

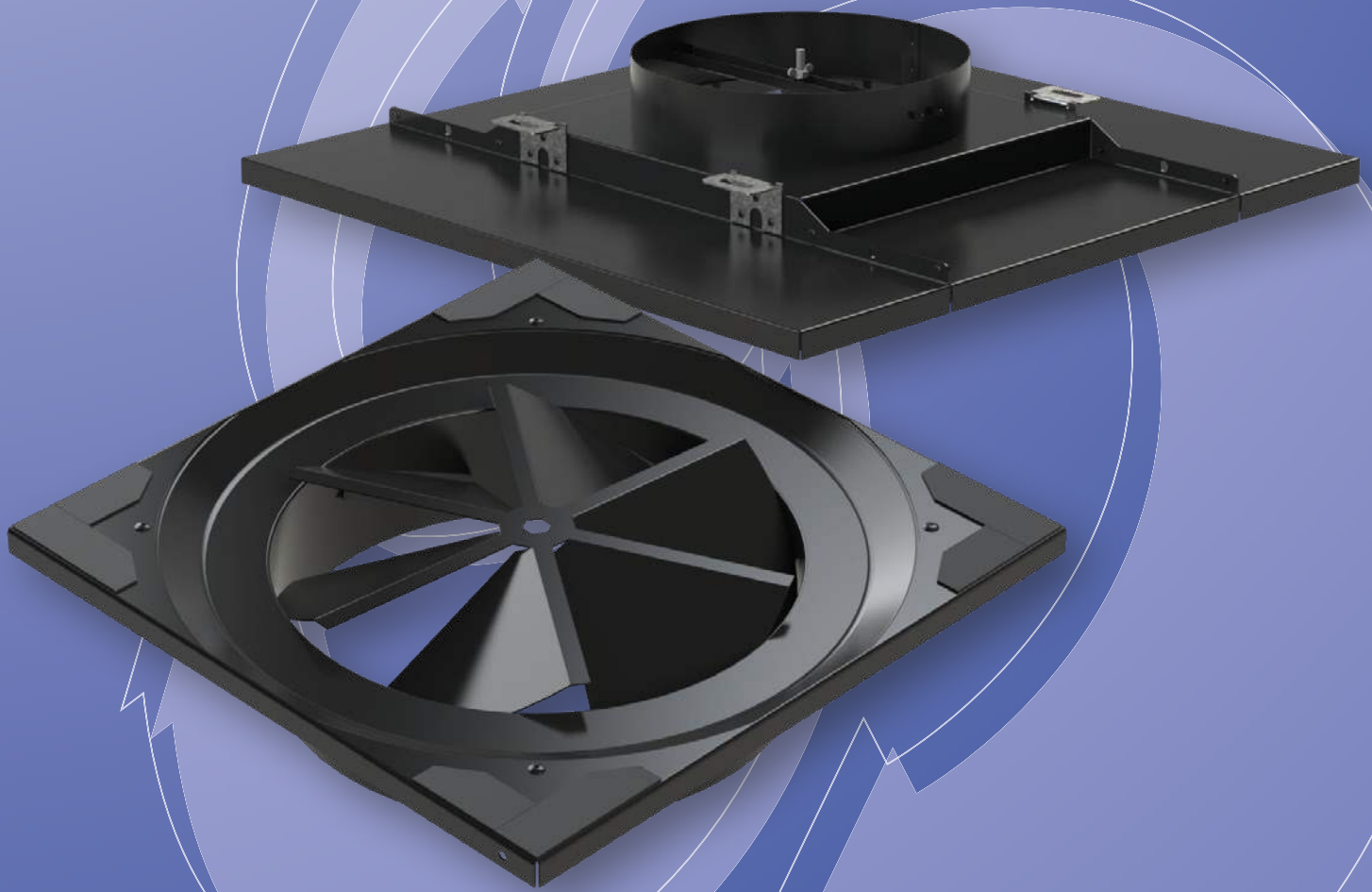
SERIES GTD

Concealed Swirl Diffuser

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DIFFUSERS 21

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Features

- Designed to integrate with popular ceiling manufacturers
- Compatible with over 30 different ceiling designs
- Concealed design for perforated ceiling
- Omni directional, swirl effect discharge.
- Horizontal projection
- High induction effect.

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Introduction

Gilberts GTD series provides a bold new dimension in swirl diffuser technology. Unlike conventional diffusers GTD incorporates a frameless chassis type design that allows our patented swirl diffuser technology to be utilised behind a standard perforated ceiling grid plank or tile with free areas ranging from 14% and above. The diffuser therefore becomes an invisible and integrated part of your ceiling design. The GTD operates effectively with popular micro perforated tiles including 1.5mm hole (20%) and 1.8mm hole (22%) free area tiles*. Series GTD has a wide range of compatibility across different ceiling tile manufacturers and model types. The circular pattern of radial vanes on the unit provide the swirl, air distribution effect allowing the unit to introduce high volumes of air into the conditioned space, taking advantage of rapid entrainment and intermixing.

Type Options

GTD/300 – Suitable for 300mm and 600mm wide plank type ceiling grids

GTD/600 – Suitable for 600mm square lay in grids

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 are limited to 300 and 600 as indicated in the dimensional data.

Standard finish is matt black to allow for discreet installation behind the grid. Polyester Powder finishes to other RAL or BS colours are available on request.

For higher air volumes with 40% free area or above, our complementary diffuser range Series GSFH can be selected instead.

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GTD300 Diffuser



The GTD operates behind popular microperforated ceiling tiles such as the SAS15-22 shown above.

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 applications and always for horizontal distribution of conditioned air.

The performance data is designed for direct duct connection without Plenum. Plenum boxes can be supplied on demand.

References Used

Pressure: All pressures are in Pa (N/m²)

Throw: The horizontal distances for air streams are given for both 0.50 and 0.25 m/s terminal

velocities and are based upon a ceiling effect.

Sound: The NR values are peak levels on the NR 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, ceiling free area and throw requirements. For high ceiling applications an overblow situation can be acceptable.

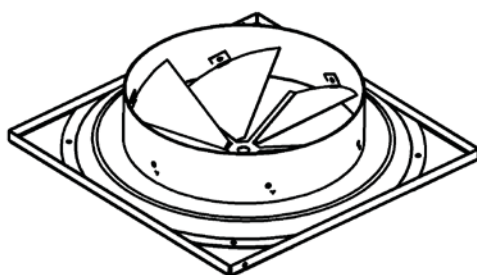
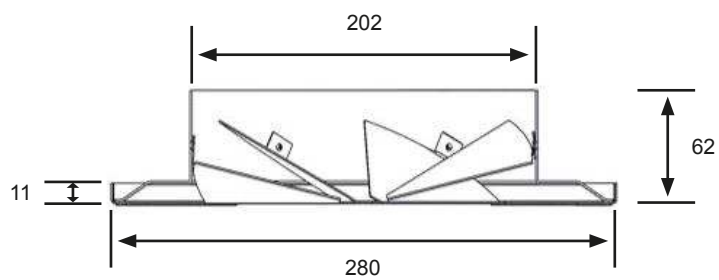
4. Check pressure loss and NR levels from design chart to confirm acceptability.

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

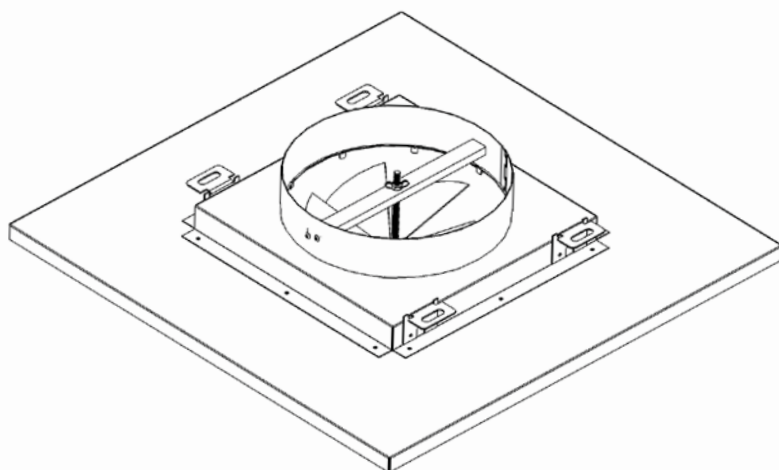
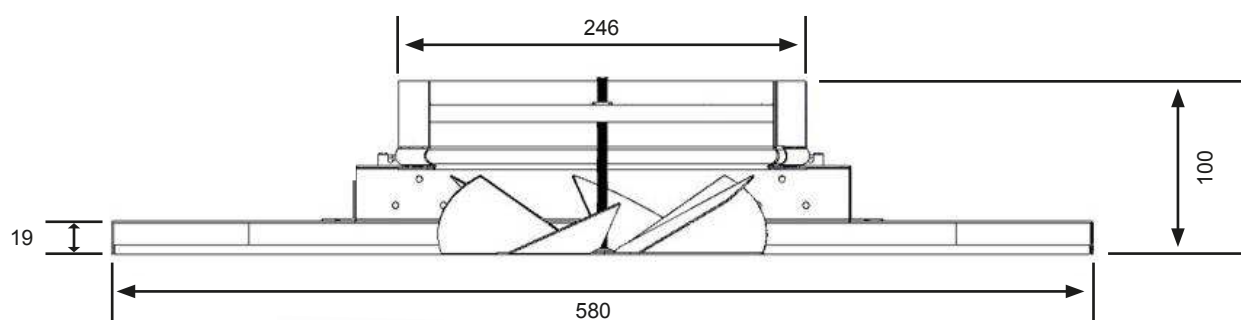
*15-20 and 18-22 tested with SAS and Armstrong tiles. Please refer to compatibility chart on page 4 for compatible tiles.

Dimensional Data

GTD 300



GTD 600



Performance Data Summary GTD300

GTD300 behind 16% Free Area Perforated Tile

VOLUME FLOW RATE [L/S ³]		40	50	60	70	80	90
PRESSURE DROP STATIC [PA]	STRAIGHT CONNECTIONS	15	24	38	55	75	96
THROW TO 0.25M/S	-10° DELTA t	0.70	0.85	0.95	1.20	1.40	1.60
THROW TO 0.50M/S	-10° DELTA t	0.45	0.55	0.70	0.95	1.05	1.10
NOISE LEVEL [NR/DBA]	STRAIGHT CONNECTIONS	27/29	30/33	34/36	39/40	41/43	44/46

GTD300 behind 22% Free Area Perforated Tile

VOLUME FLOW RATE [L/S ³]		40	50	60	70	80	90
PRESSURE DROP STATIC [PA]	STRAIGHT CONNECTIONS	12	18	26	33	41	55
THROW TO 0.25M/S	-10° DELTA t	0.80	0.80	0.95	1.15	1.30	1.45
THROW TO 0.50M/S	-10° DELTA t	0.45	0.50	0.65	0.70	0.90	1.05
NOISE LEVEL [NR/DBA]	STRAIGHT CONNECTIONS	26/27	27/29	31/32	38/40	41/42	44/46

GTD300 behind 50% Free Area Perforated Tile

VOLUME FLOW RATE [L/S ³]			50	60	70	80	90
PRESSURE DROP STATIC [PA]	STRAIGHT CONNECTIONS		15	21	28	38	47
THROW TO 0.25M/S	-10° DELTA t		0.70	0.85	1.10	1.40	1.6
THROW TO 0.50M/S	-10° DELTA t		0.40	0.70	0.90	1.20	1.35
NOISE LEVEL [NR/DBA]	STRAIGHT CONNECTIONS		27/30	29/32	31/34	35/37	38/40

Performance Data Summary GTD600

GTD600 behind 16% Free Area Perforated Tile

VOLUME FLOW RATE [L/S ³]		80	100	120	140	160
PRESSURE DROP STATIC [PA]	STRAIGHT CONNECTIONS	11	16	23	30	40
THROW TO 0.25M/S	-10° DELTA t	0.50	0.65	0.85	1.10	1.25
THROW TO 0.50M/S	-10° DELTA t	0.25	0.35	0.50	0.75	0.95
NOISE LEVEL [NR/DBA]	STRAIGHT CONNECTIONS	27/28	29/30	31/33	36/37	42/44

GTD600 behind 22% Free Area Perforated Tile

VOLUME FLOW RATE [L/S ³]		80	100	120	140	160
PRESSURE DROP STATIC [PA]	STRAIGHT CONNECTIONS	9	12	17	23	29
THROW TO 0.25M/S	-10° DELTA t	0.40	0.70	0.85	1.00	1.15
THROW TO 0.50M/S	-10° DELTA t	0.25	0.40	0.60	0.65	0.80
NOISE LEVEL [NR/DBA]	STRAIGHT CONNECTIONS	26/27	28/29	30/31	36/38	41/43

GTD600 behind 50% Free Area Perforated Tile

VOLUME FLOW RATE [L/S ³]		80	100	120	140	160	180	200
PRESSURE DROP STATIC [PA]	STRAIGHT CONNECTIONS	4.5	7.5	11.5	15.0	21.0	26.5	32
THROW TO 0.25M/S	-10° DELTA t	0.35	0.55	0.75	0.85	0.95	1.00	1.20
THROW TO 0.50M/S	-10° DELTA t	0.20	0.30	0.45	0.55	0.60	0.70	0.75
NOISE LEVEL [NR/DBA]	STRAIGHT CONNECTIONS	26/27	27/28	28/29	31/33	36/38	39/41	43/45

Note A: Throw data for 16% tile based on SAS/Armstrong ref 2516 [2.5mm hole size / 16% free area] Throw data for 22% tile based on SAS/Armstrong ref 1522 [1.5mm hole size / 22% free area] Data for 50% tile based on Gilberts tile 4.75mm hole size / 50% free area.

Note B: The GTD600 throw distance is on average 10% further @ +10°Dt. See full GTD test report performance data at -10°/ 0°/ +10° DELTA t

Note C: The GTD300 throw distance is on average 20 - 30% further @ +10°Dt. See full GTD test report performance data at -10°/ 0°/ +10° DELTA t

Note D: GTD is designed for perforated tile thickness <0.6mm. For tile thickness greater than 0.6mm Please contact our technical dept unless specified on approved list below.

Approved Tiles: **Armstrong:** 1522, 2516, 3220, 3223, 4029, 1820, 3239, 4058, 3020. **SAS:** S2S1522, S1820, S2516, S3920, S2051, D2227, D2324, D2414, D2841, D3022, D3136, D3939, D4050, D3343. **Burgess:** D3020, S2428, S3214, D3136, D4033, S4017, S5046.

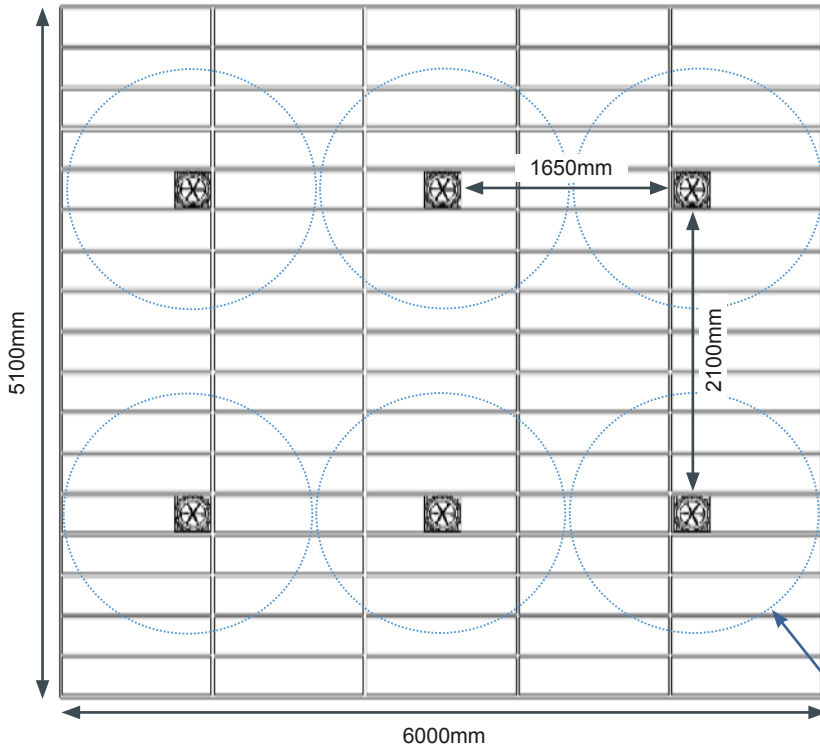
Approved tiles based on standard tile thickness for Armstrong, SAS and Burgess of 0.5mm, 0.7mm and 0.8mm respectively +/- 0.1mm. For any other types please contact our technical department.

Key for models above: S1522 = First two numbers denote hole size i.e 1.5mm, second two numbers determine free area i.e 22%, this nomenclature applies to all approved tile references



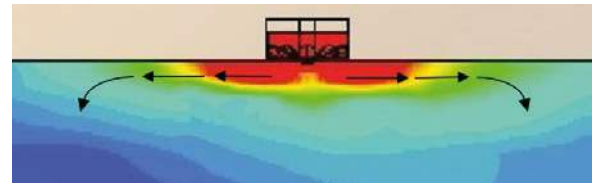
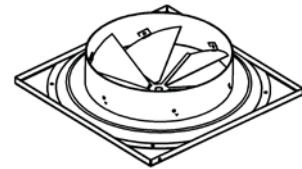
Examples

Study A : 0.30m³/s of supply air at - t10°vt is to be supplied to a 5.1m x 6.0m x 2.8m high conditioned space. The ceiling comprises of 1200x300mm perforated plank tiles with a free area of 22%. Maximum Noise level is not to exceed 30NR.



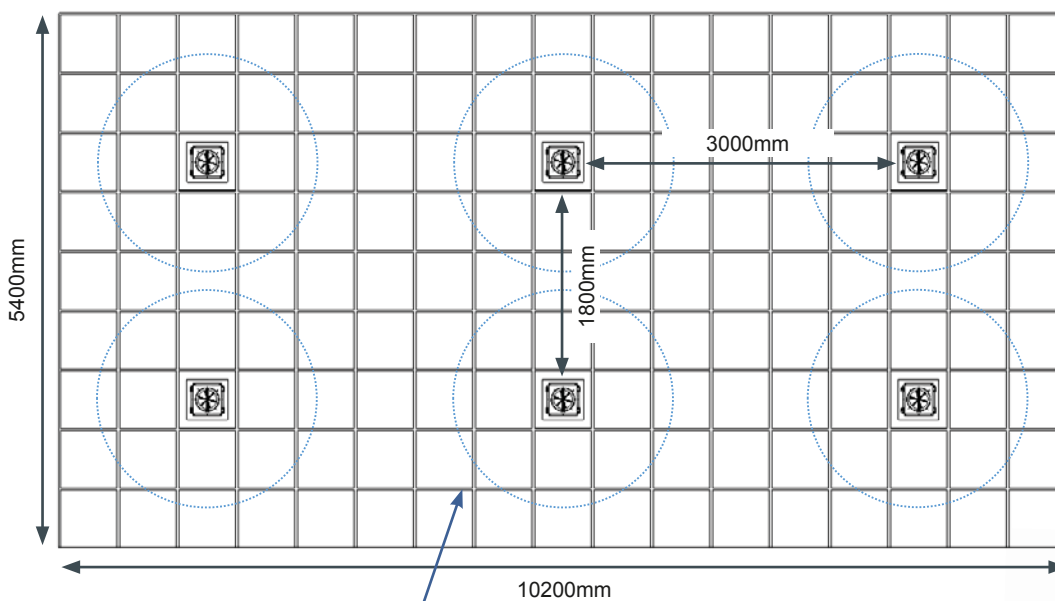
Solution

- 6 off GTD300 units fitted magnetically behind existing perforated tiles
- Delivering 50l/s each (12.6 air changes per hour)
- Each with throw of 0.80m to 0.25m/s
- Noise rating of 27NR/29dBA
- Pressure drop of 18Pa



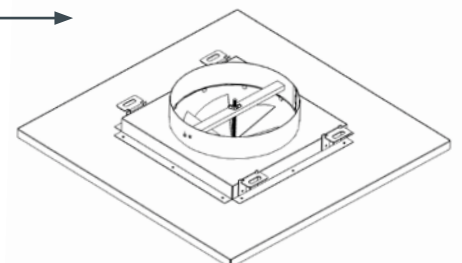
0.25m/s throw pattern with coanda maintained to 0.8m

Study B : 0.72m³/s of supply air at a -10Δt is to be supplied to a 5.4m x 10.2m x 2.75m high conditioned space. The ceiling comprises of new 600x600 tiles with a perforated free area of 16%. Maximum Noise level to be 35dBA.



Solution

- 6 off GTD600 units
- Delivering 120l/s each (17 Air Changes per hour)
- Each with a throw of 0.85m to 0.25m/s
- Noise rating of 31NR/33dBA
- Pressure drop of 23Pa

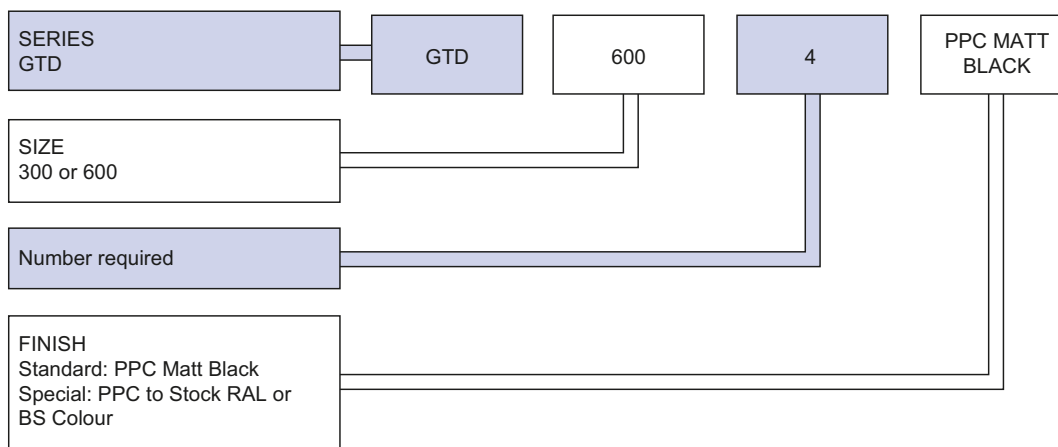


0.25m/s throw pattern with coanda maintained to 0.85m

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Ordering Specification



FIXING

GTD 600

Standard fixing uses wire fasteners (by others) to slots at the rear

GTD 300

As standard attaches magnetically to rear of ceiling tile with additional slot fixings at rear for wire fastener support (by others)

Note: Not suitable for ceiling tiles with acoustic insulation backing.

FINISH

Standard: PPC Matt Black
Special: PPC to Stock RAL or BS Colour

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.

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