

SERIES GFS

Floor Swirl Displacement
Diffusers (Patented)

PUBLICATION

DIFFUSERS 10

JANUARY 2014



Features

- Omni Directional, Swirl Effect, Discharge.
- Robust Stainless Steel Fascia.
- Horizontal or 45° Distribution.
- Adjustable Volume Control.
- Dirt Collection Trap.



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Floor Swirl Displacement Diffusers

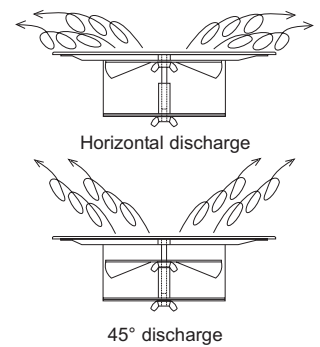
Introduction

Complementing existing GF and F Floor Grille Ranges the GFS Series has been specially developed for both supply and extract applications in all types of Raised Access Floor Systems. Available in 160, 200 and 250mm dia sizes the units comprise of a slotted stainless steel fascia with rounded edges to create a tough yet attractive diffuser capable of withstanding a point loading of up to 1.5kn. Concealed behind the fascia on supply units a series of radial vanes generate the swirl effect which allows the unit to deliver comparatively high air volumes with rapid mixing and entrainment in the conditioned space. Adjustment of these vanes is also possible to alter the discharge pattern from horizontal distribution to 45°. Using the displacement

principle the units will deliver cooler fresher air at lower levels allowing for higher level extract of the stale warmer air. The unit is rated as light duty by Hevac specifications with full loading restrictions detailed below. A standard feature on all floor swirl diffusers is the rear mounted "plate type" volume control damper. The positioning of the damper plate can be adjusted forwards or backwards to regulate the air volume as required. The damper plate also acts as a dirt trap to reduce the ingress of dust into into the floor void. With the standard spring clip fixing a special key provided with the unit permits easy occupier removal of the diffuser for cleaning, maintenance or adjustment. Standard finish is 'shadowline' with internal surfaces matt black and the fascia brushed stainless finished.

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Technical Data

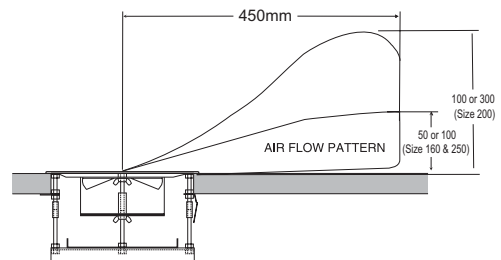
The GFS unit has been graded as light duty in accordance with Hevac specifications.

Static Loading	Concentrated Load Test	Uniformly Distributed Load Test
Light Duty	1.5KN over an area 25 x 25mm	6.7KN/m ²

Performance Data

The sizing data charts relate to horizontal projection of the supply air jet and all supply diffusers are factory set in this format. Figures are given for room air velocities at a position of Dim x from the centre of the diffuser and at heights of 50, 100 and 300mm (see below). All data is given for heating, cooling and isothermal conditions. Temperature mixing of the supply air jet is fast and effective with temperature differentials no greater than 1.3°C, within 450mm from the

centre of the diffuser. This is based upon an initial supply to room differential of -5°C at 20 l/s. An acoustic data chart is also provided on the facing page and gives NC noise rated figures at various supply and extract volumes. Pressure drops for various air volumes can be established from the data charts on the back cover and are based upon units with fully open dampers.



Selection Procedure

1. Establish the most acceptable floor area where the diffusers could be positioned. It is advisable to locate diffusers at least a distance of 450mm from the occupants within the space, but if the volumes supplied by each unit are low, this may be reduced. The sizing charts give expected air velocities at this distance. Units may be positioned in the centre of 600 square adjacent floor tiles or closer if the 45° distribution air pattern is selected.
2. Divide the total air volume (m³/s) by the selected air volume per diffuser to establish the number required, then position units based upon the recommendations given above.

3. Check noise and pressure drops expected from the data against design criteria for the conditioned space.

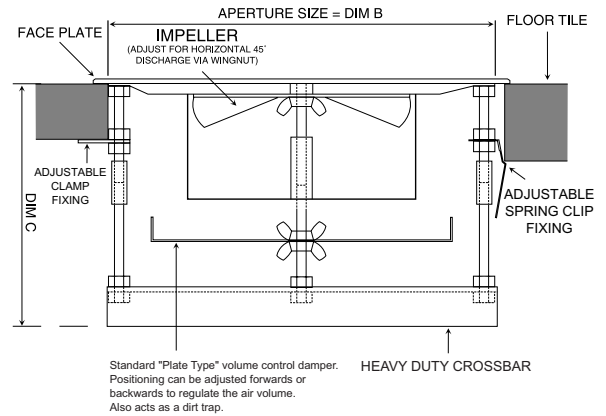
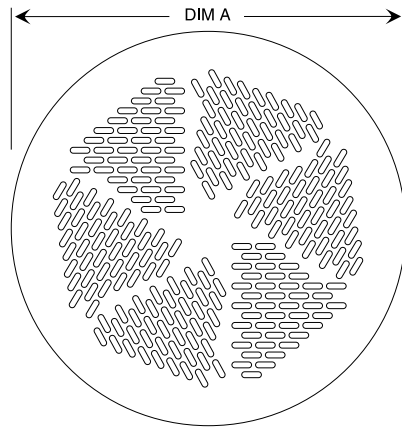
EXAMPLE:

Total volume required for 6 x 6 x 2.5m high room = 0.2m³/s
 selected volume per diffuser = 0.015 m³/s therefore
 $\frac{0.2}{0.015} = 14$ size 160 diffusers approximately.

This will require 14 No 600 x 600 floor tiles to be utilised for supply purposes out of a total of 100 units (ie, 6 x 6 floor area) or approximately 14%. Selected tiles must now be established knowing room use and occupancy positions. Noise level from Acoustic Data = NC 20, Pressure drop from chart = 16 Pa.



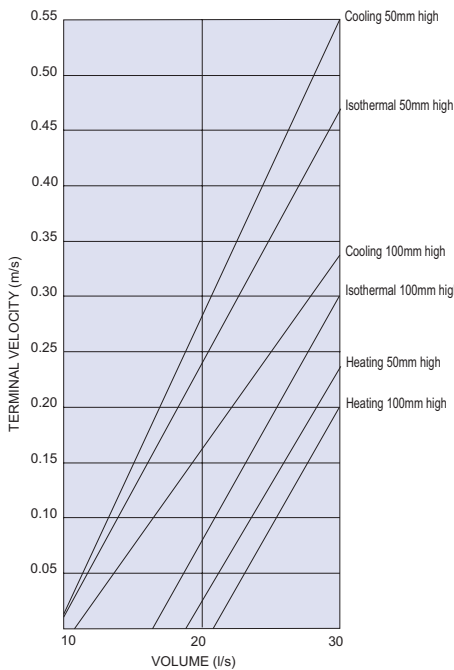
Series GFS



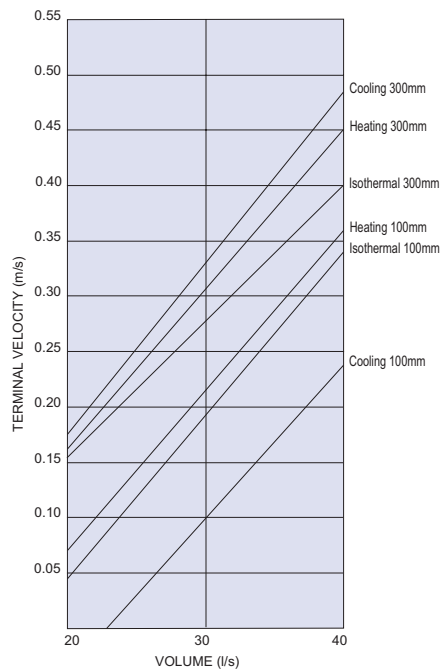
Sizing Data

Size	A	B	C
160	204	197	137
200	254	243	148
250	324	310	148

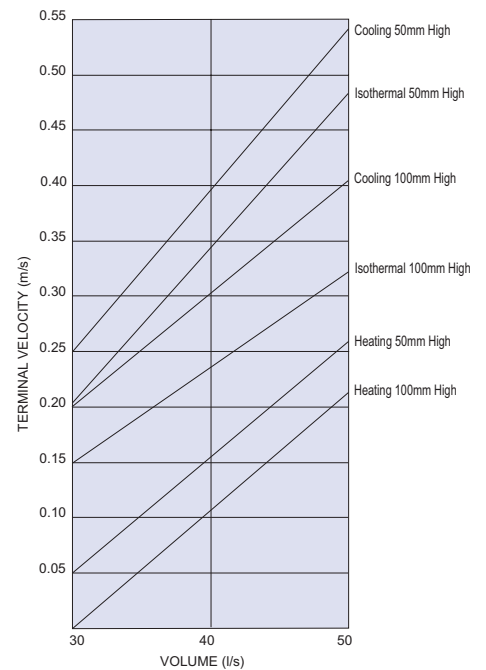
Size 160



Size 200



Size 250



All Sizing Based on Sideways Distribution

Acoustic Data

Size 160

Air Volume L/S	Nc
10	20
15	20
20	25
25	30
30	30
35	35

Size 200

Air Volume L/S	Nc
20	20
25	20
30	25
35	30
40	30
45	35

Size 250

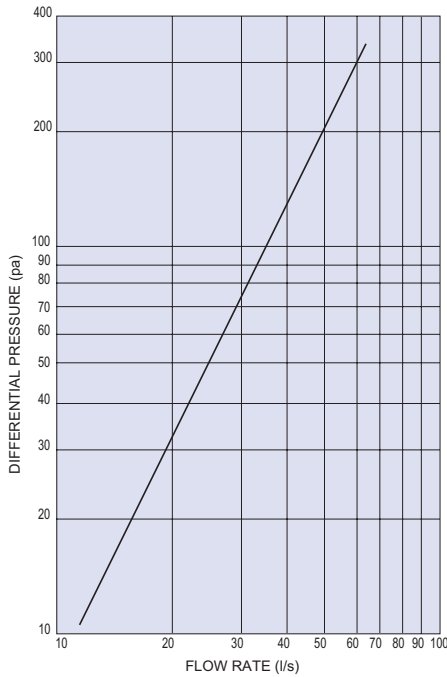
Air Volume L/S	Nc
30	25
35	25
40	30
45	30
50	30
55	35

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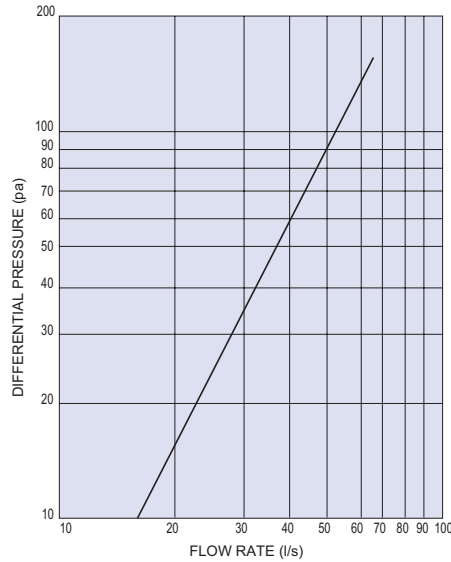
Floor Swirl Displacement Diffusers

Pressure Loss Data

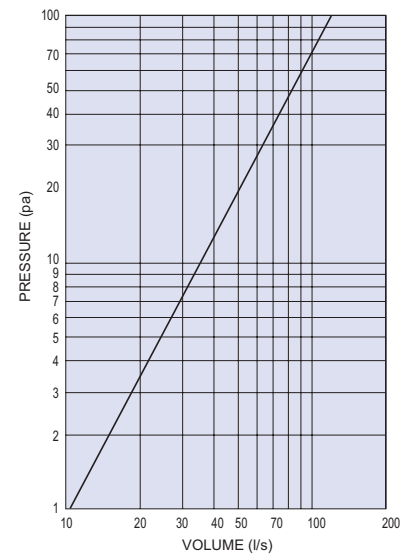
Size 160



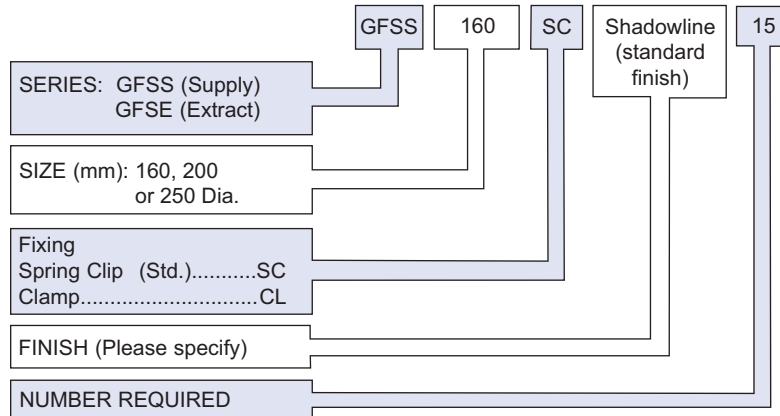
Size 200



Size 250



Ordering Specification



Fixing

Standard: Spring clip fixing with units simply placed into aperture and withdrawn using extraction key supplied.

Optional: Adjustable stabilising clamps secured from below unit.

Finish

Standard: 'Shadowline' with internal surfaces stoved matt black and face natural brushed stainless finish.

GILBERTS

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