

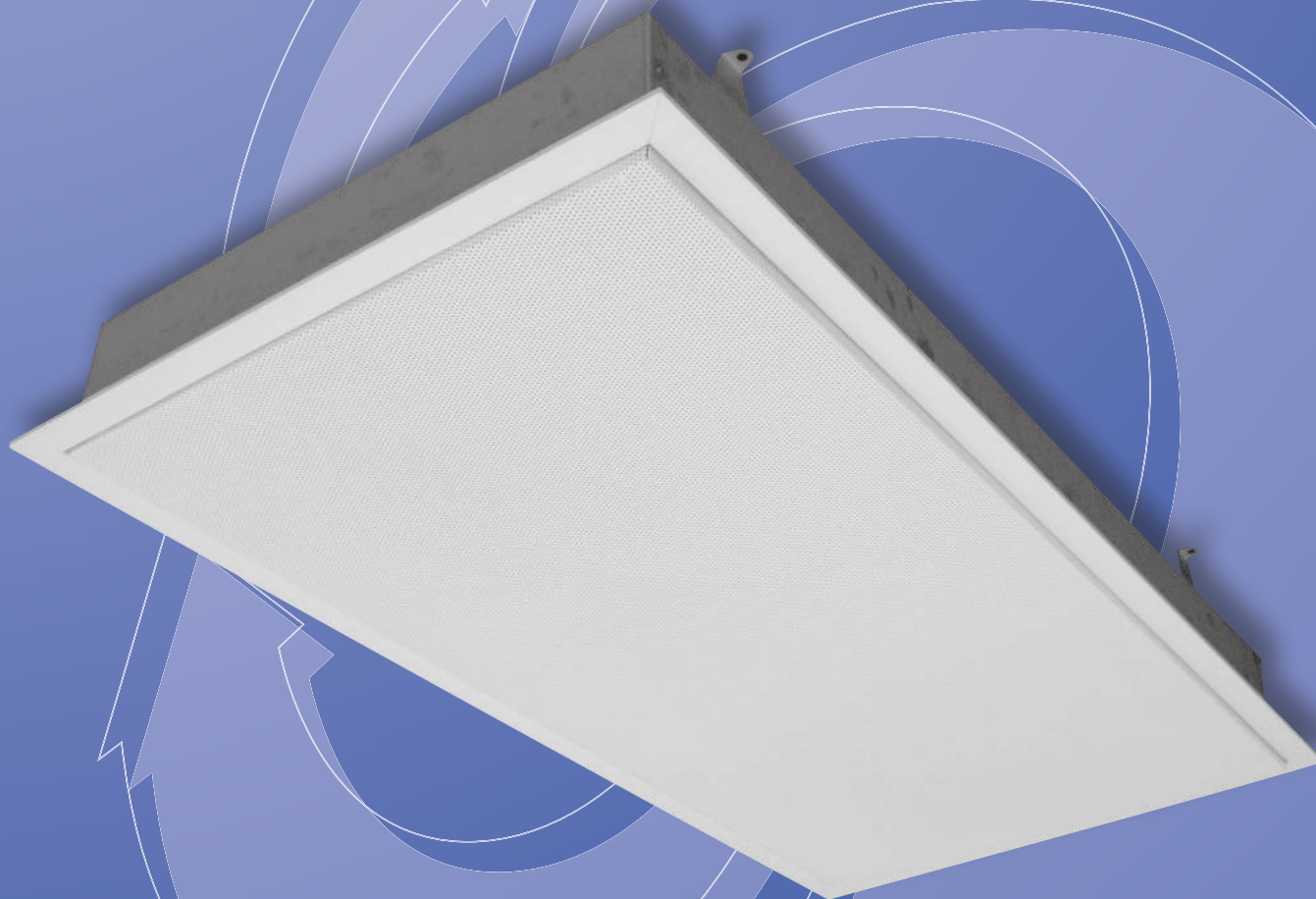
SERIES PGL

Laminar Flow Panels

PUBLICATION

DIFFUSERS 5

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Features

- High Capacity
- Single or Multiple Panel Assemblies
- Circular Inlets with top entry
- Rotary Blade Damper Control on PGL1 and PGL2
- Extruded Aluminium frame with Mild Steel Fascia
- Hinged opening fascia for access and cleaning



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Introduction

Gilberts Series PGL provides a range of Laminar Flow Panels, suitable for use in operating theatres, laboratories, clean rooms and other similar applications. Unlike a conventional ceiling diffuser the Laminar Flow Panel provides an equalised turbulence free input of air into the treated zone creating a vertical air projection with little in the way of back drafts or inter-mixing. In this way a clean un-contaminated air zone can be supplied to surround critical areas ie: operating tables and work tops. These units are mainly used for cooling or isothermal conditioning because of the buoyancy effect of the

supply air and, unless low level extract is provided, under heating conditions large temperature differentials will occur between the floor and ceiling levels.

Laminar Flow Panels are available either in multiple format PGL1 for coverage of large zonal areas or as individual units PGL2 for discreet supplies throughout the space. The PGL2 units are also offered with three different types of border to suit current popular ceiling designs.

TYPE PGL 1: Laminar Flow diffuser designed to form multiple panel assembly.

TYPE PGL 2: Single unit Laminar Flow diffuser with 32mm flange border frame.

TYPE PGL 2/T: Single unit Laminar Flow diffuser with tegular border frame.

TYPE PGL 2/B: Single unit Laminar Flow diffuser with clip in border frame.

The perforated diffuser face has a low free area, approximately 15%, with standard unit sizes being 600 x 600, 900 x 600 and 1200 x 600 with models to fit in both plasterboard ceilings and modern ceiling grids. The units are manufactured from an extruded aluminium frame and mild steel perforated face with the Plenum chambers in steel zintec. The diffuser is finished as standard in a white polyester powder coating. In PGL1 format the unit can, in fact, be built up to form a complete Laminar Flow ceiling with appropriate location points for light

fixtures and other services. Volume control can be achieved on both PGL1 and PGL 2 by fitting a rotary damper to the plenum inlet spigot of each panel with access for adjustment by removal of the face plate.

Duct mounted volume control dampers for balancing can also be supplied in quadrant or iris designs, with circular connections standard on all types.

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Selection Procedure

Firstly the following parameters must be established:

- A** Total air volume for space to be conditioned.
- B** Ceiling Height
- C** Maximum temperature differential (generally on cooling). Please note that very little throw is achieved using these units for heating only in the higher volume ranges.
- D** Throws required vertically, generally to the occupied zone. This must correspond to the required terminal velocities.
- E** Maximum noise levels. Please note that data is only available down to NC20.

Having established the above parameters, select a unit from the performance data to correspond with the noise level and throw requirements. From this selection note the air volume per unit. Divide this air volume into the total air volume for the space and thus arrive at a total number of supply units.

EXAMPLE:

- A** Total volume for space 2 m³/s
- B** 3m ceiling height
- C** 5°C cooling maximum
- D** Throws required are 2.5m to 0.25m/s and 1.5m to 0.5m/s
- E** Maximum noise level NC 30

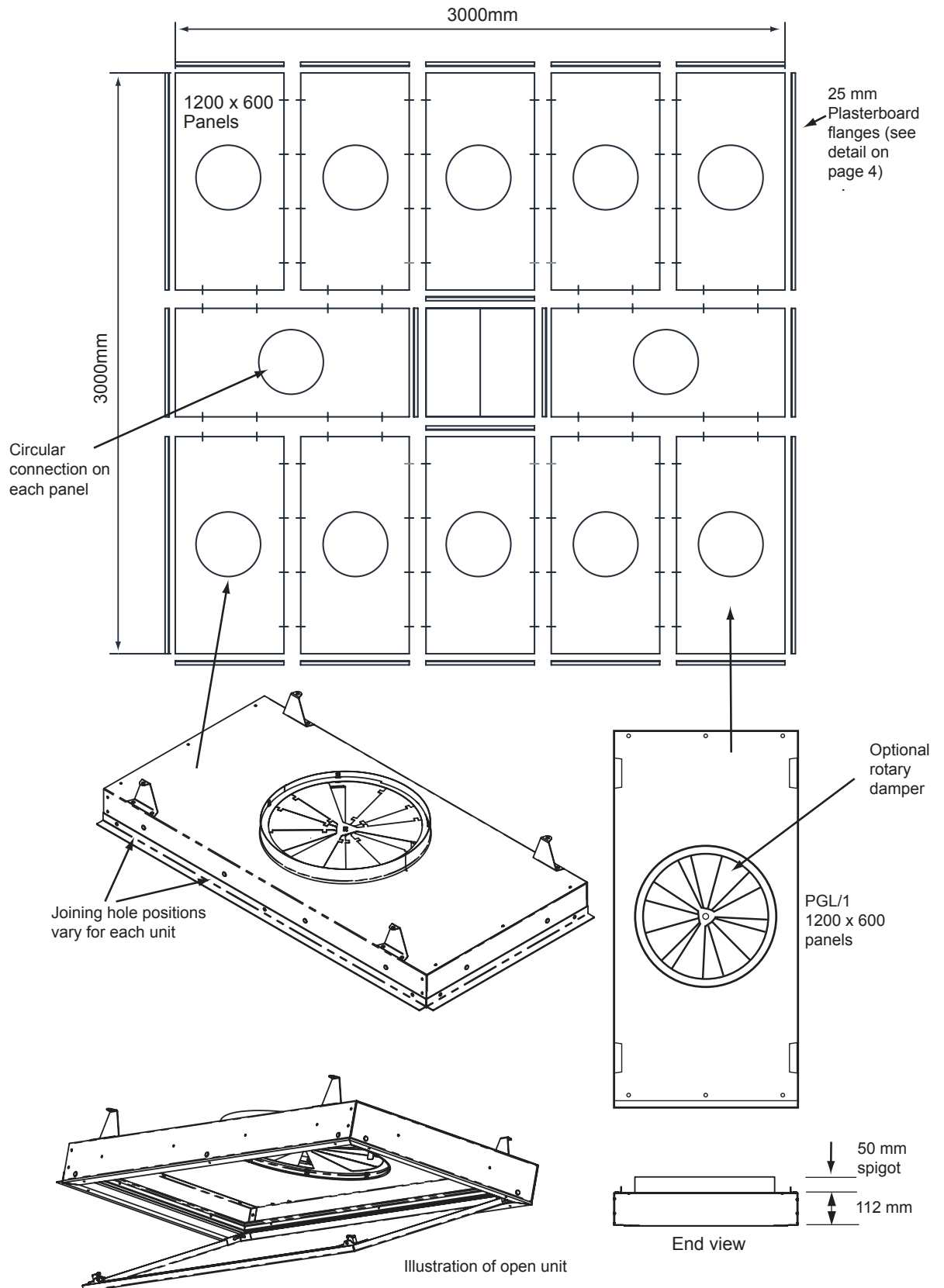
From 5°C cooling section on chart, select unit with a total volume of 0.15m³/s. Check other parameters ie: static pressure 9 Pa, NC 25, throws 1.5 to 2.5. Now divide 2m³/s by 0.15m³/s which equals 13.33 units (rounded up to 14). These units must now be distributed evenly across the ceiling area to give the best possible coverage over the entire space.

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Series PGL 1 Assembly Type 1 - 3m x 3m design

Assembly Type 1

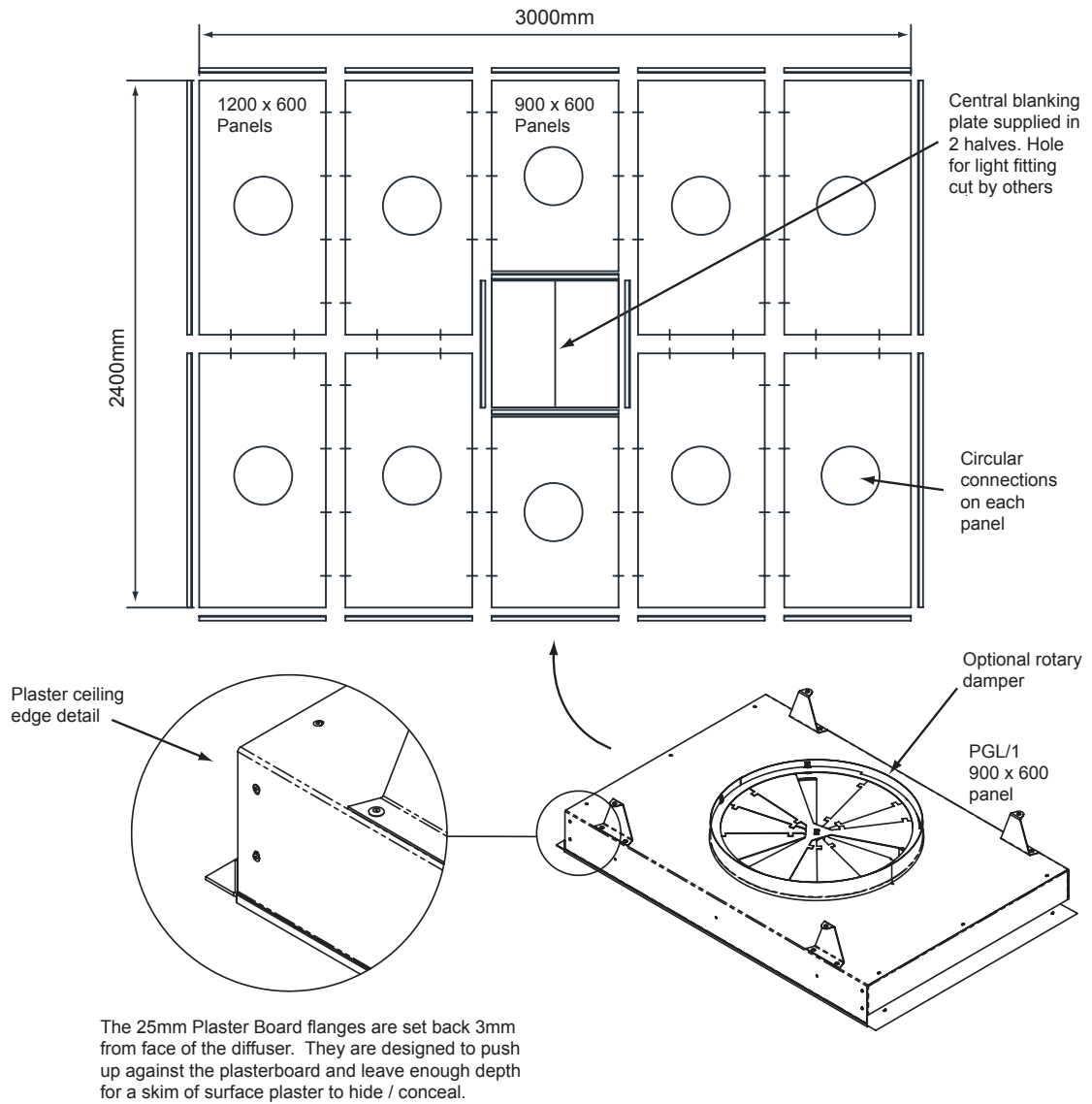


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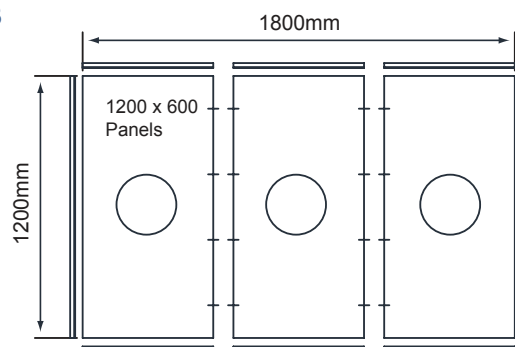
Series PGL 1 Assembly Type 2 - 3m x 2.4m design

Assembly Type 2



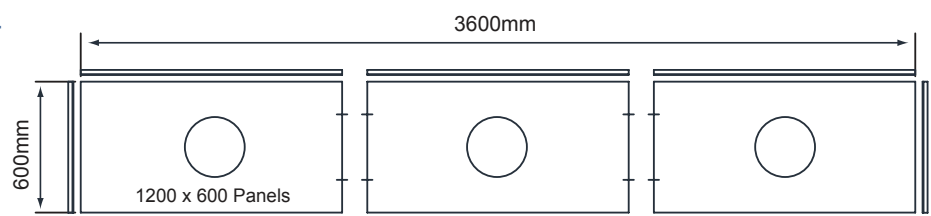
Series PGL 1 Assembly Type 3 1.8m x 1.2m design

Assembly Type 3



Series PGL 1 Assembly Type 4 3.6m x 0.6m design

Assembly Type 4

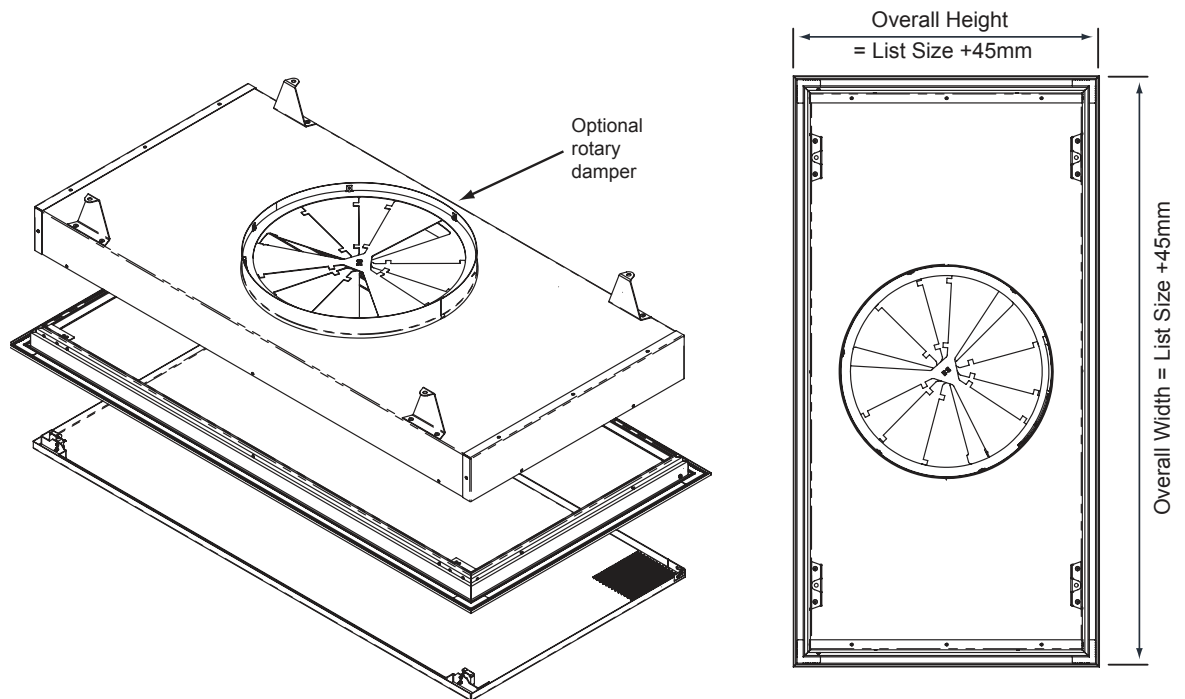


SERIES PGL

Laminar Flow Panels

Series PGL 2

Single Unit
Assemblies



We offer two size options for the PGL2 with a larger unit to suit plaster ceilings and slightly smaller unit to provide an overall size designed to fit regular T bar type ceiling grids.

For Tegular or Clip in ceiling grids please see details for types PGL2/B and PGL2/T on page 6.

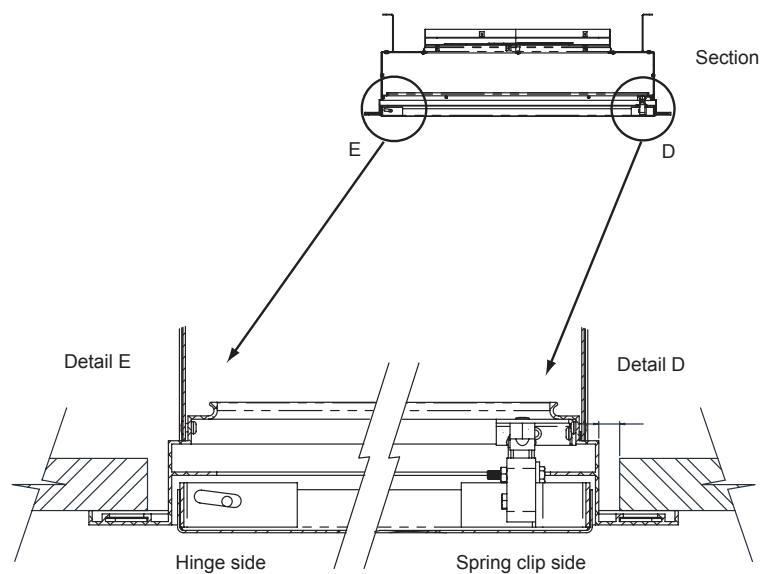
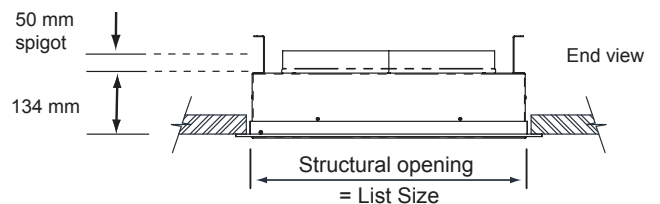
List Sizes W x H

Plaster Ceiling

1200 x 600mm
900 x 600mm
600 x 600mm

T Bar Ceiling Grid

1150 x 550mm
850 x 550mm
550 x 550mm

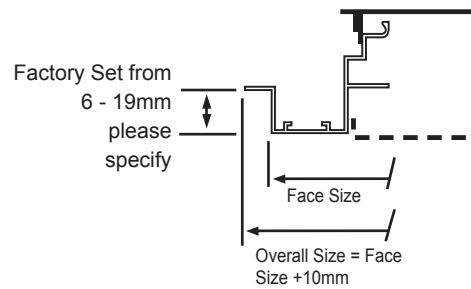


SERIES PGL

Laminar Flow Panels

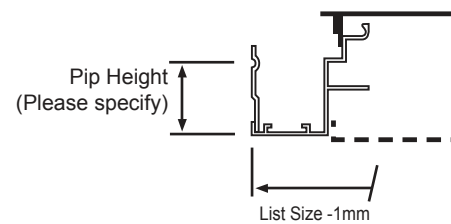
Series PGL/2/T Tegular Ceiling

The PGL/2/T option for the laminar flow diffuser features a border frame specially designed to suit modern 'tegular' type ceiling grids. This border, available on PGL/2/T units features a factory adjusted edge detail to suit drops of between 6 - 19mm allowing it to match with most popular ceiling types (please provide full ceiling details).

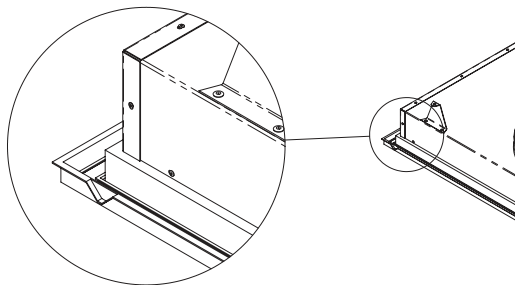


Series PGL/2/B Clip-in Ceiling

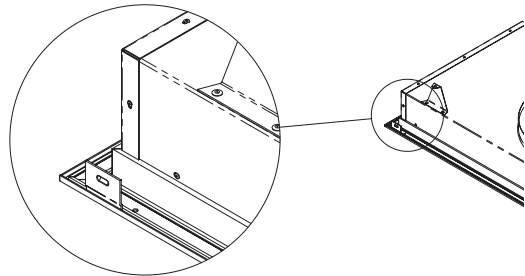
The PGL/2/B option for the laminar flow diffuser features a border frame specially designed to suit popular clip-in type ceiling grids. Simply specify the ceiling pip height (normally 19 or 25mm) or provide full details of ceiling and we will include appropriate location/alignment clips to suit.



Type PGL2/T Tegular Ceiling



Type PGL2/B Clip in Ceiling



Tegular Unit Sizes (W x H)

List Size 1200 x 600	Face Size 1184 x 584 or Face Size 1174 x 574
List Size 900 x 600	Face Size 884 x 584 or or Face Size 874 x 574
List Size 600 x 600	Face Size 584 x 584 or Face Size 574 x 574

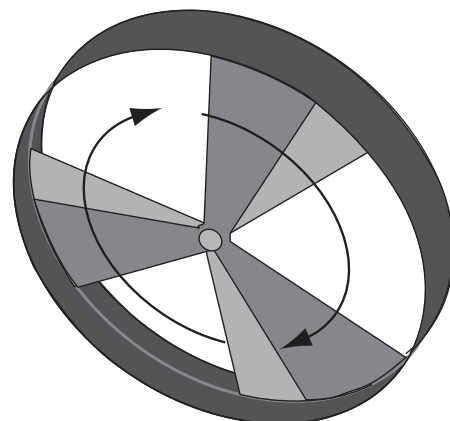
Clip-In Unit Sizes (W x H)

1200 x 600 mm
900 x 600 mm
600 x 600 mm

Face size to be specified to suit ceiling
Overall size = Face size + 10mm

Rotary Dampers

The Rotary damper is a new alternative to fitting a quadrant damper on the plenum inlet allowing damper adjustment from the diffuser face. The damper can simply be manually adjusted/rotated to the required position using the tabs on the damper face. For access to the damper the hinged diffuser face must first be opened.



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Sizing and Performance Data

1200x600 PGL [C/W 315 SPIGOT CONNECTION]

Volume m³/s	0.05	0.10	0.15	0.2	0.25	0.3	0.35
NC Level		20	25	30	35	40	45
Static Pressure Pa	1	4	9	16	25	36	49
ISOTHERMAL CONDITIONS							
Throw m	0.5-1.0	0.8-1.3	0.8-1.5	0.9-1.8	1.5-2.0	1.8-2.2	2.0-2.3
5°C COOLING							
Throw m	1.0-2.0	1.3-2.3	1.5-2.5	1.6-2.5	1.8-2.8	2.0-3.0	2.2-3.5
10°C COOLING							
Throw m	1.2-2.2	2.0-2.5	2.2-2.8	2.3-3.0	2.5-3.2	2.8-3.5	3.0-4.0
5°C HEATING							
Throw m				0.5-0.8	0.5-1.0	1.3-1.6	1.4-1.8
10° HEATING							
Throw m				0.5-0.8	0.5-1.0	0.8-1.2	1.2-1.5

NOTES

1. If a rotary damper is required use the above data with a 400 spigot connection. If a 400 spigot is used with no damper then pressure drop is reduced by approx 20%.
2. For a bank of PGL 1200x600 units see operating theatres selection guide for noise data.
3. For 900x600 PGL sizes:
 - 1: Reduce the corresponding volume per panel by 1/3 and use the tabulated data for noise and pressure drop
 - 2: Reduce the throw by 1/6
 - 4: Use a 315 spigot connection if no damper required
 - 5: Use a 350 spigot if rotary damper required
 - 6: If a 350 spigot is used with no damper then pressure drop is reduced by approx. 20%
4. For 600x600 PGL sizes:
 - 1: Reduce the corresponding volume per panel by 1/2 and use the tabulated data for noise and pressure drop
 - 2: Reduce the throw by 1/3
 - 4: Use a 250 spigot connection if no damper enquired
 - 5: Use a 315 spigot if rotary damper required
 - 6: If a 315 spigot is used with no damper then pressure drop is reduced by approx. 20%
5. Throw figures 1st figure, 0.5m/s, 2nd figure 0.25 m/s

	PGL 600 X 600	PGL 900X 600	PGL 1200 X 600	PRESSURE Pa
Spigot Size • No Damper	250	315	315	As above
Spigot Size with Damper Required	315	350	400	As above
Alternative Spigot Size, No Damper [Reduced Pressure Drop]	315	350	400	-20%

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Ordering Specification

SERIES: PGL1, PGL2 PGL2/T, PGL2/B	PGL1	A1	1184 X 584	315	TD8	PIP19	DR	PPC RAL 9010 20% GLOSS	2
SIZE DETAIL ASSEMBLY TYPE (PGL1 Only) A1, A2, A3 or A4 OR LIST SIZE mm (PGL2 Only)									
FACE SIZE mm (Applies to PGL2/T only)									
SPIGOT SIZE 250, 315, 350 or 400mm									
TEGULAR DROP DEPTH (mm) PGL/2 'T' only - TD + Depth									
PIP HEIGHT (PGL2/B only) PIP + Height (mm)									
DAMPER OPTIONS RotaryDR									
FINISH (please specify)									
NUMBER REQUIRED									

Finish

STANDARD FINISH:

Polyester Powder White RAL 9010
20% gloss. NB. Plenum Box supplied -
natural zintec finish.

SPECIAL FINISHES:

Polyester Powder Finish to stock BS/RAL colour.

Fixing

Standard fixing for all units is via drop rods (by others) to
8mm diameter holes in the angle cleats at the rear.

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.

GILBERTS

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