

# SERIES GSF

## Circular Fixed Swirl Diffusers

PUBLICATION

DIFFUSERS 23

JULY 2026



### Features

- Omni directional, swirl effect discharge.
- Horizontal projection.
- High induction effect.
- Perforated circular or open face circular design.
- Standard or clip-in ceiling border options.
- Suitable for high room air change rates.



# GILBERTS

# SERIES GSF

## Circular Fixed Swirl Diffusers

### Introduction

**With the GSF Series** Gilberts introduce a contemporary and attractively designed range of Fixed Swirl Type Diffusers for ceiling supply and extract applications. The circular pattern of radial vanes featured on this unit provide the swirl, air distribution effect typically associated with this type of diffuser allowing the unit to introduce high volumes of air into the conditioned space, taking advantage of rapid entrainment and intermixing. On a Fixed Swirl Unit the distribution pattern

is horizontal across the ceiling. As a result the unit can deliver high air change rates as compared to conventional diffusers. Notwithstanding the performance potential, aesthetic aspects have also been considered. The circular profile of the GSF unit lends itself well to exposed ductwork and other contemporary applications.

#### The circular fixed swirl range comprises of 4 type options:

- **TYPE GSFR:** Standard Swirl Diffuser comprising of fixed blades mounted in a Circular Flanged Frame.
- **TYPE GSFE:** Circular Swirl Diffuser with fixed blades fitted into a Circular Perforated Fascia with removable core.
- **TYPE GSFA:** Premium Swirl Diffuser comprising fixed blades in a circular housing frame. Unit contains more swirl blades providing alternative visual appearance.
- **TYPE GSFP:** Standard Swirl Diffuser comprising fixed blades in a Circular Flanged Frame with round centre boss

For extract applications complementary exhaust swirl units are available to match supply diffuser type options.

### Features

- Omni directional, swirl effect discharge.
- Horizontal projection.
- High induction effect.
- Perforated circular or open face circular design.
- Suitable for high room air change rates.



Type GSFR

All units are fabricated from a combination of aluminium and steel components 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 sizes range from 160 to 630mm dia as indicated in the dimensional data. Standard finish is white for type GSFR and white perforated fascia, with unexposed internals finished matt black on the GSFE.

### Performance Data

The performance tables illustrated in this brochure give tabulated performance data for each listed size of diffuser, together with their design. The figures given relate to Cooling, Ventilation and Heating applications and always for horizontal distribution of conditioned air.

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

#### References Used

- Pressure:** All pressures are in Pa (N/m<sup>2</sup>)
- Throw:** The horizontal distances for air streams are given for both 0.5 and 0.25 m/s terminal velocities and are based upon a ceiling effect.
- Sound:** The NC values are peak levels on the NC curves.

### Selection Procedure

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 distribution is even in all the directions.
2. The total volume of air is then divided by the number of outlets and a volume per diffuser is established.
3. The performance charts should then be used to select the size and type of diffuser based upon volume and throw requirements. For high ceiling applications an overblow situation can be acceptable.
4. Check pressure loss and NC levels from design chart to confirm acceptability.

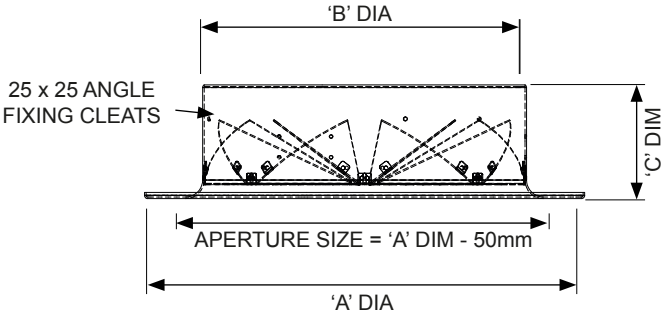
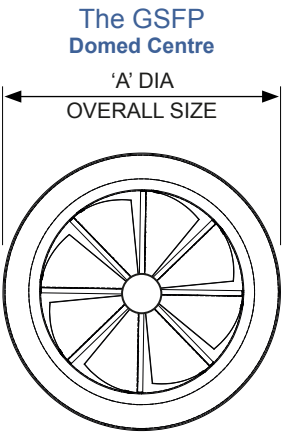
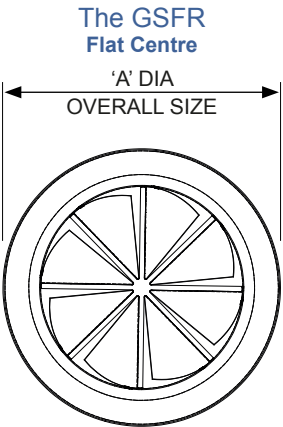
Gilberts Supply Diffusers have been tested within the range of +/- 10°C (as recommended in the HEVAC Guide to Air Distribution Technology). For any other temperature differential requirements please contact our Technical Department.

# SERIES GSF

Circular Fixed Swirl Diffusers

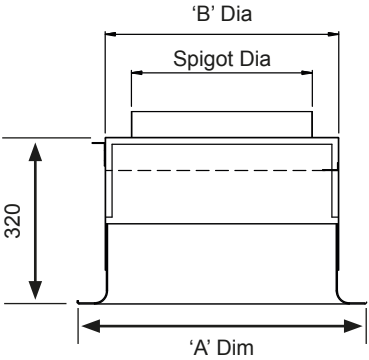
Type GSFR  
& GSFP

## DIFFUSER



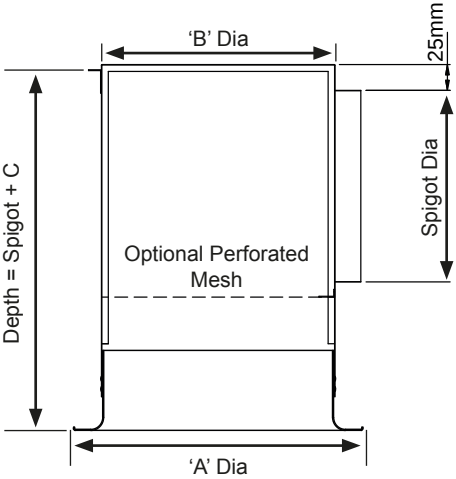
| GSFR |     |     |     |
|------|-----|-----|-----|
| SIZE | A   | B   | C   |
| 160  | 240 | 158 | 90  |
| 250  | 330 | 248 | 100 |
| 315  | 425 | 313 | 110 |
| 450  | 560 | 448 | 155 |
| 630  | 740 | 628 | 220 |

## DIFFUSER C/W TOP ENTRY BOX



| GSFR - TCB |     |     |
|------------|-----|-----|
| SIZE       | A   | B   |
| 160        | 240 | 162 |
| 250        | 330 | 252 |
| 315        | 425 | 317 |
| 450        | 560 | 452 |
| 630        | 740 | 632 |

## DIFFUSER C/W SIDE ENTRY BOX



| GSFR - SEB |     |     |     |
|------------|-----|-----|-----|
| SIZE       | A   | B   | C   |
| 160        | 240 | 162 | 320 |
| 250        | 330 | 252 | 320 |
| 315        | 425 | 317 | 320 |
| 450        | 560 | 452 | 320 |
| 630        | 740 | 632 | 320 |

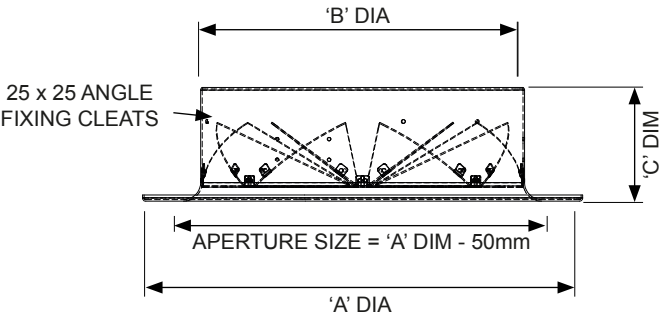
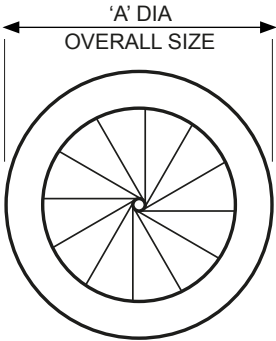
Standard Plenum Boxes are circular profile (not square). Plenums fitted to diffuser (Ref...NEK) are illustrated but plenums can be enlarged to fix at the diffuser flange (Ref...FLN). Please refer to brochure 'Diffusers 22 - Series TCB' for details

# SERIES GSF

Circular Fixed Swirl Diffusers

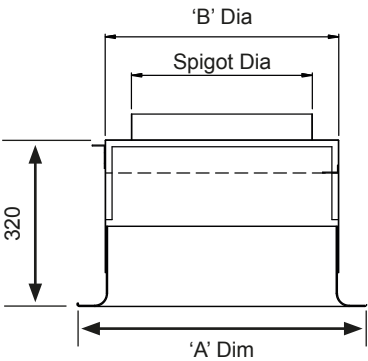
## Type GSFA

### DIFFUSER



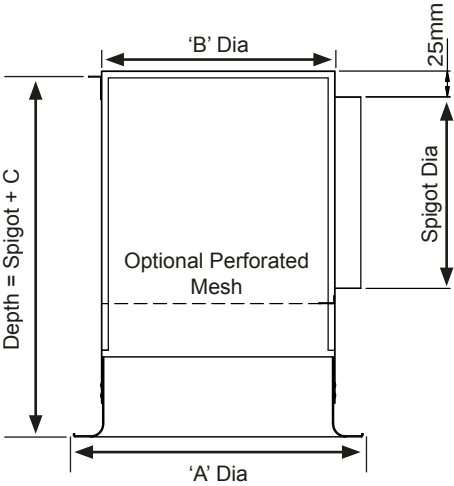
| GSFA |     |     |     |
|------|-----|-----|-----|
| SIZE | A   | B   | C   |
| 160  | 240 | 158 | 90  |
| 250  | 330 | 248 | 100 |
| 315  | 425 | 313 | 110 |
| 450  | 560 | 448 | 155 |
| 630  | 740 | 628 | 220 |

### DIFFUSER C/W TOP ENTRY BOX



| GSFA - TCB |     |     |
|------------|-----|-----|
| SIZE       | A   | B   |
| 160        | 240 | 162 |
| 250        | 330 | 252 |
| 315        | 425 | 317 |
| 450        | 560 | 452 |
| 630        | 740 | 632 |

### DIFFUSER C/W SIDE ENTRY BOX



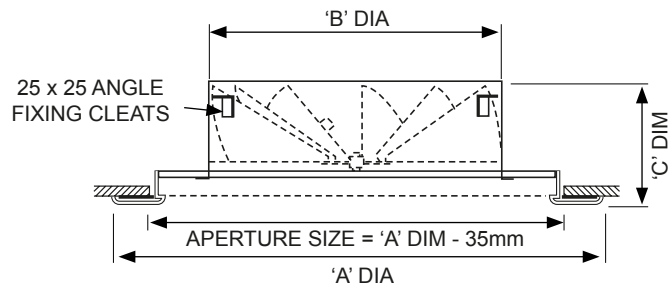
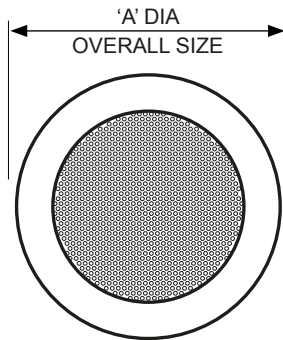
| GSFA - SEB |     |     |     |
|------------|-----|-----|-----|
| SIZE       | A   | B   | C   |
| 160        | 240 | 162 | 320 |
| 250        | 330 | 252 | 320 |
| 315        | 425 | 317 | 320 |
| 450        | 560 | 452 | 320 |
| 630        | 740 | 632 | 320 |

Standard Plenum Boxes are circular profile (not square). Plenums fitted to diffuser (Ref...NEK) are illustrated but plenums can be enlarged to fix at the diffuser flange (Ref...FLN). Please refer to brochure 'Diffusers 22 - Series TCB' for details

# SERIES GSF

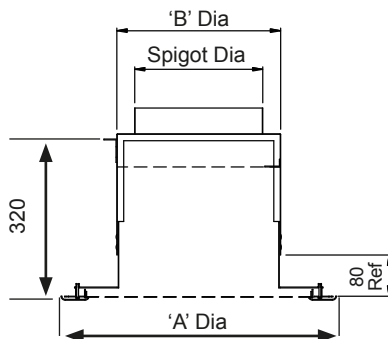
Circular Fixed Swirl Diffusers

## Type GSFE



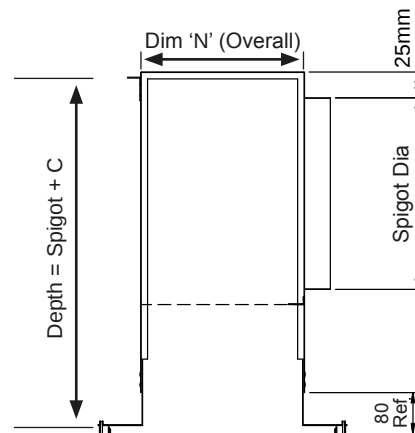
| GSFE |     |     |     |
|------|-----|-----|-----|
| SIZE | A   | B   | C   |
| 160  | 378 | 158 | 108 |
| 250  | 468 | 248 | 118 |
| 315  | 533 | 313 | 128 |
| 450  | 667 | 448 | 173 |

### DIFFUSER C/W TOP ENTRY BOX



| GSFE - TCB |     |     |
|------------|-----|-----|
| SIZE       | A   | B   |
| 160        | 378 | 162 |
| 250        | 468 | 252 |
| 315        | 533 | 317 |
| 450        | 667 | 452 |

### DIFFUSER C/W SIDE ENTRY BOX



| GSFE - SEB |         |     |
|------------|---------|-----|
| LIST SIZE  | ø DIM N | C   |
| 160        | 162     | 320 |
| 250        | 252     | 320 |
| 315        | 317     | 320 |
| 450        | 450     | 320 |

TYPE GSXE: Extract unit available without swirl assembly. Dimensions as above.

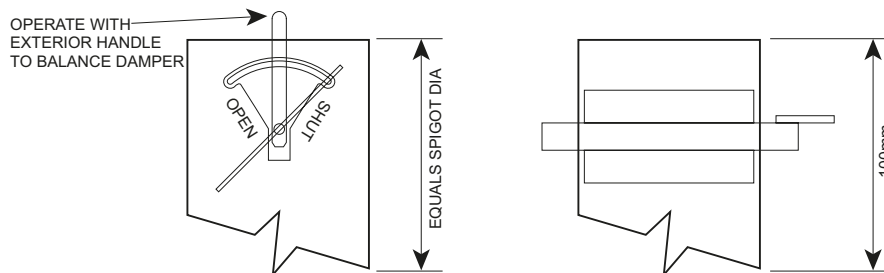
Standard Plenum Boxes are circular profile (not square). Plenums fitted to diffuser (Ref...NEK) are illustrated but plenums can be enlarged to fix at the diffuser flange (Ref...FLN). Please refer to brochure 'Diffusers 22 - Series TCB' for details

# SERIES GSF

## Circular Fixed Swirl Diffusers

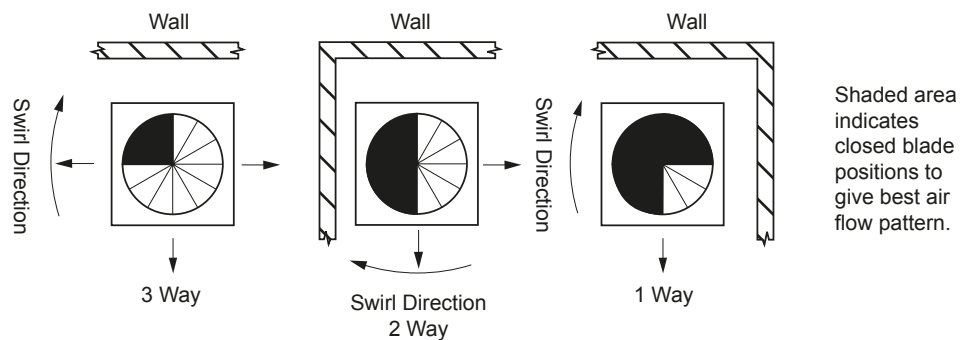
### Volume Control

Series GSF offers 2 alternative methods of volume control. The principle means involves fitting of a manually operated flap type damper into the inlet spigot of the top or side entry plenum box. For a more sophisticated form of control however an iris damper can also be supplied. Full technical details on iris dampers are available in a separate data sheet.



### Air Distribution Pattern

Although the discharge pattern for all swirl diffusers is omni directional, 2 way and 3 way distribution patterns can be achieved where necessary by factory fitted blanking plates in the positions illustrated.

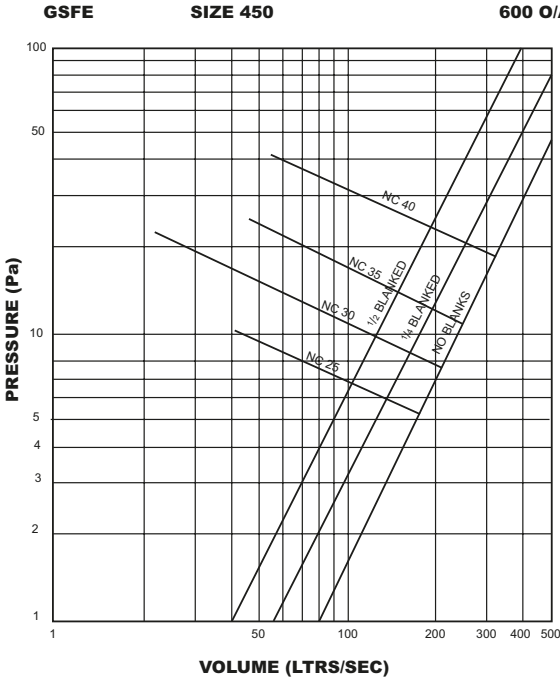
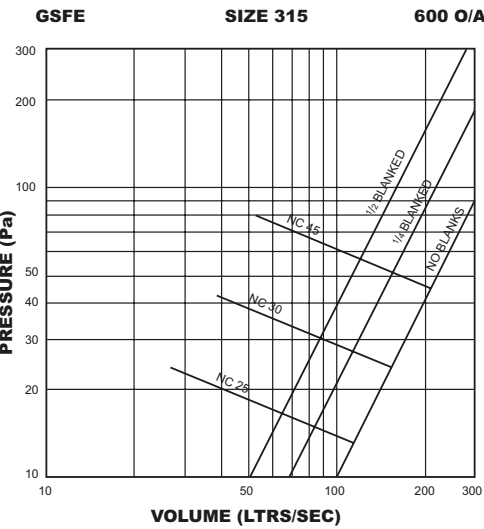
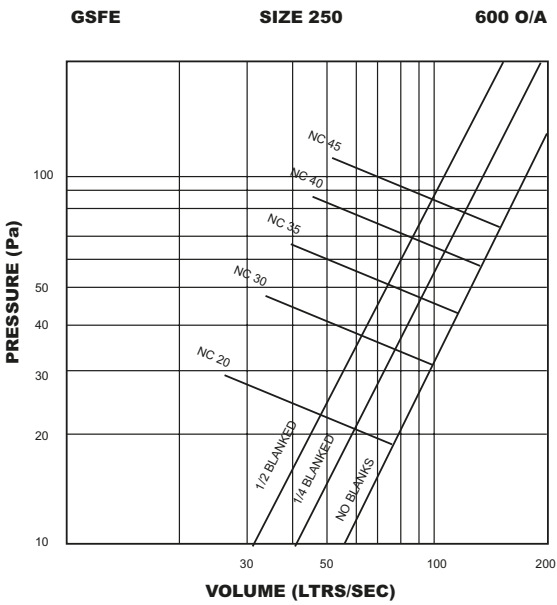
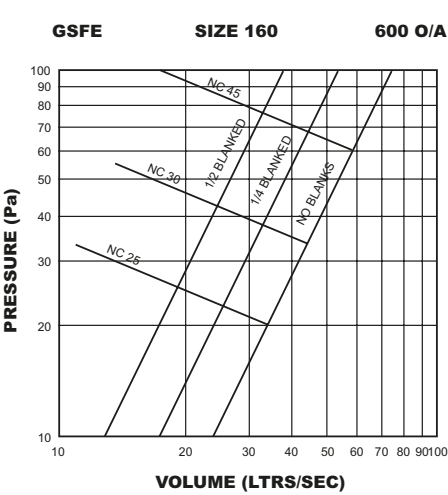


# SERIES GSF

Circular Fixed Swirl Diffusers

## Pressure Graphs

The following graphs indicate the revised pressure/volume relationship and associated noise levels attributable, when blanking swirl diffusers



DATA BASED ON GSFE WITH S.E.B.

# SERIES GSF

Circular Fixed Swirl Diffusers

## Technical Performance Data Series GSFR

**Type GSFR, GSFP & GSFA**

**Size 160**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.025 | 0.030 | 0.035 | 0.040 | 0.045 | 0.050 | 0.055 | 0.060 |
| PRESSURE DROP (Pa)                   | TOP ENTRY            | 9.5   | 14    | 17    | 23    | 29    | 35    | 42    | 48    |
|                                      | SIDE ENTRY           | 11    | 15    | 19    | 24    | 31    | 38    | 46    | 55    |
|                                      | Static               | 6.4   | 9.0   | 12    | 16    | 20    | 25    | 30    | 36    |
|                                      | STRAIGHT CONNECTIONS | 1.0   | 1.6   | 2.0   | 2.4   | 2.5   | 2.6   | 2.8   | 3.0   |
| THROW TO 0.25 M/S (M)                | AT + 10°C            | 1.2   | 1.4   | 1.6   | 1.8   | 2.0   | 2.4   | 2.6   | 2.8   |
|                                      | AT + 5°C             | 1.0   | 1.2   | 1.4   | 1.5   | 1.6   | 1.7   | 1.8   | 2.0   |
|                                      | ISOTHERMAL           | 0.4   | 0.6   | 0.8   | 1.0   | 1.2   | 1.4   | 1.6   | 2.0   |
|                                      | AT - 5°C             | 0.4   | 0.6   | 0.8   | 1.0   | 1.2   | 1.4   | 1.6   | 2.0   |
|                                      | AT - 10°C            | 0.4   | 0.6   | 0.8   | 1.0   | 1.3   | 1.5   | 1.6   | 2.0   |
| THROW TO 0.5 M/S (M)                 | AT + 10°C            | 0.4   | 0.6   | 0.8   | 1.0   | 1.2   | 1.5   | 1.8   | 2.0   |
|                                      | AT + 5°C             | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   | 1.3   | 1.6   | 1.8   |
|                                      | ISOTHERMAL           | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   | 1.2   | 1.5   | 1.8   |
|                                      | AT - 5°C             | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   | 1.2   | 1.5   | 1.6   |
|                                      | AT - 10°C            | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   | 1.2   | 1.5   | 1.8   |
| NOISE LEVEL (NC)                     |                      | 20    | 20    | 20    | 20    | 25    | 25    | 30    | 35    |

**Type GSFR, GSFP & GSFA**

**Size 250**

|                                      |                      |       |       |       |       |      |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.50  | 1.75  | 2.0   | 2.25 | 2.50  | 2.75  | 3.00  |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.061 | 0.073 | 0.085 | 0.098 | 0.11 | 0.122 | 0.134 | 0.147 |
| PRESSURE DROP (Pa)                   | TOP ENTRY            | 10    | 15    | 18    | 23    | 28   | 34    | 39    | 48    |
|                                      | SIDE ENTRY           | 12    | 16    | 19    | 24    | 30   | 38    | 45    | 50    |
|                                      | Static               | 7     | 10    | 14    | 18    | 23   | 27    | 33    | 40    |
|                                      | STRAIGHT CONNECTIONS | 1.3   | 2.0   | 2.5   | 3.0   | 3.3  | 3.6   | 3.8   | 4.2   |
| THROW TO 0.25 M/S (M)                | AT + 10°C            | 1.6   | 1.9   | 2.3   | 2.7   | 3.0  | 3.3   | 3.6   | 3.8   |
|                                      | AT + 5°C             | 1.4   | 1.6   | 1.8   | 2.0   | 2.2  | 2.5   | 2.7   | 3.0   |
|                                      | ISOTHERMAL           | 1.3   | 1.5   | 1.6   | 2.0   | 2.0  | 2.3   | 2.7   | 2.9   |
|                                      | AT - 5°C             | 1.4   | 1.8   | 2.1   | 2.4   | 2.6  | 2.7   | 3.0   | 3.1   |
|                                      | AT - 10°C            | 0.7   | 1.0   | 1.3   | 1.6   | 1.8  | 2.1   | 2.4   | 2.6   |
| THROW TO 0.5 M/S (M)                 | AT + 10°C            | 0.7   | 0.9   | 1.2   | 1.4   | 1.7  | 2.0   | 2.2   | 2.4   |
|                                      | AT + 5°C             | 0.7   | 0.8   | 0.9   | 1.1   | 1.3  | 1.5   | 1.8   | 2.0   |
|                                      | ISOTHERMAL           | 0.7   | 0.9   | 1.1   | 1.4   | 1.6  | 1.8   | 2.1   | 2.2   |
|                                      | AT - 5°C             | 0.8   | 1.1   | 1.2   | 1.4   | 1.7  | 1.9   | 2.1   | 2.3   |
|                                      | AT - 10°C            | 0.8   | 1.1   | 1.2   | 1.4   | 1.7  | 1.9   | 2.1   | 2.3   |
| NOISE LEVEL (NC)                     |                      | 20    | 20    | 25    | 30    | 30   | 35    | 35    | 40    |

**Type GSFR, GSFP & GSFA**

**Size 315**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.097 | 0.116 | 0.136 | 0.155 | 0.175 | 0.194 | 0.214 | 0.233 |
| PRESSURE DROP (Pa)                   | TOP ENTRY            | 8     | 12    | 15    | 19    | 24    | 29    | 34    | 40    |
|                                      | SIDE ENTRY           | 9     | 13    | 16    | 21    | 26    | 31    | 36    | 42    |
|                                      | Static               | 6     | 9     | 12    | 15    | 22    | 25    | 32    | 39    |
|                                      | STRAIGHT CONNECTIONS | 1.8   | 2.4   | 3.0   | 3.6   | 4.0   | 4.4   | 4.8   | 5.3   |
| THROW TO 0.25 M/S (M)                | AT + 10°C            | 2.0   | 2.4   | 3.0   | 3.6   | 4.0   | 4.2   | 4.5   | 4.8   |
|                                      | AT + 5°C             | 1.8   | 2.0   | 2.4   | 2.6   | 3.0   | 3.3   | 3.6   | 3.8   |
|                                      | ISOTHERMAL           | 2.1   | 2.5   | 2.8   | 3.0   | 3.2   | 3.4   | 3.6   | 3.8   |
|                                      | AT - 5°C             | 2.4   | 3.0   | 3.5   | 3.8   | 3.9   | 4.1   | 4.2   | 4.5   |
|                                      | AT - 10°C            | 1.0   | 1.5   | 1.8   | 2.2   | 2.4   | 2.8   | 3.0   | 3.2   |
| THROW TO 0.5 M/S (M)                 | AT + 10°C            | 1.0   | 1.2   | 1.8   | 2.0   | 2.4   | 2.6   | 2.8   | 3.0   |
|                                      | AT + 5°C             | 0.8   | 1.0   | 1.2   | 1.4   | 1.8   | 2.0   | 2.4   | 2.6   |
|                                      | ISOTHERMAL           | 1.0   | 1.2   | 1.5   | 2.0   | 2.2   | 2.4   | 2.6   | 2.8   |
|                                      | AT - 5°C             | 1.2   | 1.6   | 1.8   | 2.0   | 2.4   | 2.5   | 2.6   | 2.8   |
|                                      | AT - 10°C            | 1.2   | 1.6   | 1.8   | 2.0   | 2.4   | 2.5   | 2.6   | 2.8   |
| NOISE LEVEL (NC)                     |                      | 20    | 20    | 20    | 25    | 30    | 35    | 35    | 40    |

**Type GSFR, GSFP & GSFA**

**Size 450**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.198 | 0.238 | 0.278 | 0.318 | 0.357 | 0.397 | 0.437 | 0.477 |
| PRESSURE DROP (Pa)                   | TOP ENTRY            | 4     | 6.5   | 7.8   | 9     | 12    | 17    | 20    | 24    |
|                                      | SIDE ENTRY           | 5     | 7     | 8     | 11    | 14    | 18    | 21    | 25    |
|                                      | Static               | 4     | 6     | 7.4   | 10    | 13    | 16    | 18    | 20    |
|                                      | STRAIGHT CONNECTIONS | 2.8   | 3.0   | 4.0   | 4.8   | 5.5   | 6.2   | 7.0   | 7.8   |
| THROW TO 0.25 M/S (M)                | AT + 10°C            | 2.4   | 2.8   | 3.6   | 4.0   | 4.6   | 5.2   | 5.8   | 6.2   |
|                                      | AT + 5°C             | 2.0   | 2.2   | 2.5   | 3.0   | 3.5   | 3.8   | 4.3   | 4.8   |
|                                      | ISOTHERMAL           | 2.4   | 2.6   | 2.8   | 3.2   | 4.0   | 4.4   | 4.8   | 5.3   |
|                                      | AT - 5°C             | 2.6   | 2.8   | 3.0   | 3.9   | 4.3   | 4.8   | 5.3   | 5.7   |
|                                      | AT - 10°C            | 1.5   | 2.4   | 2.6   | 3.2   | 3.6   | 4.2   | 4.8   | 5.4   |
| THROW TO 0.5 M/S (M)                 | AT + 10°C            | 1.5   | 1.8   | 2.2   | 2.4   | 2.8   | 3.2   | 3.6   | 4.0   |
|                                      | AT + 5°C             | 0.8   | 1.0   | 1.2   | 1.5   | 1.8   | 2.4   | 3.0   | 4.0   |
|                                      | ISOTHERMAL           | 1.2   | 1.5   | 1.8   | 2.0   | 2.4   | 2.6   | 3.0   | 3.5   |
|                                      | AT - 5°C             | 1.7   | 2.0   | 2.4   | 2.8   | 3.0   | 3.5   | 3.8   | 4.2   |
|                                      | AT - 10°C            | 1.7   | 2.0   | 2.4   | 2.8   | 3.0   | 3.5   | 3.8   | 4.2   |
| NOISE LEVEL (NC)                     |                      | 20    | 25    | 25    | 30    | 35    | 35    | 40    | 40    |

**Type GSFR, GSFP & GSFA**

**Size 630**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.390 | 0.467 | 0.546 | 0.623 | 0.701 | 0.779 | 0.857 | 0.935 |
| PRESSURE DROP (Pa)                   | TOP ENTRY            | 6.5   | 10    | 13    | 17    | 22    | 28    | 33    | 40    |
|                                      | SIDE ENTRY           | 7     | 11    | 15    | 19    | 23    | 29    | 36    | 45    |
|                                      | Static               | 6     | 8     | 12    | 15    | 20    | 24    | 29    | 36    |
|                                      | STRAIGHT CONNECTIONS | 5.0   | 5.7   | 6.4   | 7.2   | 7.9   | 8.7   | 9.4   | 10.2  |
| THROW TO 0.25 M/S (M)                | AT + 10°C            | 4.6   | 5.2   | 6.0   | 6.8   | 7.5   | 8.3   | 9.0   | 9.9   |
|                                      | AT + 5°C             | 4.1   | 4.8   | 5.6   | 6.4   | 7.1   | 7.9   | 8.6   | 9.5   |
|                                      | ISOTHERMAL           | 4.2   | 5.0   | 5.8   | 6.6   | 7.3   | 8.1   | 8.8   | 9.7   |
|                                      | AT - 5°C             | 4.4   | 5.2   | 6.0   | 6.8   | 7.5   | 8.3   | 9.0   | 9.9   |
|                                      | AT - 10°C            | 3.0   | 3.7   | 4.5   | 5.2   | 5.6   | 6.2   | 7.1   | 7.8   |
| THROW TO 0.5 M/S (M)                 | AT + 10°C            | 2.2   | 3.6   | 4.3   | 4.9   | 5.5   | 6.1   | 7.0   | 7.7   |
|                                      | AT + 5°C             | 2.4   | 3.6   | 4.0   | 4.7   | 5.4   | 6.1   | 7.0   | 7.7   |
|                                      | ISOTHERMAL           | 2.4   | 3.4   | 3.9   | 4.4   | 5.0   | 5.7   | 6.4   | 6.9   |
|                                      | AT - 5°C             | 2.5   | 3.0   | 3.4   | 3.9   | 4.5   | 5.1   | 5.8   | 6.4   |
|                                      | AT - 10°C            | 2.5   | 3.0   | 3.4   | 3.9   | 4.5   | 5.1   | 5.8   | 6.4   |
| NOISE LEVEL (NC)                     |                      | 20    | 20    | 25    | 30    | 40    | 40    | 45    | 50    |

# SERIES GSF

Circular Fixed Swirl Diffusers

## Technical Performance Data Series GSFE

**Type GSFE**

**Size 160**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.025 | 0.030 | 0.035 | 0.040 | 0.045 | 0.050 | 0.055 | 0.060 |
| PRESSURE DROP (Pa)<br>Static         | TOP ENTRY            | 11    | 16    | 19    | 25    | 31    | 37    | 44    | 50    |
|                                      | SIDE ENTRY           | 13    | 17    | 21    | 26    | 33    | 40    | 48    | 57    |
|                                      | STRAIGHT CONNECTIONS | 7     | 10    | 14    | 18    | 22    | 27    | 32    | 38    |
| THROW TO 0.25 M/S (M)                | AT + 10 °C           | 0.7   | 0.8   | 0.9   | 1.0   | 1.2   | 1.5   | 1.8   | 2.0   |
|                                      | AT + 5 °C            | 0.7   | 0.8   | 0.9   | 1.0   | 1.2   | 1.5   | 1.8   | 2.0   |
|                                      | ISOTHERMAL           | 0.5   | 0.6   | 0.7   | 0.8   | 1.0   | 1.1   | 1.1   | 1.2   |
|                                      | AT - 5 °C            | 0.7   | 0.8   | 0.9   | 1.0   | 1.1   | 1.4   | 1.5   | 1.6   |
|                                      | AT - 10 °C           | 0.7   | 0.8   | 0.9   | 1.0   | 1.1   | 1.4   | 1.5   | 1.6   |
| THROW TO 0.5 M/S (M)                 | AT + 10 °C           | -     | -     | -     | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   |
|                                      | AT + 5 °C            | -     | -     | -     | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   |
|                                      | ISOTHERMAL           | -     | -     | -     | 0.3   | 0.5   | 0.6   | 0.8   | 1.0   |
|                                      | AT - 5 °C            | -     | -     | -     | 0.4   | 0.6   | 0.7   | 0.9   | 1.1   |
|                                      | AT - 10 °C           | -     | -     | -     | 0.4   | 0.6   | 0.7   | 0.9   | 1.1   |
| NOISE LEVEL (NC)                     |                      | 20    | 25    | 25    | 30    | 30    | 35    | 40    | 45    |

**Type GSFE**

**Size 250**

|                                      |                      |       |       |       |       |      |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.50  | 1.75  | 2.00  | 2.25 | 2.50  | 2.75  | 3.00  |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.061 | 0.073 | 0.085 | 0.098 | 0.11 | 0.122 | 0.134 | 0.147 |
| PRESSURE DROP (Pa)<br>Static         | TOP ENTRY            | 9     | 13    | 19    | 25    | 32   | 39    | 48    | 52    |
|                                      | SIDE ENTRY           | 11    | 16    | 22    | 30    | 38   | 47    | 54    | 68    |
|                                      | STRAIGHT CONNECTIONS | 8     | 11    | 16    | 20    | 26   | 32    | 41    | 48    |
| THROW TO 0.25 M/S (M)                | AT + 10 °C           | 1.1   | 1.3   | 1.4   | 1.7   | 2.0  | 2.3   | 2.7   | 3.0   |
|                                      | AT + 5 °C            | 1.0   | 1.2   | 1.4   | 1.5   | 1.7  | 2.0   | 2.3   | 2.6   |
|                                      | ISOTHERMAL           | 0.7   | 0.9   | 1.0   | 1.2   | 1.4  | 1.6   | 1.7   | 1.8   |
|                                      | AT - 5 °C            | 1.0   | 1.2   | 1.4   | 1.5   | 1.7  | 1.9   | 2.0   | 2.1   |
|                                      | AT - 10 °C           | 1.1   | 1.3   | 1.5   | 1.7   | 1.8  | 2.0   | 2.2   | 2.3   |
| THROW TO 0.5 M/S (M)                 | AT + 10 °C           | 0.3   | 0.5   | 0.7   | 0.9   | 1.1  | 1.2   | 1.5   | 1.7   |
|                                      | AT + 5 °C            | 0.3   | 0.5   | 0.6   | 0.7   | 0.8  | 1.0   | 1.2   | 1.4   |
|                                      | ISOTHERMAL           | -     | -     | 0.3   | 0.5   | 0.7  | 0.8   | 1.0   | 1.2   |
|                                      | AT - 5 °C            | -     | -     | 0.3   | 0.6   | 0.9  | 1.0   | 1.2   | 1.4   |
|                                      | AT - 10 °C           | -     | -     | 0.5   | 0.7   | 1.0  | 1.1   | 1.3   | 1.5   |
| NOISE LEVEL (NC)                     |                      | 20    | 20    | 30    | 30    | 35   | 35    | 40    | 45    |

**Type GSFE**

**Size 315**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.097 | 0.116 | 0.136 | 0.155 | 0.175 | 0.194 | 0.214 | 0.233 |
| PRESSURE DROP (Pa)<br>Static         | TOP ENTRY            | 10    | 14    | 17    | 21    | 26    | 31    | 36    | 42    |
|                                      | SIDE ENTRY           | 11    | 15    | 18    | 23    | 28    | 33    | 38    | 44    |
|                                      | STRAIGHT CONNECTIONS | 8     | 11    | 14    | 17    | 24    | 27    | 34    | 41    |
| THROW TO 0.25 M/S (M)                | AT + 10 °C           | 1.5   | 1.8   | 2.0   | 2.4   | 2.8   | 3.2   | 3.6   | 4.0   |
|                                      | AT + 5 °C            | 1.4   | 1.7   | 1.9   | 2.0   | 2.2   | 2.6   | 2.9   | 3.3   |
|                                      | ISOTHERMAL           | 1.0   | 1.2   | 1.4   | 1.6   | 1.9   | 2.1   | 2.3   | 2.5   |
|                                      | AT - 5 °C            | 1.4   | 1.7   | 1.9   | 2.1   | 2.3   | 2.4   | 2.5   | 2.6   |
|                                      | AT - 10 °C           | 1.6   | 1.9   | 2.1   | 2.5   | 2.6   | 2.7   | 2.9   | 3.0   |
| THROW TO 0.5 M/S (M)                 | AT + 10 °C           | 0.6   | 1.0   | 1.2   | 1.5   | 1.7   | 1.9   | 2.2   | 2.4   |
|                                      | AT + 5 °C            | 0.6   | 0.7   | 0.9   | 1.1   | 1.2   | 1.4   | 1.6   | 1.7   |
|                                      | ISOTHERMAL           | 0.4   | 0.6   | 0.7   | 0.8   | 1.0   | 1.1   | 1.3   | 1.5   |
|                                      | AT - 5 °C            | 0.4   | 0.6   | 0.7   | 0.9   | 1.1   | 1.2   | 1.4   | 1.6   |
|                                      | AT - 10 °C           | 0.5   | 0.7   | 0.9   | 1.0   | 1.3   | 1.5   | 1.7   | 2.0   |
| NOISE LEVEL (NC)                     |                      | 20    | 25    | 30    | 30    | 40    | 45    | 45    | 50    |

**Type GSFE**

**Size 450**

|                                      |                      |       |       |       |       |       |       |       |       |
|--------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NECK VELOCITY (M/S)                  |                      | 1.25  | 1.5   | 1.75  | 2.0   | 2.25  | 2.5   | 2.75  | 3.0   |
| VOLUME FLOW RATE (M <sup>3</sup> /S) |                      | 0.198 | 0.238 | 0.278 | 0.318 | 0.357 | 0.397 | 0.437 | 0.477 |
| PRESSURE DROP (Pa)<br>Static         | TOP ENTRY            | 5     | 7     | 9     | 12    | 16    | 20    | 24    | 28    |
|                                      | SIDE ENTRY           | 6     | 8     | 11    | 14    | 19    | 24    | 29    | 34    |
|                                      | STRAIGHT CONNECTIONS | 6     | 9     | 12    | 15    | 20    | 25    | 29    | 35    |
| THROW TO 0.25 M/S (M)                | AT + 10 °C           | 2.4   | 2.7   | 3.1   | 3.6   | 3.8   | 4.2   | 4.5   | 4.8   |
|                                      | AT + 5 °C            | 2.1   | 2.4   | 2.7   | 3.0   | 3.2   | 3.5   | 3.8   | 4.0   |
|                                      | ISOTHERMAL           | 1.8   | 1.9   | 2.1   | 2.4   | 2.5   | 2.7   | 2.9   | 3.0   |
|                                      | AT - 5 °C            | 1.7   | 1.8   | 2.0   | 2.3   | 2.4   | 2.6   | 2.7   | 3.0   |
|                                      | AT - 10 °C           | 1.7   | 1.8   | 2.0   | 2.3   | 2.4   | 2.6   | 2.7   | 3.0   |
| THROW TO 0.5 M/S (M)                 | AT + 10 °C           | 0.9   | 1.2   | 1.4   | 1.7   | 2.0   | 2.2   | 2.4   | 2.5   |
|                                      | AT + 5 °C            | 0.8   | 1.1   | 1.3   | 1.5   | 1.7   | 2.0   | 2.2   | 2.5   |
|                                      | ISOTHERMAL           | 0.8   | 1.0   | 1.3   | 1.5   | 1.6   | 1.8   | 2.0   | 2.1   |
|                                      | AT - 5 °C            | 0.7   | 1.0   | 1.2   | 1.3   | 1.5   | 1.6   | 1.8   | 2.0   |
|                                      | AT - 10 °C           | 0.7   | 1.0   | 1.2   | 1.3   | 1.5   | 1.6   | 1.8   | 2.0   |
| NOISE LEVEL (NC)                     |                      | 20    | 25    | 35    | 40    | 40    | 45    | 50    | 55    |

# SERIES GSF

Circular Fixed Swirl Diffusers

## Ordering Specification (Diffuser)

|                                                                 |      |     |    |    |                                             |    |
|-----------------------------------------------------------------|------|-----|----|----|---------------------------------------------|----|
| <b>SERIES</b><br>GSFR, P, A OR E                                | GSFR | 160 | P1 | SB | PPC RAL 9010 20% GLOSS<br>(STANDARD FINISH) | 15 |
| <b>LIST SIZE (DIA MM)</b>                                       |      |     |    |    |                                             |    |
| <b>BLANKING PLATE</b><br>OPTIONS P1, P2, P3                     |      |     |    |    |                                             |    |
| <b>SUPPORT BRACKETS</b><br>(required without<br>plenum)..... SB |      |     |    |    |                                             |    |
| <b>FINISH (please specify)</b>                                  |      |     |    |    |                                             |    |
| <b>NUMBER REQUIRED</b>                                          |      |     |    |    |                                             |    |

# SERIES GSF

Circular Fixed Swirl Diffusers

## Ordering Specification (Plenum)

|                                                                                                                                                                             |               |     |     |     |       |    |               |     |               |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|-------|----|---------------|-----|---------------|----|
| <b>SERIES</b><br>TCB-C / GSFR, P, A or E<br>SEB-C / GSFR, P, A or E                                                                                                         | SEB-C<br>GSFR | AT1 | 315 | NEK | BH500 | BB | DQ 150<br>DIA | TSO | DQ 150<br>DIA | 15 |
| <b>THERMAL / ACOUSTIC INSULATION (SEB ONLY)</b><br>12mm Pyro (standard) .. AT1<br>25mm Pyro ..... AT2<br>12mm Closed cell* ..... AT3                                        |               |     |     |     |       |    |               |     |               |    |
| <b>TO FIT DIFFUSER SIZE</b><br>(List Size + Overall Size)                                                                                                                   |               |     |     |     |       |    |               |     |               |    |
| <b>FIXING POINT</b><br>Neck ..... NEK<br>Flange..... FLN                                                                                                                    |               |     |     |     |       |    |               |     |               |    |
| <b>BOX HEIGHT</b> (Where Different From Standard)                                                                                                                           |               |     |     |     |       |    |               |     |               |    |
| <b>MATT BLACK FINISH</b><br>(internal & external).... BB                                                                                                                    |               |     |     |     |       |    |               |     |               |    |
| <b>SPIGOT &amp; DAMPER OPTIONS</b> (Plus NOMINAL Spigot Size):<br>No Damper ..... SS + SIZE<br>Quadrant ..... DQ + SIZE<br>Cord Operated. DC + SIZE<br>Iris ..... DI + SIZE |               |     |     |     |       |    |               |     |               |    |
| <b>TWIN SPIGOT OPTIONS:</b><br>Opposite ..... TSO                                                                                                                           |               |     |     |     |       |    |               |     |               |    |
| <b>2nd SPIGOT &amp; DAMPER OPTION</b> (see above)                                                                                                                           |               |     |     |     |       |    |               |     |               |    |
| <b>NUMBER REQUIRED</b>                                                                                                                                                      |               |     |     |     |       |    |               |     |               |    |

## Fixing

Standard fixing for all units is via drop rods (by others) to 20 x 9mm elongated slots in 25 x 25mm angle cleats at the rear. Alternatively an internal fixing where the drop rods locate inside the plenum can be specified where required.

## Finish

**Standard finish:** PPC White RAL 9010 20% gloss  
**Special Finishes:** PPC to Stock BS or RAL colour  
**Plenum:** Natural Galvanised Steel (unpainted)

## 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.*

## GILBERTS

Head Office and Works

**GILBERTS (BLACKPOOL) LTD**

Gilair Works, Clifton Road, Blackpool, Lancashire FY4 4QT.

Telephone: **(01253) 766911**

e-mail: **sales@gilbertsblackpool.co.uk**

Web: **www.gilbertsblackpool.com**

Gilberts (Blackpool) Ltd reserve the right to alter the specification without notice. For our latest product data please visit [www.gilbertsblackpool.com](http://www.gilbertsblackpool.com). All images and drawings are for illustrational purposes only and are not intended to deliver an exact visual representation. Minor variations can be expected due to the different manufacturing processes. The information contained in this brochure is correct at time of going to press © 2026.

