

# Wall mounted Airshower, ASV



Airshower, type AS and ASV is a series of roof and wall-mounted supply air diffusers intended for the supply of a vertically displacing, thermally controlled air flow. The diffusers provide for an exceptionally high ventilation efficiency with its minimal pitch length and low turbulence degree. From this follows naturally low noise level, good air comfort and low energy consumption. The diffusers also have a unique ability to create zones of treated air with very low in mixing of ambient air.

The diffusers are especially suited for comfort cooling of offices and other public spaces as well as facilities in need of a high ventilation effectiveness in reducing the spread of infection or the like.

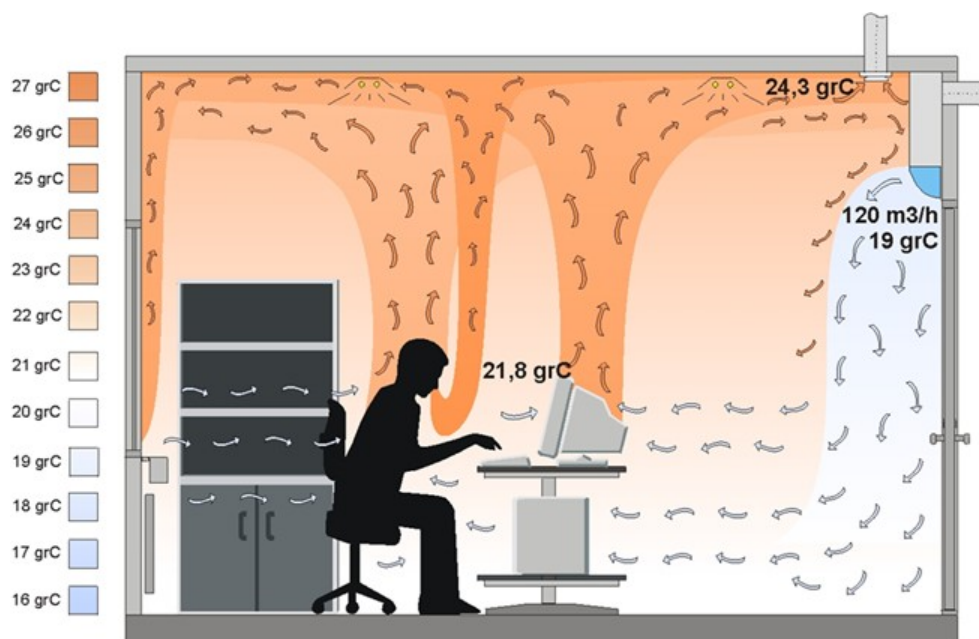


Image 1: Visualization of convection air flows replenished by a vertically displacing, thermally controlled air flow.

## Product info

Airshower type ASV is available in two variants. Where ASV-T is a wall-mounted diffuser connecting upwards (to the ceiling) and where ASV-B is connecting backwards (through the wall). The diffusers are both equipped with outlets for air flow measurement and duct covers.

## Positioning

Airshower is best placed at about two meters above floor level, preferably above the door. By positioning the diffuser just above the room entrance the comfort zone is maximized and the ducting is kept minimal. For best performance a positioning directly above a heat source should be avoided. In rooms with large temperature differences between floor and ceiling level, the diffusers should be positioned beneath the hottest air layers. At subset temperatures above 1° C, avoid positioning directly above deskbound (or inactive) people.

If replacing a high impulse (mixing) ventilation system it should be ensured that the room heating is readjusted. Otherwise the energy savings from the higher ventilation efficiency will be reduced.



Image 2: ASV in cleanroom.

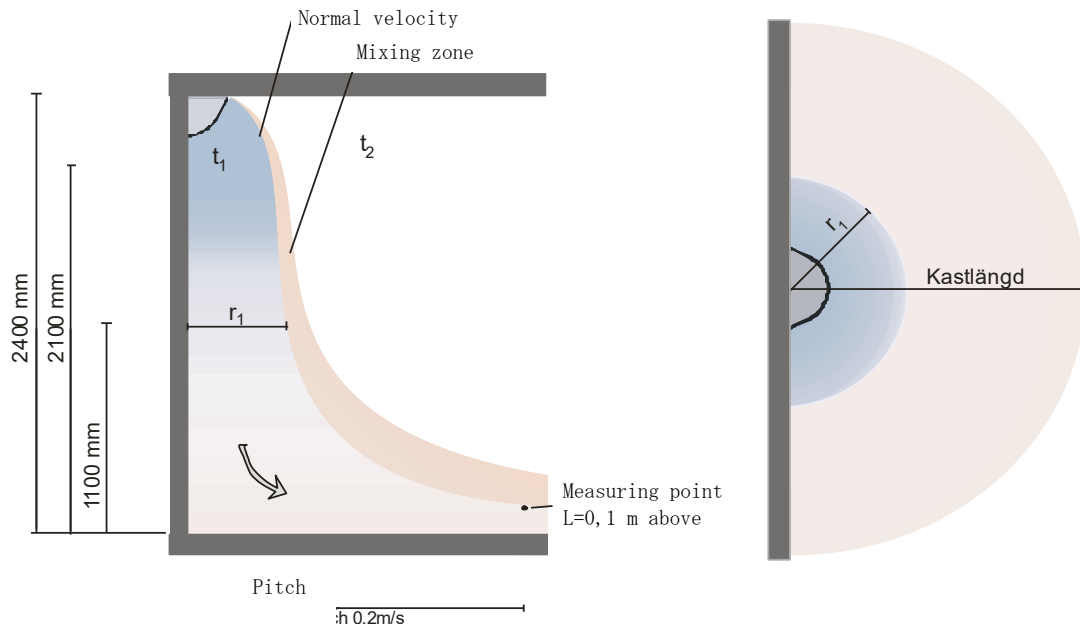


Figure 1: Air distribution at subset air supply ( $t_2 - t_1 \geq 1^\circ\text{C}$ )

## Near zone comfort

The near zone (pitch length) is defined as the distribution of air with velocities of 0.15 and 0.20 m / s measured 0.1 m above the floor and shown in Table 1, visualized in Figure 1. The near zone varies with air flow and temperature difference between supply air and ambient room air temperature ( $t_2 - t_1$ ). The table shows the distribution at 3° C and 6° C temperature differential.

Velocity along the floor (m/s)		Subset temperature 3°C		Subset temperature 6°C	
		0,20 m/s	0,15 m/s	0,20 m/s	0,15 m/s
<b>30 l/s</b>	110 m <sup>3</sup> /h	0	0,4	0	0,5
<b>45 l/s</b>	160 m <sup>3</sup> /h	0,3	0,6	0,4	0,7
<b>65 l/s</b>	230 m <sup>3</sup> /h	0,5	0,9	0,7	1,0

Table1: Pitch length (m) of the Airshower (figure 1). Measurements performed in the laboratory, measuring 2.4 x 3 x 2.4 meters.

## Technical specification

The right hand diagram (*figure 2*) shows pressure drop and sound effect

- Sound effect level (L<sub>WA</sub>)
- Total pressure drop (Pa)
- Pressure drop at measurement nipple

For air flow adjustment use the formula for air flow ( $Q = l/s$ ) in relation to pressure ( $P = Pa$ ) as measured at the measurement nipple:

$$Q = 3,1376 \times P_s^{0,7699}$$

These measurements are carried out by SP, the Technical Research Institute of Sweden, test number P703843. The error margin is  $\pm 10\%$  due to variation in diffuser porosity.

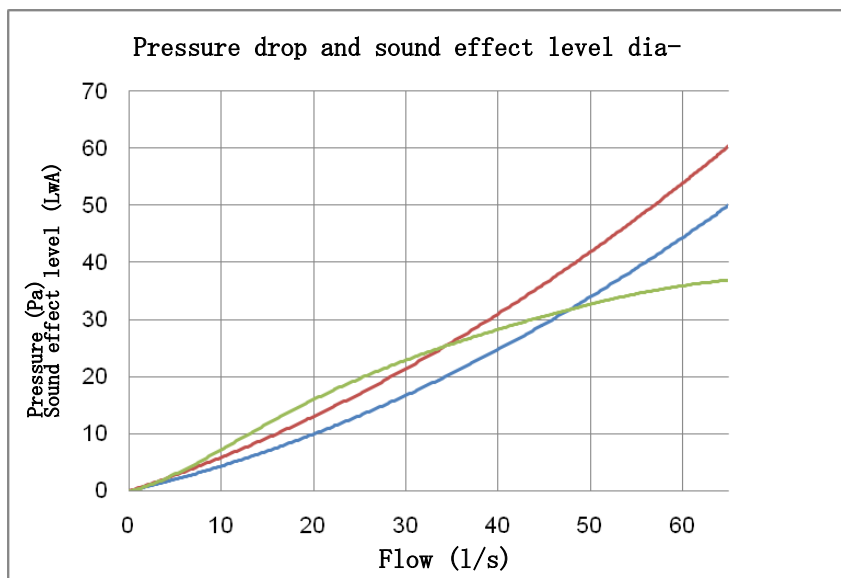


Figure 2: Pressure drop and sound level diagram for ASV-T ASV-B

The right hand side diagram (*figure 3*) shows the distribution of supplied air ( $r_1$ ) 1,1 meter above floor level, and the descending velocity at different subset temperatures ( $t_2-t_1$ ). See also figure 1 at previous side.

Accounted descending velocities are conditioned by still surroundings. Heat sources and the location of evacuation will influence the descending velocity. This needs to be taken into account when designing the installation.

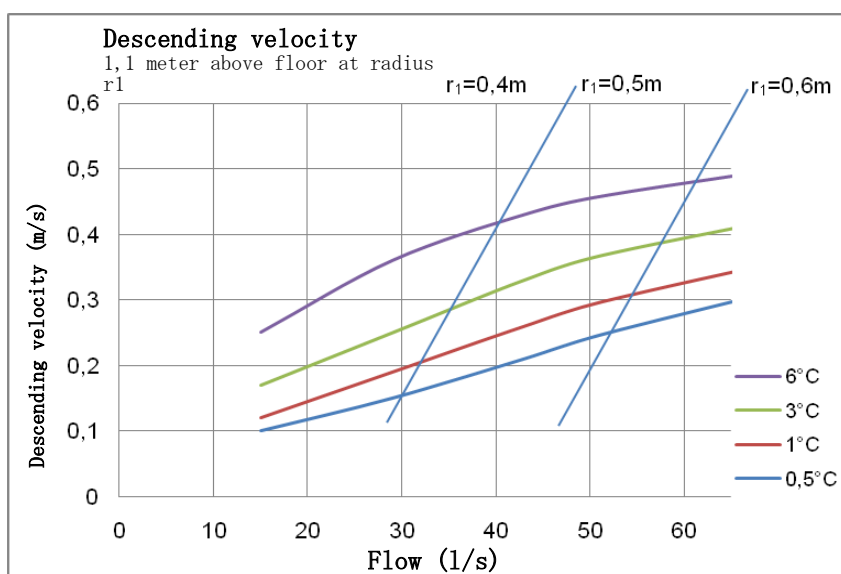


Figure 2: Pressure Case and power level diagram for ASV-T

## How to specify and product codes

**Wall mounted vertically displacing, low turbulent, diffuser with minimal impulse for temperature controlled air flow**

ASV-B Wall mounted diffuser for connection from behind (through the wall), made by A2 CAT, model ASV-B. Standard color.

Duct connection:  $\varnothing 160$

ASV-T Wall mounted diffuser for connection from above (through the ceiling), made by A2 CAT, model ASV-T. Standard color

Duct connection:  $\varnothing 160$

Specify if to include duct cover by adding the suffix KI-aa, where aa indicates the measurement between the top of diffuser and the ceiling as measured in mm.

## Maintenance

To clean the diffuser part (AS), dismantle it and vacuum inside. Metal surfaces are cleaned with a moisturised cloth. Cleaning interval is dependant on the level of air pollution.

## Choice of Colour

## Materials

Colour	Code
Light gray, RAL 9010 (Standard)	White
Airshower can be supplied in any colour, to a surcharge, specify RAL code	

Assembly ring: Aluminium  
Foam: Bulpren  
Coating: White powder lacquering  
Fire class: Non-flammable

## Assecories

Duct cover KI, (figure 4 and image 2). White powder coating (standard). Easy attachment. Specify height and presumptive special colour.

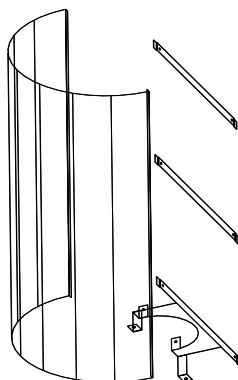


Figure 4: Duct cover, KI

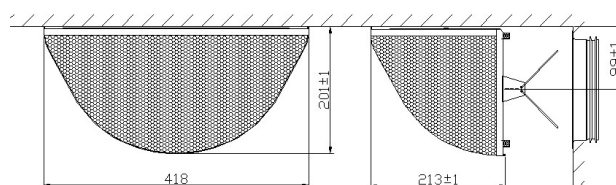


Figure 5 Measurements ASV-B, connection from behind (through the wall)

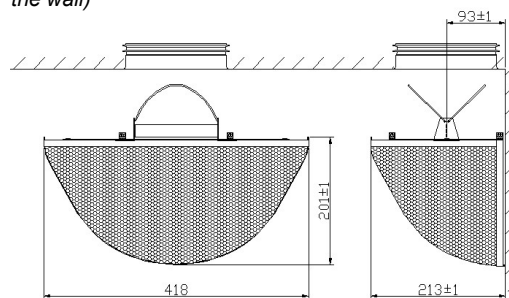


Figure 6: Measurements ASV-T, connection from above (through the ceiling)

## Measurements and mounting

ASV-B is mounted on the wall with duct connection from behind through the wall (see figure 5) and ASV-T with duct connection from above (see figure 6 and image 2). The diffusers are supplied with spring connection for easy mounting in Lindab's detail VRFU-160 (not included). Measurements according to figure 5 and 6.



Image 2: Easy mounting with spring connection