STRAVENT

STRATIFYING VENTILATION

S44 is the unobtrusive ceiling diffuser with stratifying function. S44 is 10 dB(A) more silent than traditional diffusers. Furthermore, the diffuser doesn't create draught, and the air change rate is as high as 60-70 %.

- ***Effectiv and energy-saving supply air***
- ***Draught-free air distribution***
- ***Silent***
- ***Delivered pre-adjusted for right air flow***

STRAVENT S44

ceiling diffuser for stratifying ventilation

Quick facts – S44

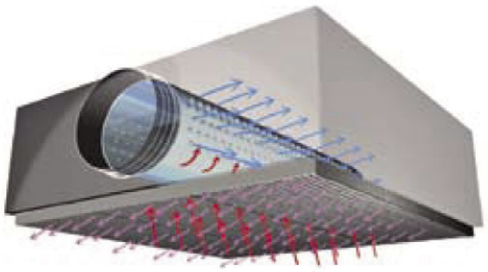
- *Supply air flow .....Optional, max 63 l/s (90 Pa)*
- *Pressure drop.....Optional, up to 150 Pa*
- *Sound level .....Always below 25 dB(A)*
- *Size (Ø) .....160 mm*
- *Dimensions (H x L x B) .....205 x 595 x 595 mm*
- *Finish ..... Powder coating RAL 9010*
- *ISO 9001 and ISO 14001*

Stratifying technology = no draught

Several hundred Stravent nozzles direct the supply air to jets (the blue jets in the figure below) inside the mixing chamber.

Several times more air from the surroundings - and indirectly also from the room - is mixed as it is drawn into the jets.

Yet: the mixed supply air must leave the diffuser simultaneously in the opposite direction. The counter-directed air flows will now disturb each other - inside the diffuser as well as in the passage out through the front of the diffuser. This process takes place without producing sound.

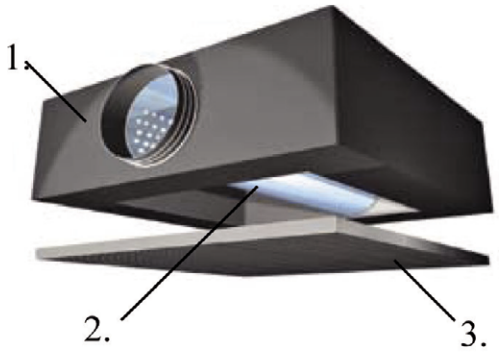


The mixed supply air is converted at the front into a diffuse "air mist", which is distributed in a fan-shape out into the room as close to the nearby wall as possible.

The spread pattern co-operates with the natural convection in the room. With the Straven-technique, the supply air takes control and this results in a very high airchange rate, often over 70%. Traditional mixing ventilation has an air change rate of 30-50 %.

Muck up tests, CFD-simultations and delivered projects shows that the Stravent-technique always gives you draught-free ventilation in the occupied zone.

This is S44



1 Mixing chamber. Dimensions 522 x 522 x 280 mm.
2 Circular duct fitted with Stravent nozzles.
3 A front directs the supply air in one direction. 600 x 600 x 5 mm.

Planning

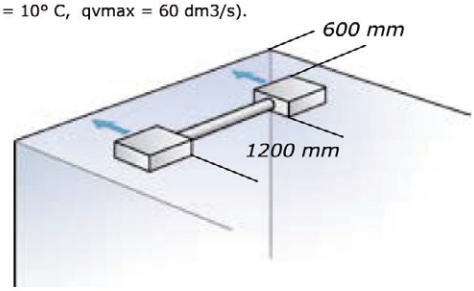
Air flow development in the room

The supply air is guided out into the room by the front in just one direction at a downward angle from the ceiling of 20 degrees. The direction of the air out into the room can easily be changed, as the front can be turned through 90, 180 or 270 degrees

In offices the S44 is placed as illustrated, close to the wall. The supply air is always directed towards the wall. If the diffuser is positioned 300 - 600 mm from the wall, the room air will stratify, with cleaner air in the occupied zone and used air up close to the ceiling.

If the instructions above are observed, the air movements will always be lower than 0.20 m/s in the occupied zone with air flow rates up to 60 l/s, 10 Kelvin chilling

(Δt(max) = 10° C, qvmax = 60 dm3/s).

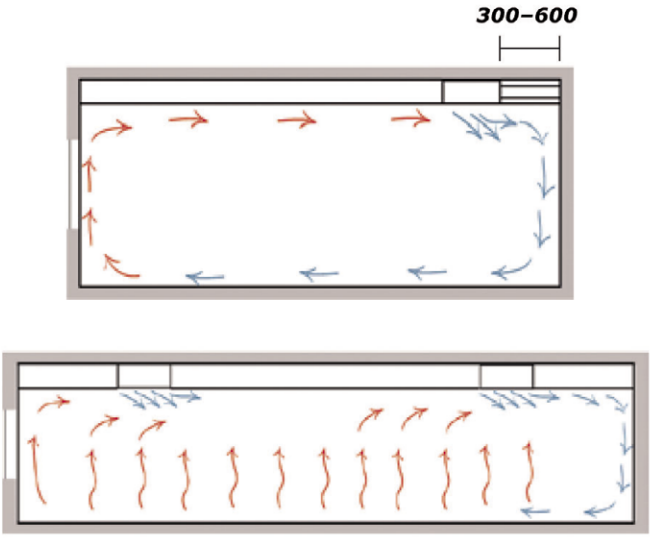


In open landscape, with several diffusors,the supply air is always in the same direction (see illustr.). The distance between two diffusors should be at least 1200 mm in both leangthways and sideways direction.

If the instructions are observed, the air movements will always be lower than 0.20 m/s in the occupied zone with air flow rates up to 60 l/s, 10 Kelvin chilling

(Δt(max) = 10° C, qvmax = 60 dm3/s).

The optimal function from S44 is obtained with isothermal and chilled supply air. Use the S11 diffuser for heated air.



Airflow – Pressure drop – Sound level

S44 is more than 10 dB quieter than traditional supply air diffusers on the market. The air flow and pressure drop are optional within the diffuser's working range. At a pressure drop of 80 Pa or more S44 can work in control in the system. This simplifies the system. In many cases dampers and silencers can be omitted.

The soundlevel Lp are presented for rooms with normal acoustic absorbtion of 4 dB. Data is shown for with the diffusor connected to a straight duct with a length of 600 mm. Elbows and T-pieces closer than 600 mm can raise the sound level by up to 4 dBA.

S44 is supplied with a preset air flow, if this and the pressure drop across the diffuser are stated when ordering.

The preset air flow can easily be changed using the formel below:

$$q_v = \sqrt{\Delta p} \times 0{,}030 \times n$$

q_v = *Air flow, dm³/s*
$\sqrt{\Delta p}$ = *Pressure drop, Pa*
0,030 = *Constant*
n = *number of active/open nozzles*

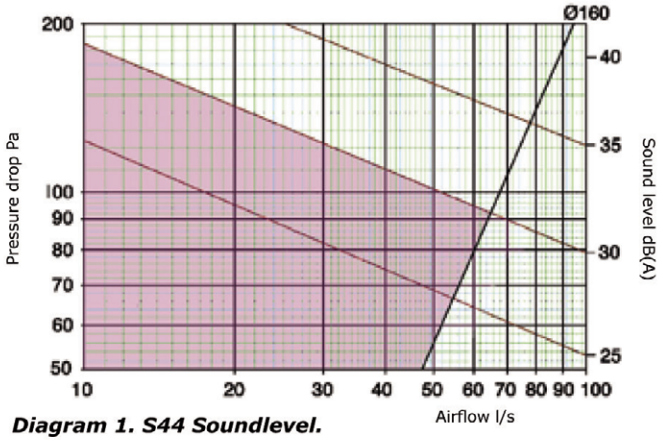


Diagram 1. S44 Soundlevel.

Correcting sound levels to sound effect levels

Correcting the sound level from the diagram using the figures in the table opposite, gives sound effect levels in the different octave bands.

Hz							
63	125	250	500	1K	2K	4K	8K
-12	-8	-5	-3	-2	-2	-4	-4

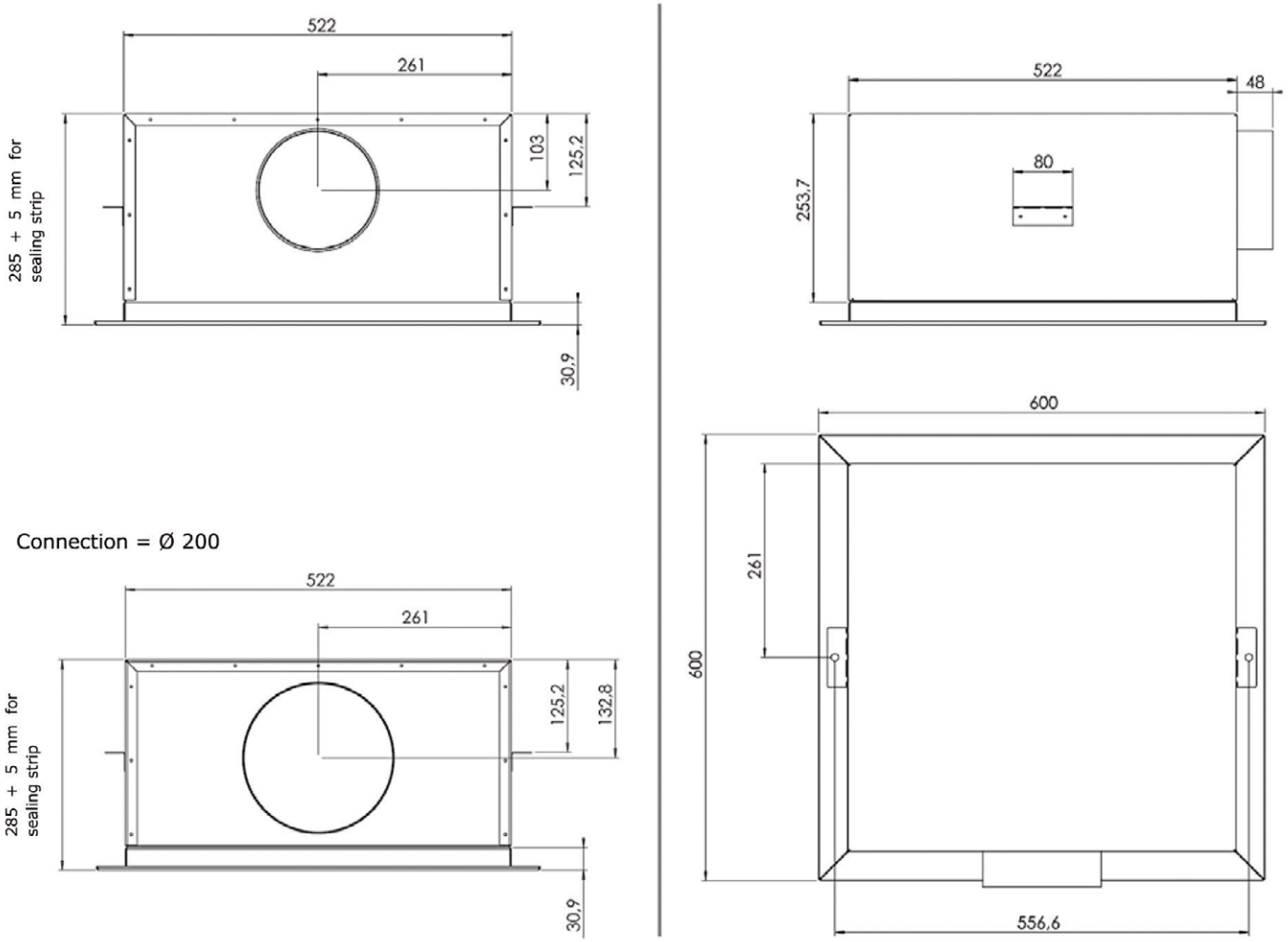
Integrated sound attenuation

Sound dampening in S44 is up to 18 dB higher than that obtained from traditional supply air diffusers with a plenum box at frequencies up to 250 Hz

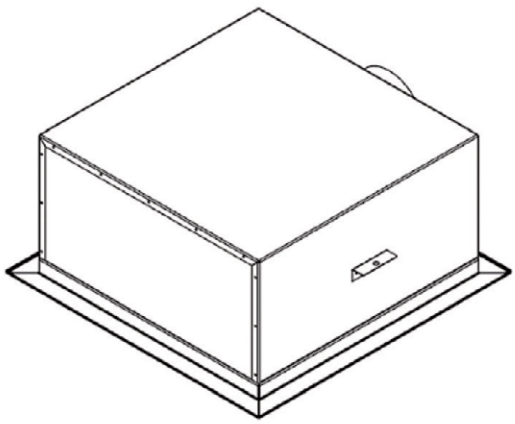
Hz							
63	125	250	500	1K	2K	4K	8K
33	27	22	16	10	6	2	1

Dimensions - Connections

Connection = Ø 160



Connection = Ø 200



Specification

Stravent S 44 – a – b – c – d
a. Air flow ..... Stated in l/s
b. Pressure drop..... Stated in Pa
c. Size ..... Ø160 or Ø200
d. Surface finish ..... State if colour is other than standard = white RAL 9010

Example: ***Stravent S 44 – 50 l/s – 100 Pa - Ø160***