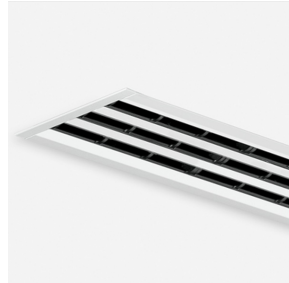
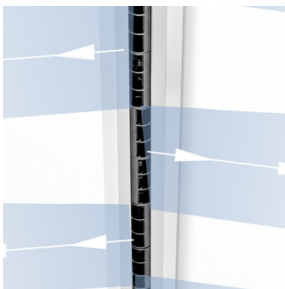


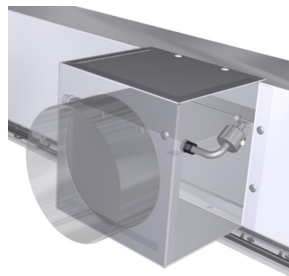
VSD35-1-VA/1200



INSTALLATION IN  
CONTINUOUS CEILINGS



ALTERNATING  
HORIZONTAL AIR  
DISCHARGE



VARYSET FLAP WITH  
BALANCE WEIGHT

## TYPE VSD35 VARYSET

FOR LARGE, VARIABLE VOLUME FLOW RATE RANGES,  
STABLE DISCHARGE PATTERNS EVEN WITH SMALL  
VOLUME FLOW RATES

Slot diffusers with 35 mm nominal width, with adjustable air control elements and self-powered Varyset flap for the adjustment of the active slot diffuser length

- Nominal length from 900 to 1500 mm, 1 or 4 slots
- Volume flow rate range 8 – 90 (l/s)/m or 29 – 324 (m<sup>3</sup>/h)/m
- Diffuser face made of extruded aluminium sections
- For variable volume flows
- Excellent room ventilation even with small volume flow rates due to self-powered Varyset flap
- Suitable for continuous linear arrangement
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- Individually adjustable air control elements to meet individual local requirements

Optional equipment and accessories

- Exposed diffuser face available in RAL CLASSIC colours
- Diffuser face with extended border
- End plates, end angles

## Application



### Application

- Type VSD35 Varyset slot diffusers are used as supply air diffusers in comfort zones
- They blend in inconspicuously with continuous grid ceilings and plasterboard ceilings
- Excellent room ventilation even with minimum volume flow rates ( $V_{min}$ )
- Air discharge is one-way or alternating horizontal, or alternating angled; turbulent flow (mixed flow ventilation)
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- For variable volume flows
- For supply air to room air temperature differences from –10 to +10 K
- For room heights up to 4 m (lower edge of suspended ceiling)
- For suspended ceilings; suitable for restricted ceiling voids due to the low overall height of the plenum box
- Suitable for continuous linear arrangement

### Special characteristics

- Individually adjustable air control elements to meet individual local requirements
- Excellent room ventilation even with minimum volume flow rates ( $V_{min}$ )
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- Diffuser face has been optimised for maximum volume flow rate at low sound power levels
- Suitable for continuous linear arrangement

## Nominal sizes

- L<sub>N</sub>: 900, 1050, 1200, 1350, 1500 mm
- Diffuser face available in intermediate sizes from 901 to 2550 mm, in increments of 1 mm

## Description

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### Variants

- VSD35-VA-\*: 1, 2, 3 or 4 slots
- VSD35-VA-...: Diffuser face without extended border
- VSD35-VA-.../B00: Diffuser face with extended border
- VSD35-VA-...: Black air control elements
- VSD35-VA-.../WW: White air control elements,

### Parts and characteristics

- Diffuser face with individually adjustable air control elements
- Plenum box for horizontal duct connection
- Self-powered Varyset flap with external balance weight
- Protective cap for the balance weight
- Clamp fixing
- Connecting pins and alignment plates to connect and align slot diffusers for a continuous linear arrangement

### Attachments

- C1, C2: Two end plates
- C5, C6: Two end angles

### Accessories

- Lip seal

### Useful additions

- EP: Two end plates
- EW: Two end angles
- To be ordered separately for continuous linear runs
- Corner section, see Type VSD35

### Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180

### Materials and surfaces

- Diffuser face made from extruded aluminium sections
- Air control elements made of plastic, UL 94, V-0, flame retardant
- Plenum box made of galvanised sheet steel
- Varyset flap, end plate and end angle made of aluminium
- Lip seal made of rubber
- Diffuser face with anodised finish, E6-C-0, natural colour
- P1: Powder-coated, RAL CLASSIC colour
- Air control elements similar to RAL 9005, black
- WW: Air control elements similar to RAL 9010, white

### Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

### Maintenance

- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

## TEKNISK INFORMATION

### Functional description

Slot diffusers direct the air from air conditioning systems into the room, either horizontally or at an angle. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. The result is a mixed flow ventilation in comfort zones, with good overall room ventilation, creating only very little turbulence in the occupied zone.

Type VSD35 Varyset slot diffusers have adjustable air control elements. The air pattern can be adjusted to meet different local requirements. Air discharge is one-way or alternating horizontal. Heating mode with angled air discharge is also possible. The supply air to room air temperature difference may range from  $-10$  to  $+10$  K.

### Principle of operation – Varyset

Each diffuser requires for a stable horizontal air pattern in cooling mode a certain minimum volume flow rate; this minimum flow rate depends on the supply air to room air difference. If the actual volume flow rate is lower than the required minimum, the supply air does not adhere to the ceiling long enough, or not at all, but 'falls' immediately vertically into the occupied zone. This may result in draughts.

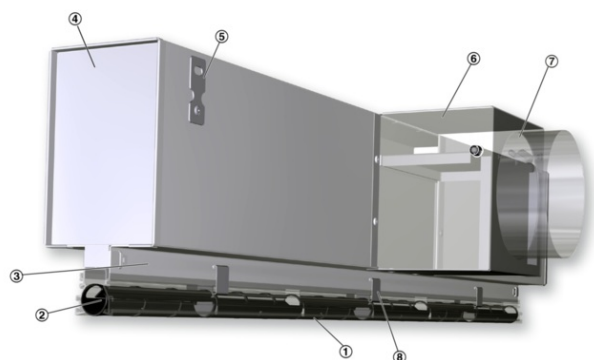
The Varyset diffuser allows for smaller minimum volume flow rates and hence for larger variable volume flow rate ranges.

The discharge velocity is reduced more slowly with decreasing volume flow rates when a Varyset diffuser is used. This ensures the self-powered Varyset flap within the plenum box. At the minimum volume flow rate the Varyset flap remains closed, and the supply air is discharged through only 25 % of the total slot length. As the volume flow rate increases, the Varyset damper opens due to the dynamic pressure. More and more air flows through the remaining slot length.

### Advantages of Varyset

- Stable horizontal air discharge in cooling mode with a large variable volume flow rate range
- Elimination of draughts with the minimum volume flow rate
- Excellent room ventilation even with the minimum volume flow rate
- Smaller vertical temperature differences in the occupied zone, particularly in heating mode with angled air discharge

### Schematic illustration of VSD35 Varyset



- ① Diffuser face
- ② Adjustable air control element
- ③ Neck
- ④ Plenum box
- ⑤ Suspension lug
- ⑥ Varyset casing with damper blade and balance weight
- ⑦ Spigot
- ⑧ Clamp fixing

Nominal length	900, 1050, 1200, 1350, 1500 mm
Number of slots	1, 2, 3, 4
Minimum volume flow rate	8 – 22 (l/s)/m or 29 – 80 (m³/h)/m
Maximum volume flow rate	33 – 90 (l/s)/m or 120 – 324 (m³/h)/m
Supply air to room air temperature difference	-10 to +10 K

**Quick sizing – sound power level and total differential pressure**

Nominal length	V		$\Delta p_t$	L <sub>WA</sub>
	l/s	m³/h		
900	7.5	27	10	<15
	15	54	15	20
900	30	108	33	35
	35	126	41	40
1200	10	36	12	15
	20	72	18	22
1200	40	144	39	39
	45	162	46	43
1500	12.5	45	19	24
	20	72	23	26
1500	40	144	32	36
	50	180	40	42

**Quick sizing – sound power level and total differential pressure**

Nominal length	V		$\Delta p_t$	L <sub>WA</sub>
	l/s	m³/h		
900	10	36	6	16
	20	72	12	22
900	40	144	27	33
	50	180	37	38
1200	15	54	9	16
	30	108	15	23
1200	60	216	32	36
	70	252	41	40
1500	20	72	13	18
	40	144	20	26
1500	60	216	31	35
	80	288	44	42

**Quick sizing – sound power level and total differential pressure**

Nominal length	V		$\Delta p_t$ Pa	L <sub>WA</sub> dB(A)
	l/s	m <sup>3</sup> /h		
900	15	54	10	15
	30	108	13	26
900	60	216	23	37
	70	252	28	40
1200	20	72	12	21
	40	144	16	28
1200	80	288	23	39
	90	324	30	42
1500	25	90	15	23
	50	180	20	32
1500	80	288	25	39
	100	360	32	42

Quick sizing – sound power level and total differential pressure

Nominal length	V		$\Delta p_t$ Pa	L <sub>WA</sub> dB(A)
	l/s	m <sup>3</sup> /h		
900	20	72	11	25
	40	144	17	32
900	60	216	21	36
	80	288	26	40
1200	25	90	10	21
	40	144	14	27
1200	60	216	19	32
	100	360	28	40
1500	30	108	16	25
	50	180	19	31
1500	80	288	23	37
	100	360	27	39

Slot diffusers with individually manually adjustable air control elements and an aesthetically shaped face section with one to four slots, for one-way horizontal, alternating horizontal or alternating angled air discharge. For supply air, for large variable volume flow rate ranges. For installation into suspended ceilings.

Ready-to-install component which consists of the diffuser face with individually adjustable black or white air control elements, and of a plenum box with side entry spigot, self-powered Varyset flap and suspension lugs.

Spigot suitable for circular ducts to EN 1506 or EN 13180.

Sound power level of the air-regenerated noise measured according to EN ISO 5135.

#### Special characteristics

- Individually adjustable air control elements to meet individual local requirements
- Excellent room ventilation even with minimum volume flow rates ( $V_{\min}$ )
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- Diffuser face has been optimised for maximum volume flow rate at low sound power levels
- Suitable for continuous linear arrangement

#### Materials and surfaces

- Diffuser face made from extruded aluminium sections
- Air control elements made of plastic, UL 94, V-0, flame retardant
- Plenum box made of galvanised sheet steel
- Varyset flap, end plate and end angle made of aluminium
- Lip seal made of rubber
- Diffuser face with anodised finish, E6-C-0, natural colour
- P1: Powder-coated, RAL CLASSIC colour
- Air control elements similar to RAL 9005, black
- WW: Air control elements similar to RAL 9010, white

#### Technical data

- Nominal length: 900, 1050, 1200, 1350, 1500 mm
- Number of slots: 1, 2, 3, 4
- Minimum volume flow rate: 8 – 22 (l/s)/m or 29 – 80 (m<sup>3</sup>/h)/m
- Maximum volume flow rate with  $L_{WA} \cong 50$  dB(A): 33 – 90 (l/s)/m or 120 – 324 (m<sup>3</sup>/h)/m
- Supply air to room air temperature difference: –10 to +10 K

**VSD35-VA-1 / 1050 / C2 / B00 / P1-RAL ... / HL / WW**

1 2 3 4 5 6 7 8

**1** Type

VSD35-VA Slot diffuser with Varyset

**2** Number of slots

1  
2  
3  
4

**3** Nominal size [mm]

Nominal length L<sub>N</sub>  
900  
1050  
1200  
1350  
1500

**4** End pieces

No entry: without  
Both ends with end angles factory fitted  
C1 to profile 000  
C2 to profile B00  
Both ends with end plates factory fitted  
C5 to profile 000  
C6 to profile B00  
To be ordered separately for slot diffusers for linear arrangement

**5** Extended border

No entry: none  
B00 With extended border

**6** Exposed surface

No entry: anodised, E6-C-0, natural colour  
P1 Powder-coated, specify RAL CLASSIC colour  
  
Gloss level  
RAL 9010 50 %  
RAL 9006 30 %  
All other RAL colours 70 %

**7** Air pattern

No entry: alternating horizontal (WH)  
WS Alternating angled  
HL Horizontal left (opposite direction from spigot)  
HR Horizontal right (same direction as spigot)

**8** Colour of air control elements

No entry: similar to RAL 9005, black  
WW Similar to RAL 9010, white