

2/S6
v 3.3 (en)

CEILING SWIRL DIFFUSER

DVS

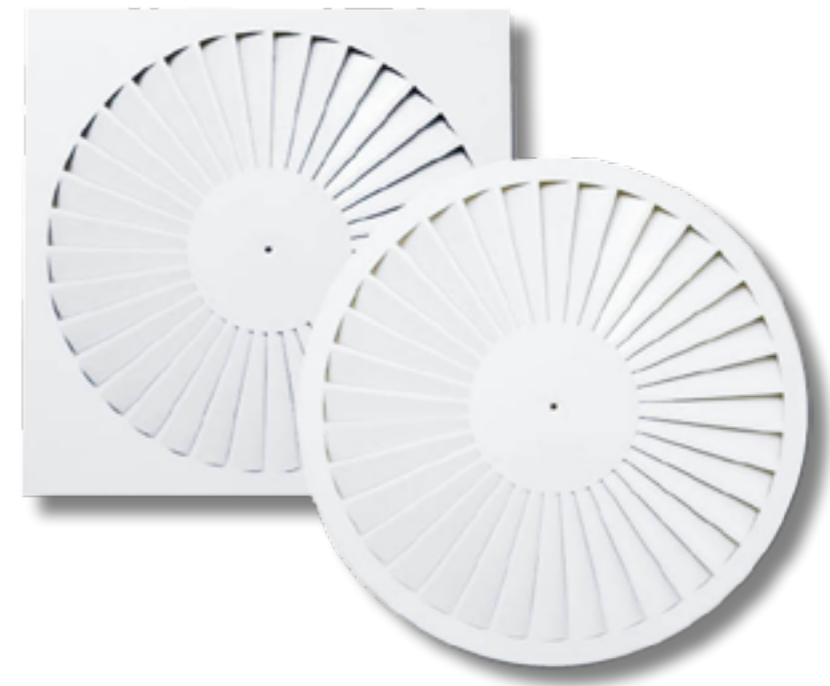
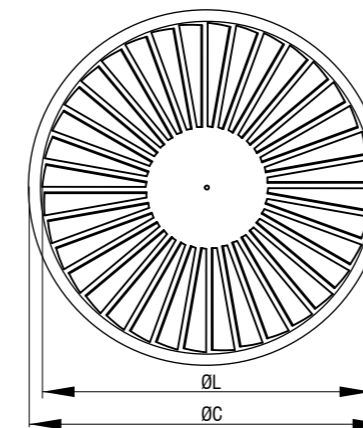


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Diffuser DVS-0



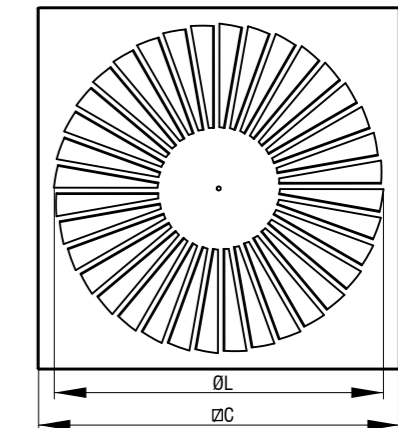
DVS

- Ceiling swirl diffuser for room heights from 2,6 to 4m.
- Made out of steel sheet, standard RAL 9010
- Plenum box made out of galvanized steel sheet

Options

- Plenum box
- RAL...

Diffuser DVS-K



Dimensions

Size	C [mm]	L [mm]	A _{ef} [m ²]
400	398	350	0,0180
500	498	350	0,0180
600	595	538	0,0295
625	623	538	0,0295

Ordering key

Type	DVS - K - 600 - A - H - ød - Z
K - rectangular plate	
O - round plate	
Size	
A - supply air	
B - exhaust air	
H - horizontal connection	
V - vertical connection	
Connection diameter	
Insulation	

*Screws are not delivered

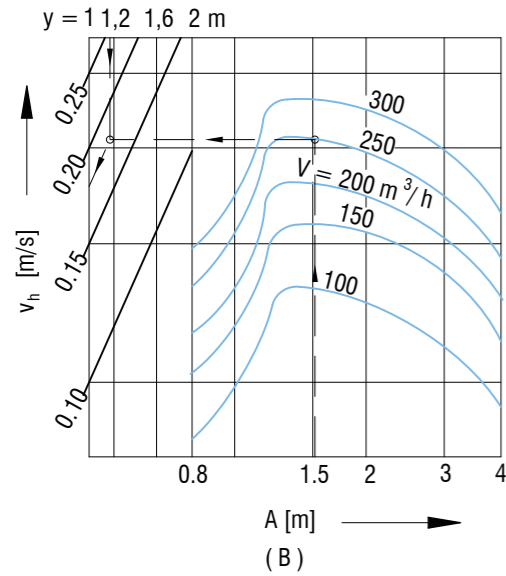
**Ordering key for Plenum box on page 184

Definition of symbols:

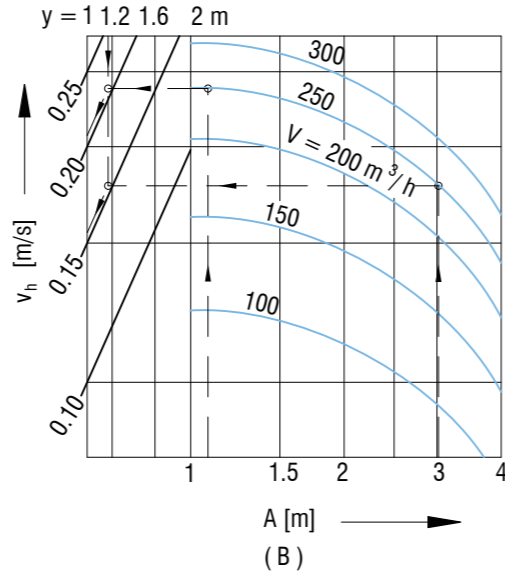
V [m ³ /h]	- Air flow	v _h [m/s]	- Average core velocity at distance h (m) from diffuser
V _{uk} [m ³ /h]	- Total air volume in motion	Δp [Pa]	- Total pressure drop
h [m]	- Distance from the ceiling to the occupied zone	t _p [°C]	- Air temperature in the room
H [m]	- Room height	t _z [°C]	- Supply air temperature
A, B [m]	- Distance between diffusers	t _c [°C]	- Core air temperature
x [m]	- Distance from wall	Δt _z [°C]	- (t _z - t _p)
L [m]	- Throw distance (x+h)	Δt _L [°C]	- (t _c - t _p)
A _{ef} [m ²]	- Effective discharge area	i	- Induction V _{uk} /V
v _{ef} [m/s]	- Effective jet velocity	L _{WA} [dB(A)]	- Sound power level
v _L [m/s]	- Average core velocity at distance L (m) from diffuser		

SELECTION DIAGRAMS

1. Air velocity between two diffusers by single-or multiple-row arrangement, if spacing $B \geq 4$ m.



2. Air velocity between two diffusers by multiple-row arrangement, if spacing $B = 2,8 \dots 3,5$ m.



Example 1

Given:

DVS-O/400-A/H 1 diffuser row
 $A = 1.5$ m
 $h = 1.16$ m
 $x = 1.5$ m
 $H = 2.96$ m
 $V = 250$ m³/h
 $\Delta t_z = -7^\circ\text{C}$

Solution:

Diagram 1

Velocity between two diffusers

$v_h = 0.18$ m/s

Diagram 4

between wall and diffuser

$L = x + h = 1.5 + 1.16 = 2.66$ m

$v_L = 0.16$ m/s

$\Delta t_L / \Delta t_z = 0,055$

$\Delta t_L = -7 \times 0,055 = -0,385$

Diagram 9

$L_{WA} = 33$ dB (A)

$\Delta p_t = 14$ Pa

Example 2

Given:

DVS-O/400-A/H 2 diffuser rows
 $A = 1.2$ m
 $B = 3.0$ m
 $h = 1.16$ m
 $x = 1.5$ m
 $H = 2.96$ m
 $V = 250$ m³/h
 $\Delta t_z = -7^\circ\text{C}$

Solution:

Diagram 2

Velocity between two diffusers, direction A

$v_h = 0.22$ m/s

Velocity between two diffusers, direction B

$v_h = 0.16$ m/s

Diagram 4

between wall and diffuser

$L = x + h = 1.5 + 1.16 = 2.66$ m

$v_L = 0.16$ m/s

$\Delta t_L / \Delta t_z = 0,055$

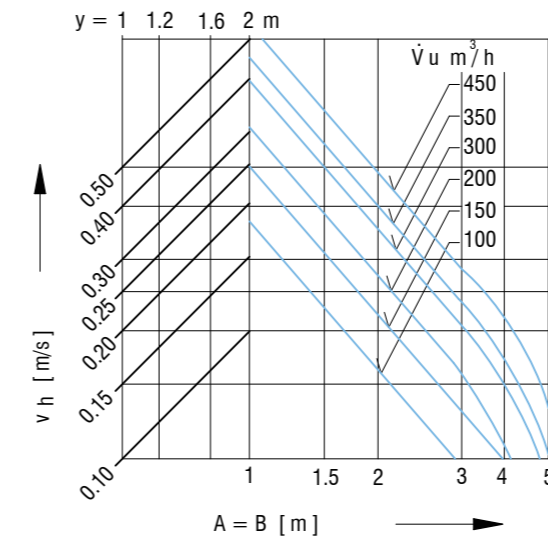
$\Delta t_L = -7 \times 0,055 = -0,385$

Diagram 7

$L_{WA} = 33$ dB (A)

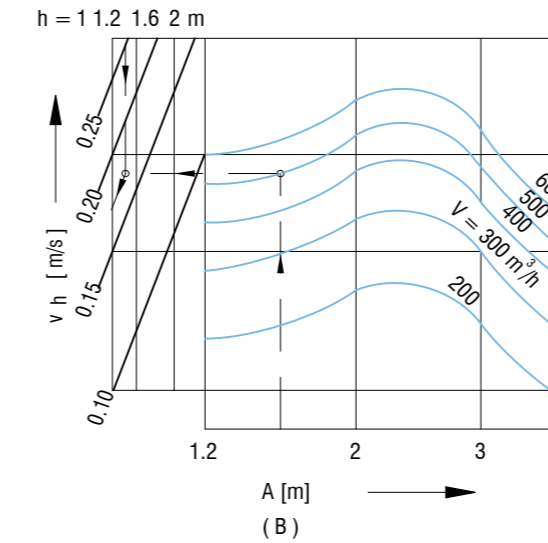
$\Delta p_t = 14$ Pa

3. Air velocity between two diffusers - square arrangement ($A = B$).

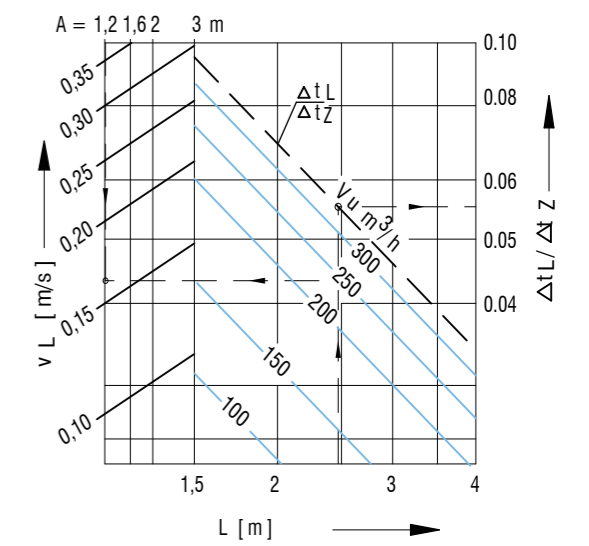


DVS 600 and 625

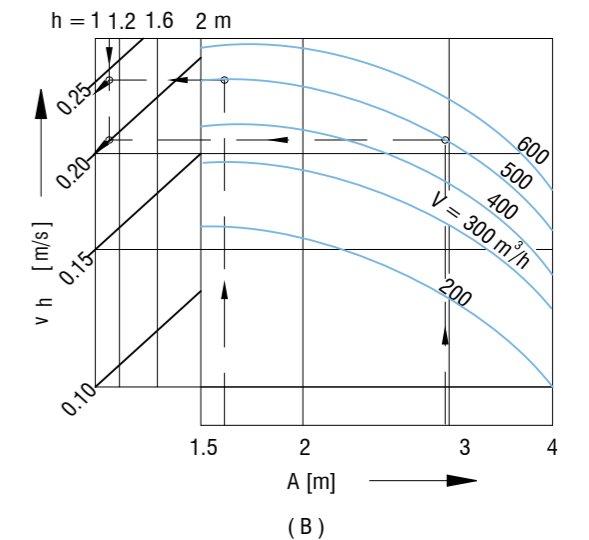
5. Air velocity between two diffusers by single-or multiple-row arrangement, if spacing $B \geq 4$ m.



4. Air velocity at the wall and temperature ratio



6. Air velocity between two diffusers by multiple-row arrangement, if spacing $B = 2,8 \dots 3,5$ m.



Example 3

Given: DVS-O/600-A/H 1 diffuser row

A = 1.5 m
h = 1.16 m
x = 1.8 m
H = 2.96 m
V = 500 m³/h
 $\Delta t_z = -7^\circ\text{C}$

Solution:

Diagram 5

Velocity between two diffusers

$v_h = 0.18 \text{ m/s}$

Diagram 8

between wall and diffuser

$L = x + h = 1.8 + 1.16 = 2.96 \text{ m}$

$v_L = 0.22 \text{ m/s}$

$\Delta t_L / \Delta t_z = 0,061$

$\Delta t_L = -7 \times 0,061 = -0,4^\circ\text{C}$

Diagram 11

$L_{WA} = 38 \text{ dB (A)}$

$\Delta p_L = 23 \text{ Pa}$

Example 4

Given: DVS-O/600-A/H 2 diffuser rows

A = 1.6 m
B = 3 m
h = 1.16 m
x = 1.5 m
V = 500 m³/h
 $\Delta t_z = -7^\circ\text{C}$

Solution:

Diagram 6

Velocity between two diffusers, direction A

$v_h = 0.24 \text{ m/s}$

Velocity between two diffusers, direction B

$v_h = 0.20 \text{ m/s}$

Diagram 8

between wall and diffuser

$L = x + h = 1.5 + 1.16 = 2.66 \text{ m}$

$v_L = 0.22 \text{ m/s}$

$\Delta t_L / \Delta t_z = 0,065$

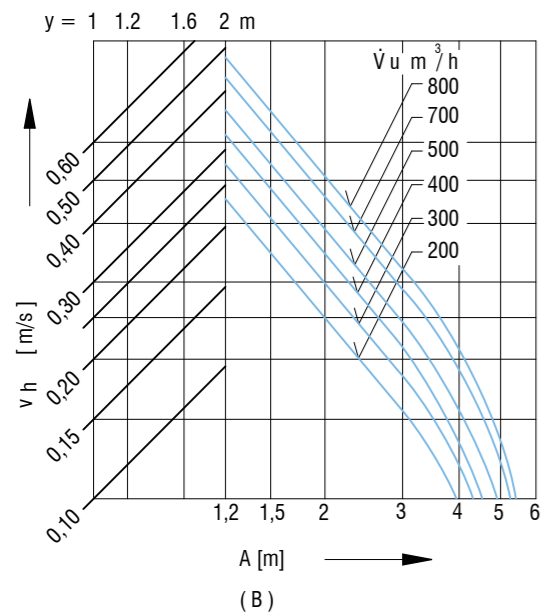
$\Delta t_L = -7 \times 0,065 = -0,46^\circ\text{C}$

Diagram 11

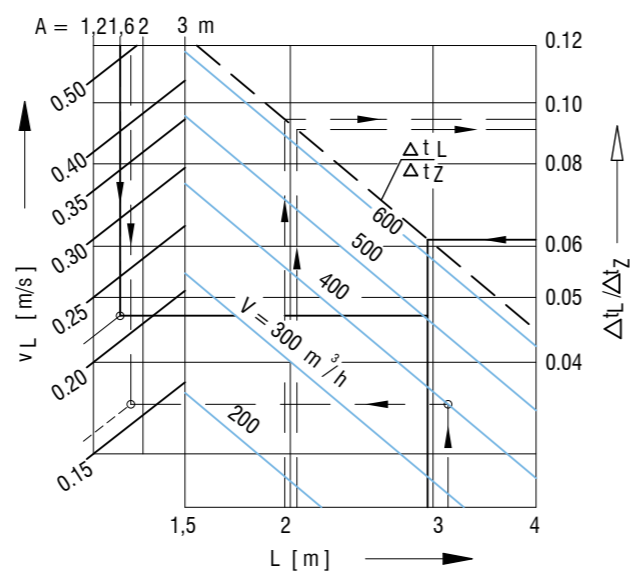
$L_{WA} = 23 \text{ dB (A)}$

$\Delta p_L = 23 \text{ Pa}$

7. Air velocity between two diffusers - square arrangement (A = B).

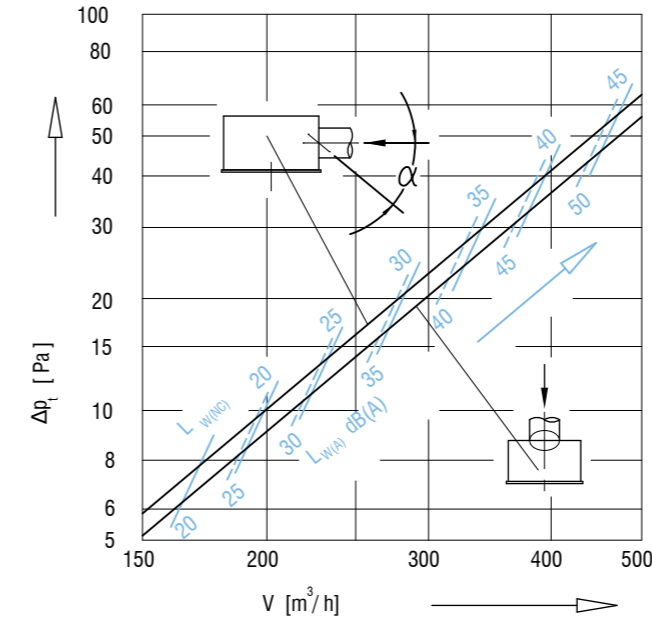


8. Air velocity at the wall and temperature ratio



Sound power level and pressure drop

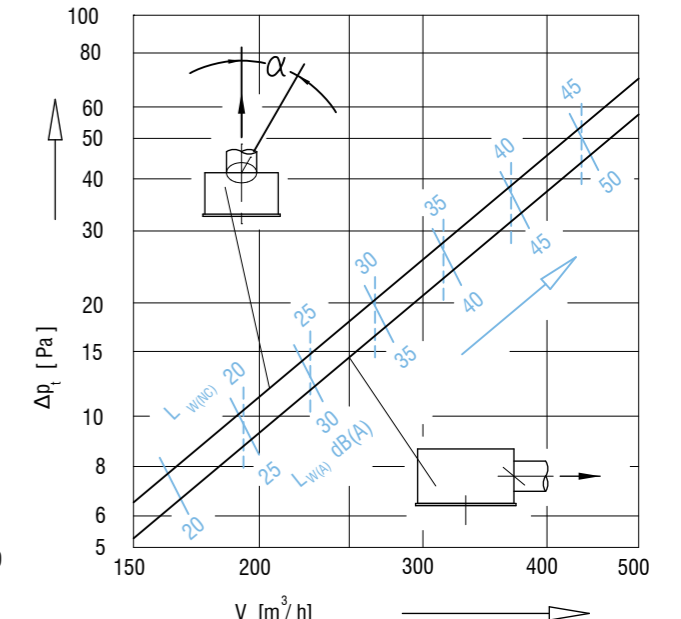
Diagram 9: Type DVS 400 and 500-A



Sound power level corrections and pressure drop from diagram 9

Damper angle α	0°	45°	90°
Δp_L	x 1,0	x 1,2	x 2,1
L_{WA}	-	+1	+3
L_{WNC}	-	+1	+3

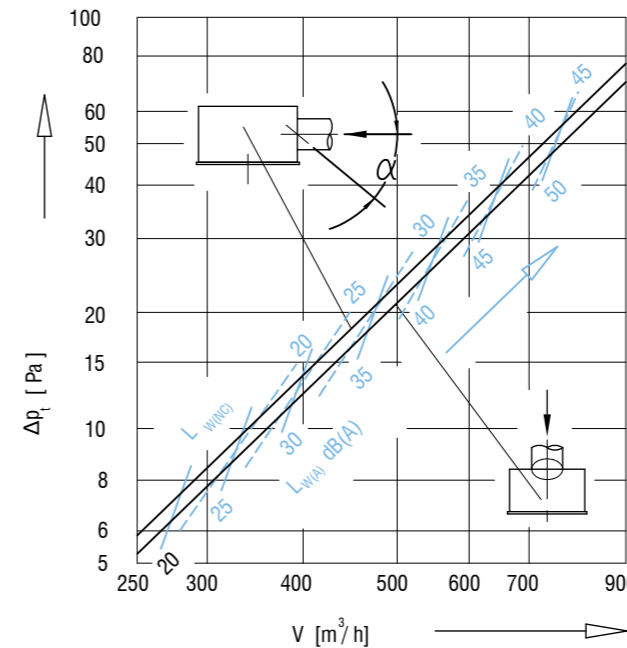
Diagram 10: Type DVS 400 and 500-B



Sound power level corrections and pressure drop from diagram 10

Damper angle α	0°	45°	90°
Δp_L	x 1,0	x 1,1	x 2,1
L_{WA}	-	+1	+2
L_{WNC}	-	+1	+2

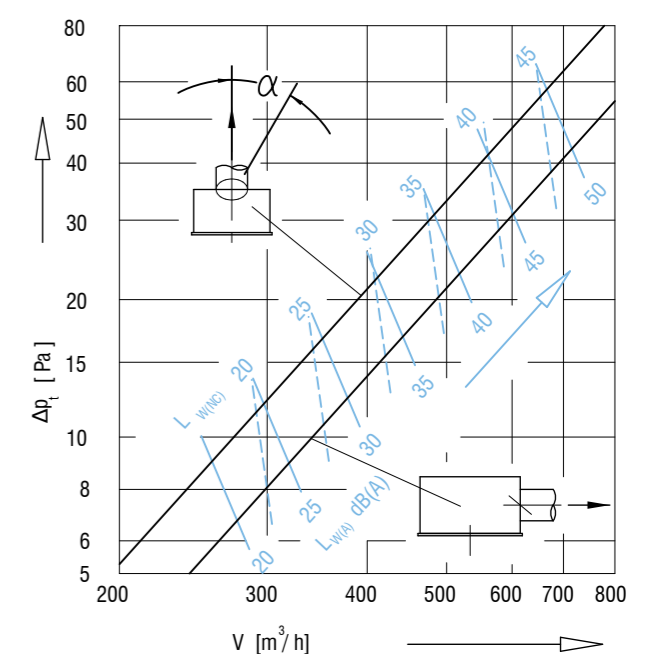
Diagram 11: Type DVS 600 and 625-A



Sound power level corrections and pressure drop from diagram 11

Damper angle α	0°	45°	90°
Δp_L	x 1,0	x 1,2	x 2,5
L_{WA}	-	+1	+2
L_{WNC}	-	+1	+2

Diagram 12: Type DVS 600 and 625-B



Sound power level corrections and pressure drop from diagram 12

Damper angle α	0°	45°	90°
Δp_L	x 1,0	x 1,1	x 2,2
L_{WA}	-	+1	+4
L_{WNC}	-	+1	+4

