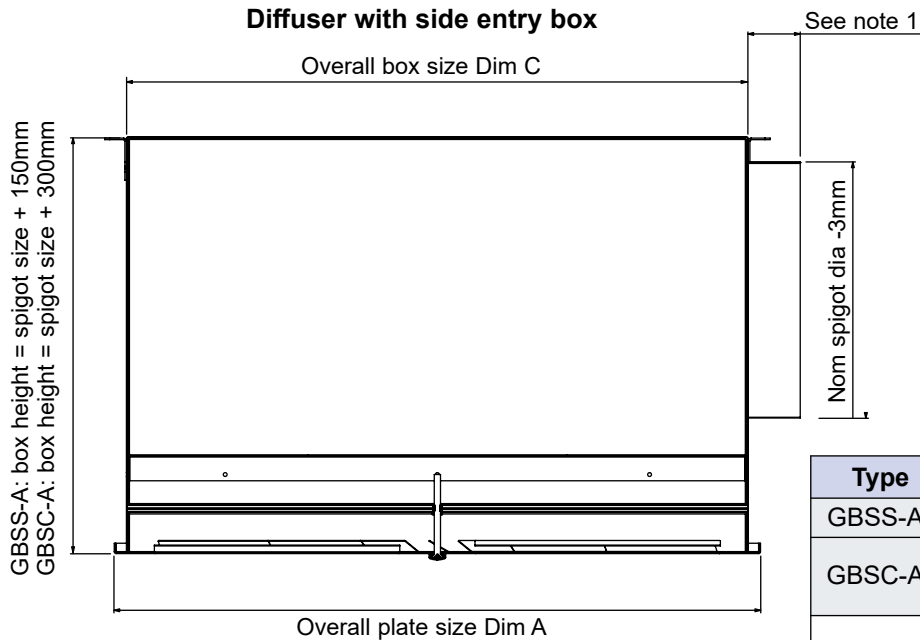


Type	Size	Dim A	Dim C
GBSS-A	600-623	623	599
GBSC-A	600-623	623 Ø	618 Ø (flange fixing) 599 Ø (neck fixing)
GBSC-A	600-723	723 Ø	718 Ø (flange fixing) 599 Ø (neck fixing)

Note 1

Spigot height 50mm standard or length to suit spigot damper diameter where fitted.

Diffuser with side entry box



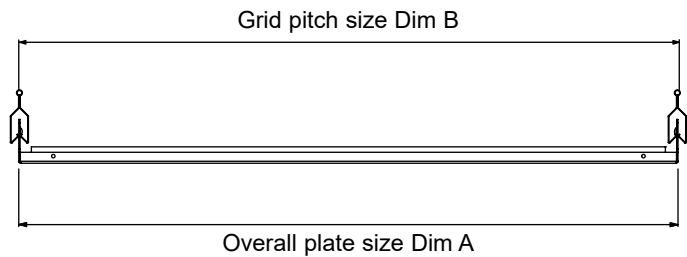
Type	Size	Dim A	Dim C
GBSS-A	600-623	623	599
GBSC-A	600-623	623 Ø	618 Ø (flange fixing) 599 Ø (neck fixing)
GBSC-A	600-723	723 Ø	718 Ø (flange fixing) 599 Ø (neck fixing)

SERIES GBS

Slimline Swirl Diffuser

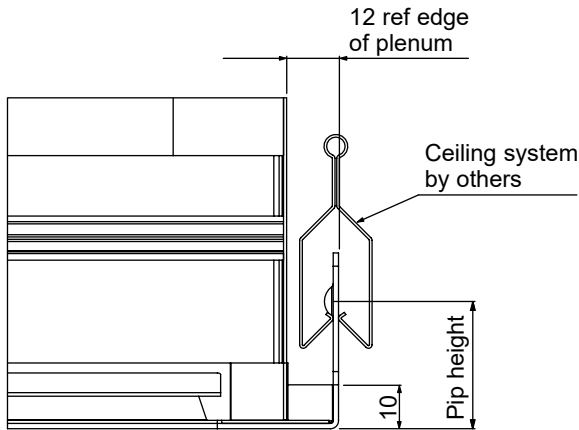
Type GBSS-B

Diffuser

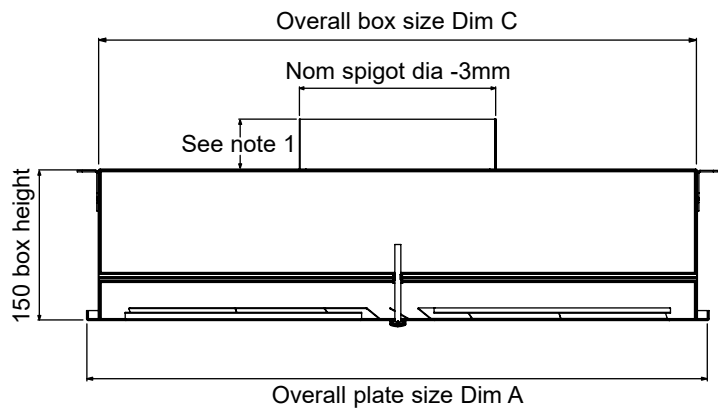


Type	Size	Dim A	Dim B
GBSS-B	600-599	599	600

Border style 'B' edge detail



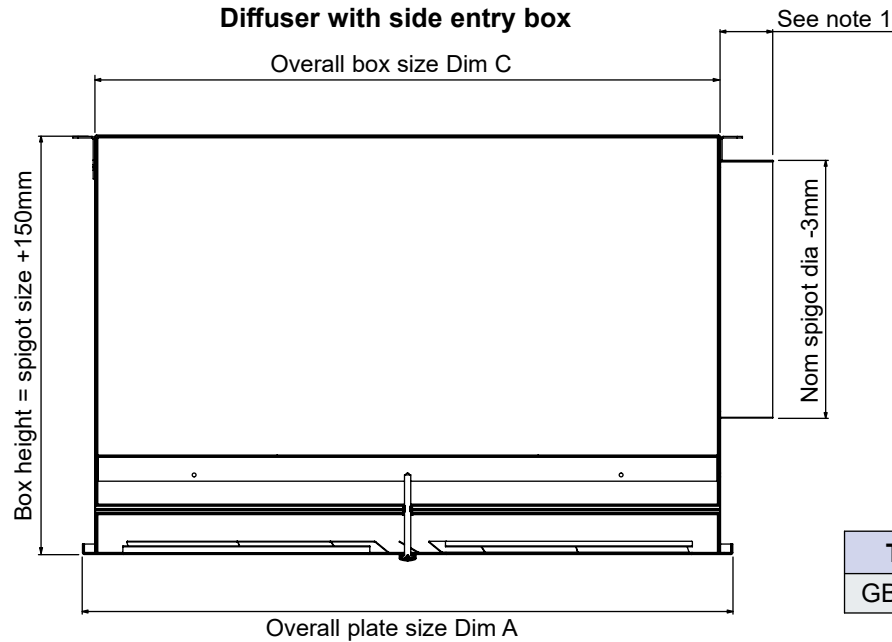
Diffuser with top connection box



Type	Size	Dim A	Dim C
GBSS-B	600-599	599	575

Note 1
Spigot height 50mm standard or length to suit spigot damper diameter where fitted.

Diffuser with side entry box



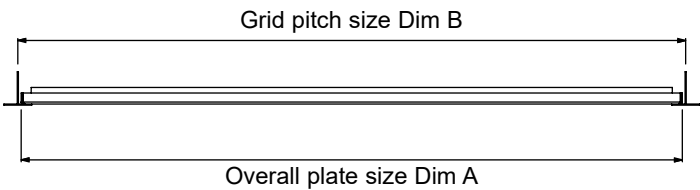
Type	Size	Dim A	Dim C
GBSS-B	600-599	599	575

SERIES GBS

Slimline Swirl Diffuser

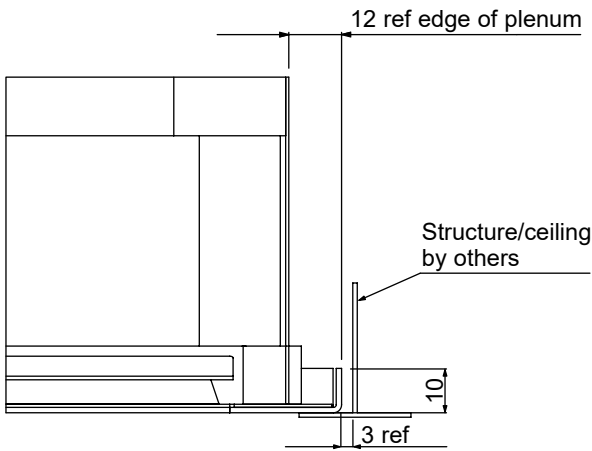
Type GBSS-C

Diffuser

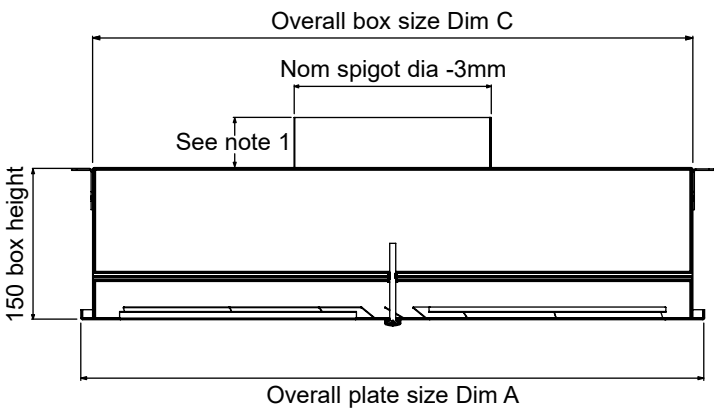


Type	Size	Dim A	Dim B
GBSS-C	600-594	594	600

Border style 'C' edge detail



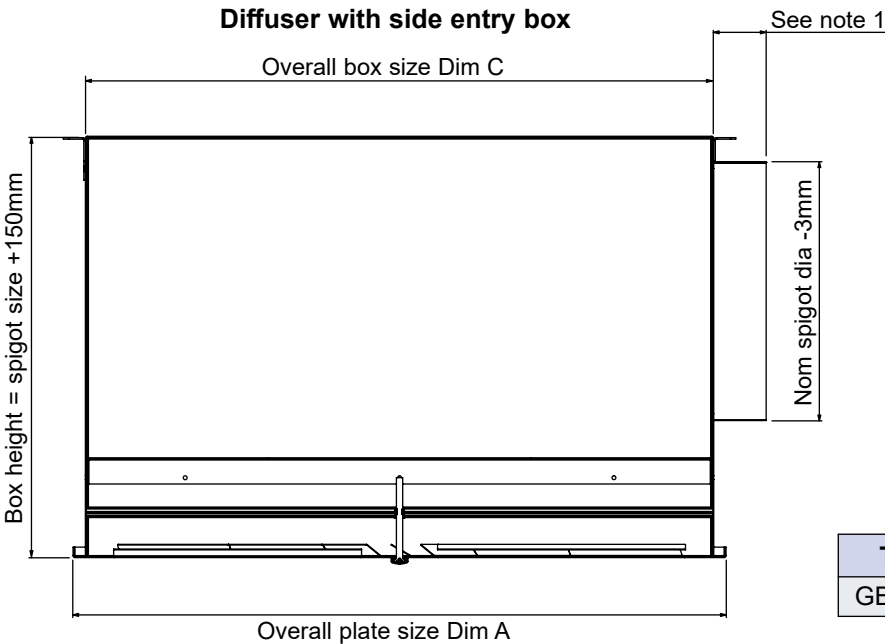
Diffuser with top connection box



Type	Size	Dim A	Dim C
GBSS-C	600-594	594	570

Note 1
Spigot height 50mm standard or length to suit spigot damper diameter where fitted.

Diffuser with side entry box

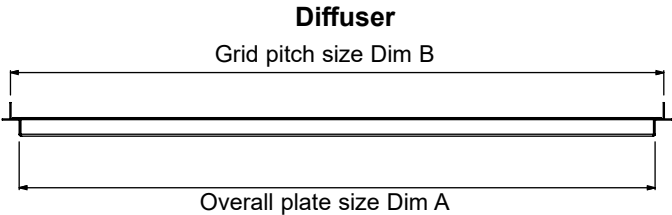


Type	Size	Dim A	Dim C
GBSS-C	600-594	594	570

SERIES GBS

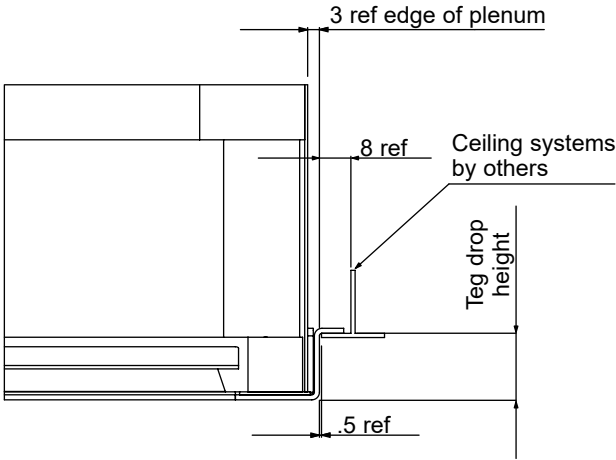
Slimline Swirl Diffuser

Type GBSS-D

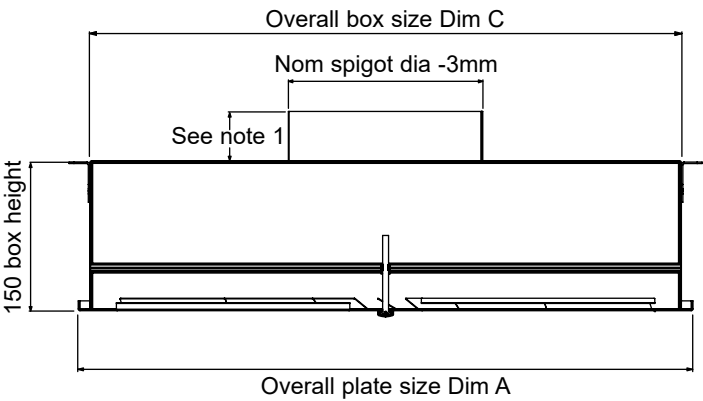


Type	Size	Dim A	Dim B
GBSS-D	600-574	574	600
GBSC-D	600-584	584	600

Border style 'D' edge profile



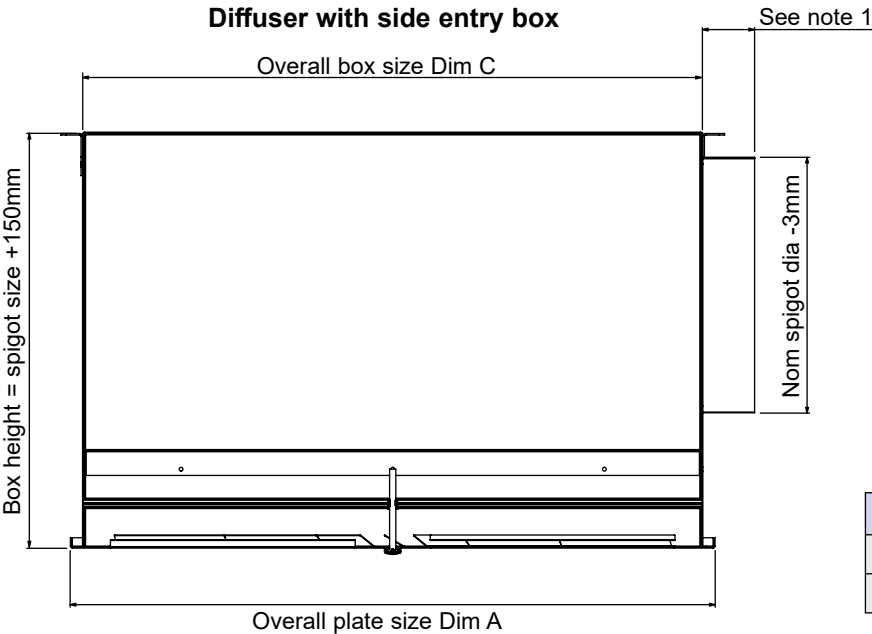
Diffuser with top connection box



Type	Size	Dim A	Dim C
GBSS-D	600-574	574	568
GBSC-D	600-584	584	578

Note 1
Spigot height 50mm standard or length to suit spigot damper diameter where fitted.

Diffuser with side entry box



Type	Size	Dim A	Dim C
GBSS-D	600-574	574	568
GBSC-D	600-584	584	578

SERIES GBS

Slimline Swirl Diffuser

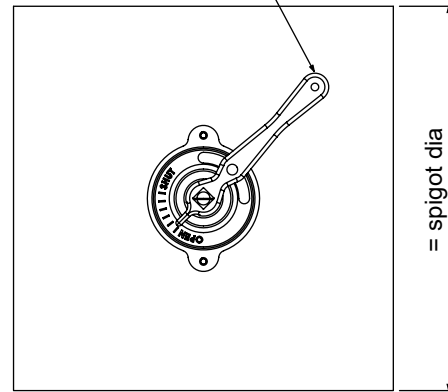
Volume Control Options

Ref: DI

Iris damper - refer to Series RD



Operate with handle
to balance damper



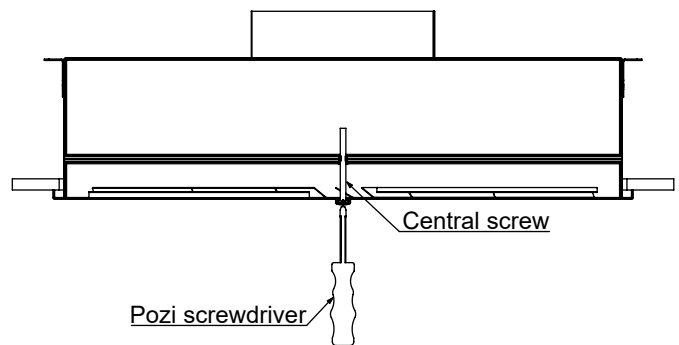
Ref: DQ

Quadrant damper

Fixing

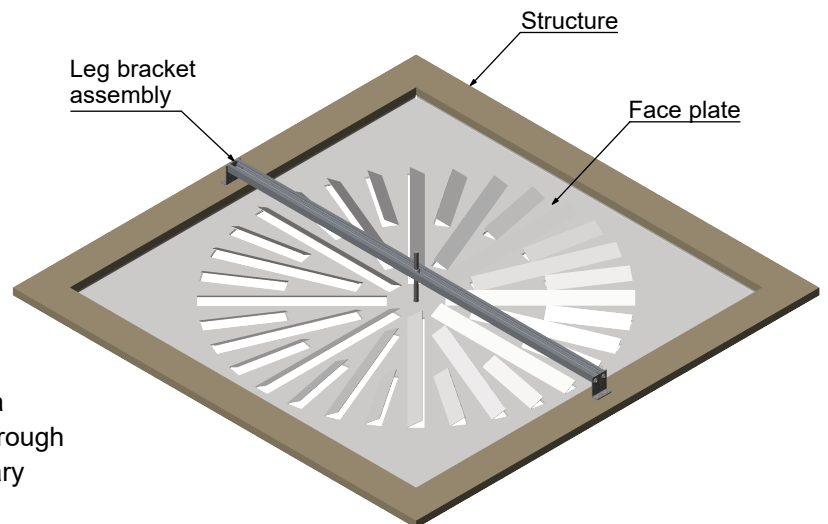
Standard (with plenum)

All units are fixed to the plenum box using a central screw that drives into a secondary bracket in the plenum box. The exposed screw head is then covered by a cap to match the diffuser face colour to maintain aesthetics. Do not over tighten.



Special (without plenum)

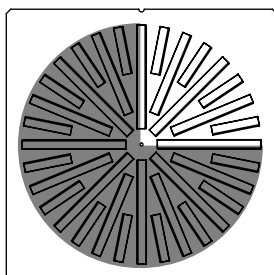
For plasterboard ceiling applications without plenum box, we can provide a 'LB' type fixing which again screws through the face of the diffuser into a secondary bracket. Do not over tighten.



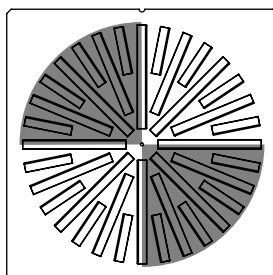
SERIES GBS

Slimline Swirl Diffuser

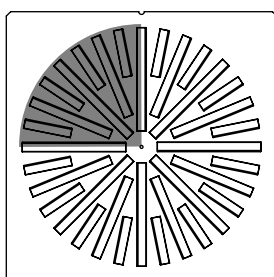
Directional Blanking



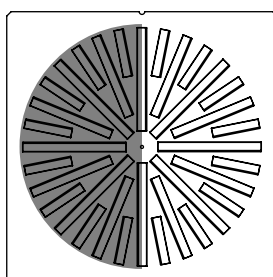
P1 blanking
(1-way blow)



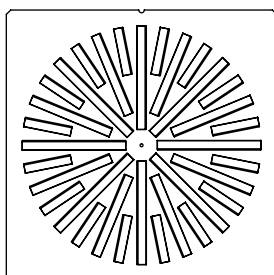
P2 blanking
(2-way blow)



P3 blanking
(3-way blow)



P2E blanking
(2-way blow corner)



No blanking
(4-way blow standard)

Sections are blanked from behind to give a consistent appearance.

Performance Data

The performance chart illustrated in this catalogue gives tabulated performance for the diffuser, together with its design. The figures given relate to cooling and isothermal 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 m²).
- 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.

SERIES GBS

Slimline Swirl Diffuser

Performance Chart

Standard GBS		110	160	210	260
Low volume option (L)		50	80	110	140
Pressure drop static (Pa)		5	10	18	30
10° cooling	Throw in metres to 0.25m/s	1.1	1.7	2.3	2.9
	Throw in metres to 0.50m/s	0.7	1.3	1.9	2.4
Isothermal	Throw in metres to 0.25m/s	2.3	2.8	3.4	3.9
	Throw in metres to 0.50m/s	1.6	2.1	2.7	3.2
Noise (NC/dB(A))		25/27	25/29	30/34	35/40

Notes:

Throw distance based on ceiling mounted product, For exposed ceiling use correction factor x0.6 for throw.

For extract pressure drop use correction factor x2 or increase duct size and multiply by x1.3. [e.g. increase 250dia duct to 300dia].

Selection Procedure

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

1. 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 performance chart to confirm acceptability.

Example:

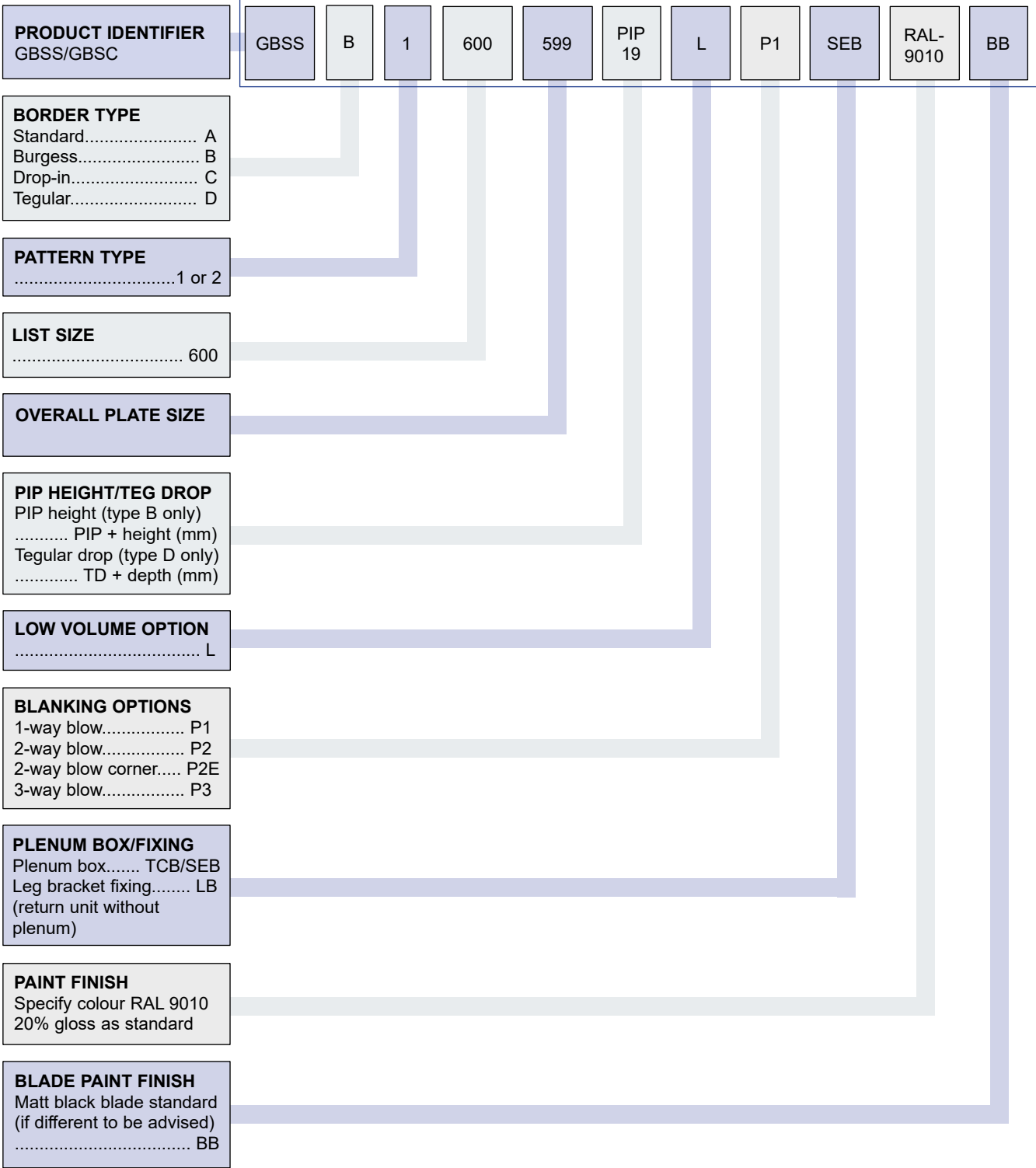
Take a 18x9m open-plan office area with a total required air volume to be supplied of 0.88 m³/s. Divide this area up into 8 equal spaced segments, each measuring 4.5x4.5m, and position a diffuser in the centre of these imaginary grids. If we divide the total volume by 8, then this will equate to 110 l/s per diffuser. From the chart for a standard swirl with horizontal distribution, we can select a unit handling 110 l/s which gives a noise level of NC25, and a static pressure drop of 5 Pa. Throw in isothermal conditions of 2.1m at 0.5m/s and 2.3m at 0.25m/s terminal velocity. This should be an acceptable selection for this area assuming a standard room height.

SERIES GBS

Slimline Swirl Diffuser

Ordering Specification (Diffuser)

Customer string selection example:



SERIES GBS

Slimline Swirl Diffuser

Ordering Specification (Diffuser cont.)

Suspended Ceilings

All items installed into suspended ceilings must be supported independently of the grid.
Any feature offered to suit ceiling type is for alignment purposes only.

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.

Finish

Standard finish: PPC white RAL 9010 20% gloss for all units.

Internals finish: matt black as standard.

Special finish: PPC to stock BS or RAL colour.

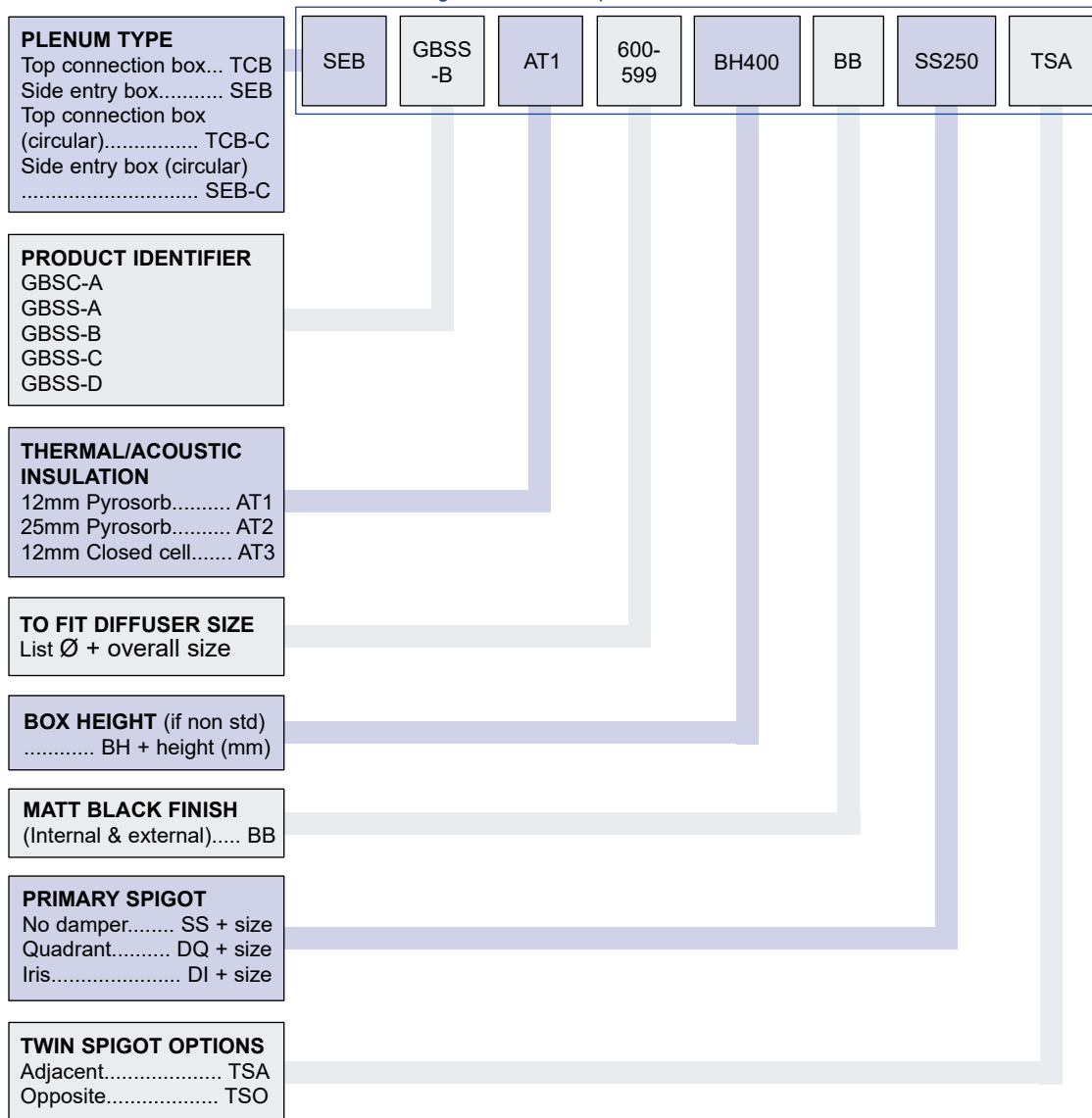
Border type	GBS plate shape/overall size
Type A	GBSS-623
	GBSC-623
	GBSC-723
Type B	GBSS-599
Type C	GBSS-594
Type D	GBSS-574
	GBSS-584

SERIES GBS

Slimline Swirl Diffuser

Ordering Specification (Plenum)

Customer string selection example:



Exposed Plenums

Please advise where plenums are exposed. **Galvalike®** is the default finish for exposed plenum boxes. A unique powder coated finish formulated to best match British galvanised material, whilst protecting the products from finish variation and moisture damage etc. Plenums may also be powder coated to suit grille/diffuser finish. For alternative plenum finishes, please contact head office.

Thermal/Acoustic Insulation [AT1, AT2 and AT3]

Plenum box can be fully lined with 12mm [standard] or 25mm Pyrosorb thermal/acoustic insulation. Alternatively 12mm closed cell* can also be specified. *Class '0' fire-rated, closed cell, elastomeric PVC nitrile foam.

Fixing Point (circular plenums)

NEK - narrow plenum for ceiling mounted applications.

FLN - wider plenum for exposed applications.

GILBERTS

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