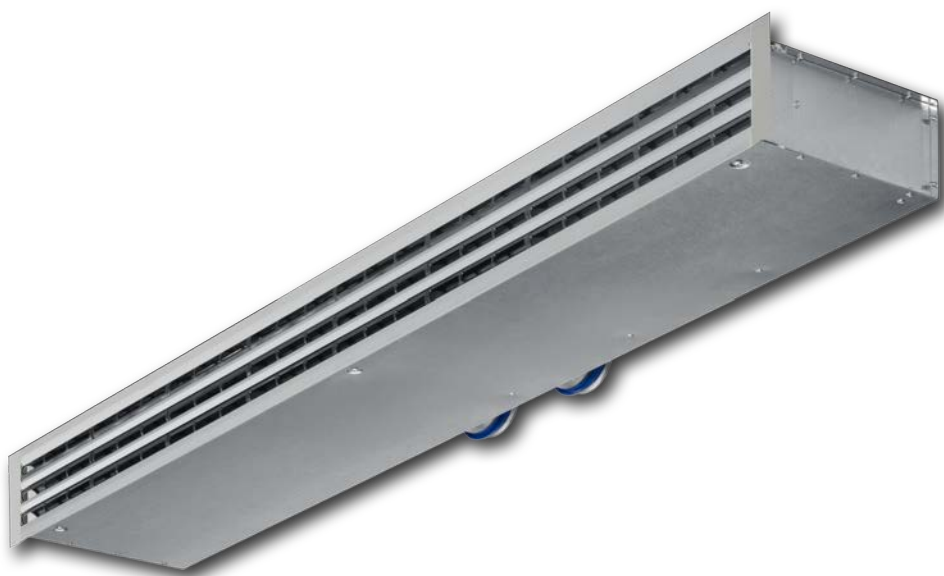


# Slot diffusers for wall installation

## Type VSD35-3-AZ



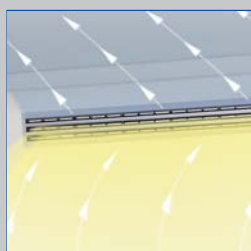
### Ventilation and extract ventilation combined in one casing

Slot diffusers with 35 mm nominal width, used as supply and extract air combination

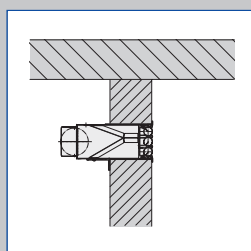
- Nominal length from 600 to 1200 mm, 3 slots
- Volume flow rate range 8 – 40 l/s or 30 – 144 m<sup>3</sup>/h
- Diffuser face made of extruded aluminium sections
- For variable and constant volume flows
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- Individually adjustable air control elements to meet individual local requirements

Optional equipment and accessories

- Exposed diffuser face available in RAL CLASSIC colours
- Damper blade for volume flow rate balancing, can be adjusted through the diffuser face
- Acoustic lining that ensures very good transmission loss
- Screw fixing
- End angles, fixing brackets



Angled one-way air discharge and extract air



Wall installation

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## Application

### Application

- Type VSD35-3-AZ slot diffusers are used as supply and extract air combinations in comfort zones
- Angled one-way air discharge for turbulent flow (mixed flow ventilation)
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- For variable and constant 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 horizontal installation into walls and

bulkheads

### Special characteristics

- Individually adjustable air control elements to meet individual local requirements
- 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>: 600, 750, 900, 1050, 1200 mm

## Description

### Variants

- VSD35-3-AZ-...: supply and extract air combination without acoustic lining (cross talk reduction)
- VSD35-3-AZ-...-ZT: supply and extract air combination with acoustic lining (cross talk reduction)
- VSD35-3-AZ-...: Black air control elements
- VSD35-3-AZ-.../WW: White air control elements

Plenum box and diffuser face fixing

- AK: Plenum box with rigid fixing
- AS: Plenum box with screw fixing

### Parts and characteristics

- Diffuser face with individually adjustable air control elements
- Plenum box for horizontal duct connection

- Screw fixing (facilitates installing the diffuser face) or screw fixing

### Attachments

- Damper blade for volume flow rate balancing
- End angles

### Accessories

- Lip seal
- Fixing brackets

### Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with groove for lip seal (if accessory lip seal has been ordered)

### Materials and surfaces

- Diffuser face made from extruded aluminium

- sections
- Air control elements made of plastic, UL 94, V-0, flame retardant
  - Plenum box and fixing brackets made of galvanised sheet steel
  - End angle made of aluminium
  - Lip seal made of rubber
  - Acoustic lining of the cross-talk attenuator is mineral wool
  - 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

Mineral wool

- To EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388

- Biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Faced with glass fibre fabric as a protection against erosion through airflow velocities of up to 20 m/s
- Inert to fungal and bacterial growth

**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

### Functional description

Slot diffusers direct the air from air conditioning systems at an angle into the room. 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 VSD35-3-AZ slot diffusers have adjustable air control elements. The supply air to room air temperature difference may range from  $-10$  to  $+10$  K.

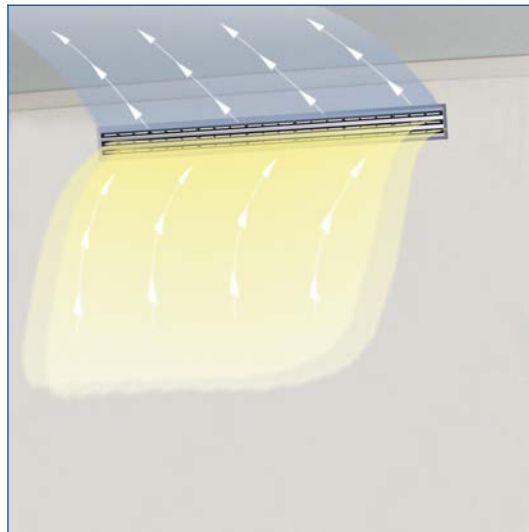
A damper blade (optional) simplifies volume flow rate balancing for commissioning.

Type VSD35-3-AZ diffusers are space saving supply and extract air combinations.

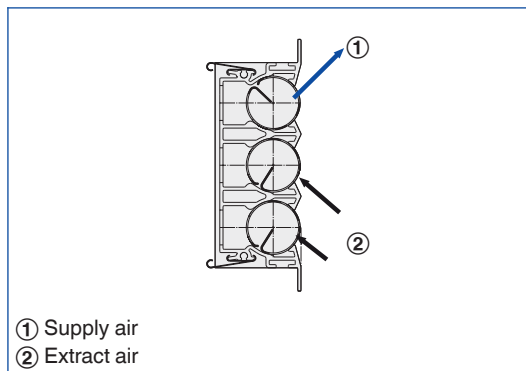
### Schematic illustration of VSD35-3-AZ with acoustic lining



Angled one-way air discharge and extract air



VSD35-3-AZ air patterns



Nominal length	600, 750, 900, 1050, 1200 mm
Number of slots	3
Minimum volume flow rate, with $\Delta t_z = -6 \text{ K}$	8 – 15 l/s or 30 – 54 m <sup>3</sup> /h
Maximum volume flow rate, with $L_{WA} \cong 50 \text{ dB(A)}$	25 – 40 l/s or 90 – 144 m <sup>3</sup> /h
Supply air to room air temperature difference	-10 to +10 K

Transmission loss – supply air

Nominal length	Centre frequency $f_m$ [Hz]				
	125	250	500	1000	2000
	$D_t$				
dB					
600, 750, 900, 1050, 1200	14	7	7	4	4

Transmission loss – extract air

Nominal length	Centre frequency $f_m$ [Hz]				
	125	250	500	1000	2000
	$D_t$				
dB					
600, 750, 900, 1050, 1200	14	7	7	4	4

Transmission loss – supply air

Nominal length	Centre frequency $f_m$ [Hz]				
	125	250	500	1000	2000
	$D_t$				
dB					
600, 750	16	13	14	16	25
900, 1050, 1200	18	12	14	21	26

Transmission loss – extract air

Nominal length	Centre frequency $f_m$ [Hz]				
	125	250	500	1000	2000
	$D_t$				
dB					
600, 750	15	11	11	15	22
900, 1050, 1200	17	11	13	19	25

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures.  
The maximum volume flow rates apply to a sound power level of approx. 50 dB (A) with damper blade position 0°.

**VSD35-3-AZ, sound power level and total differential pressure**

Nominal length	$\dot{V}$ l/s	$\dot{V}$ m <sup>3</sup> /h	Damper blade position								
			0°			45°			90°		
			$\Delta p_{t \text{ supply air}}$	$\Delta p_{t \text{ extract air}}$	$L_{WA}$	$\Delta p_{t \text{ supply air}}$	$\Delta p_{t \text{ extract air}}$	$L_{WA}$	$\Delta p_{t \text{ supply air}}$	$\Delta p_{t \text{ extract air}}$	$L_{WA}$
			Pa		dB(A)	Pa		dB(A)	Pa		dB(A)
600	8	30	6	3	15	9	5	17	26	13	24
600	15	54	19	9	31	31	16	34	85	43	40
600	25	90	54	26	45	86	45	47	237	120	54
600	30	108	77	37	50	124	65	52	341	173	59
750	10	37	7	4	21	12	8	23	28	19	31
750	20	72	28	15	38	44	31	40	107	74	47
750	25	90	44	24	44	68	48	46	167	116	53
750	30	108	64	35	48	98	70	51	241	167	57
900	12	44	9	6	23	14	10	26	37	28	29
900	20	72	24	15	36	37	27	39	97	74	44
900	30	108	55	33	46	82	60	50	217	167	55
900	35	126	74	45	51	112	82	54	296	228	60
1050	15	54	12	8	28	17	15	30	58	39	38
1050	25	90	34	22	40	48	41	44	161	110	51
1050	35	126	66	43	49	95	80	53	316	215	60
1050	40	144	86	56	52	124	104	56	413	281	63
1200	15	54	11	8	26	20	13	29	55	41	38
1200	30	108	44	30	44	79	52	47	218	165	56
1200	35	126	60	41	48	107	71	52	297	225	60
1200	40	144	79	54	51	140	92	55	388	293	63

VSD35-3-AZ-ZT, sound power level and total differential pressure

Nominal length	$\dot{V}$	$\dot{V}$	Damper blade position								
			0°			45°			90°		
	$\Delta p_{t \text{ supply air}}$	$\Delta p_{t \text{ extract air}}$	$L_{WA}$	$\Delta p_{t \text{ supply air}}$	$\Delta p_{t \text{ extract air}}$	$L_{WA}$	$\Delta p_{t \text{ supply air}}$	$\Delta p_{t \text{ extract air}}$	$L_{WA}$		
	l/s	m <sup>3</sup> /h	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)			
600	8	30	13	9	18	13	10	18	22	17	20
600	15	54	42	30	35	43	35	36	73	58	36
600	20	72	74	53	44	76	62	44	130	104	44
600	25	90	116	83	50	119	96	51	203	162	50
750	10	36	19	15	24	12	16	25	32	31	26
750	15	54	43	33	36	44	36	37	73	69	37
750	20	72	76	58	44	68	65	46	129	122	44
750	25	90	118	91	51	98	101	52	202	191	50
900	12	44	19	14	24	14	17	24	45	36	26
900	20	72	51	37	38	37	44	37	118	95	39
900	25	90	79	58	44	82	69	43	184	149	45
900	30	108	114	83	49	112	100	48	265	215	50
1050	15	54	27	21	30	17	31	31	65	56	32
1050	25	90	76	59	44	48	86	45	182	155	45
1050	30	108	110	84	49	95	124	50	261	223	50
1050	35	126	149	115	53	124	169	54	356	304	54
1200	15	54	28	21	30	20	26	29	65	54	31
1200	20	72	49	38	38	79	45	37	116	95	39
1200	30	108	111	85	49	107	102	48	261	215	49
1200	35	126	151	115	53	140	139	52	355	292	53



This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Slot diffusers with individually manually adjustable air control elements and an aesthetically shaped face section with three slots, for angled one-way air discharge. Supply and extract air combination. For wall and bulkhead installation.

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 a side entry spigot and a side extract air spigot.

Screw fixing or rigid fixing to the plenum box  
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.

Transmission loss measured according to EN ISO 7235.

#### Special characteristics

- Individually adjustable air control elements to meet individual local requirements
- 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 and fixing brackets made of galvanised sheet steel
- End angle made of aluminium
- Lip seal made of rubber
- Acoustic lining of the cross-talk attenuator is mineral wool

- 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

#### Mineral wool

- To EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Faced with glass fibre fabric as a protection against erosion through airflow velocities of up to 20 m/s
- Inert to fungal and bacterial growth

#### Technical data

- Nominal length: 600, 750, 900, 1050, 1200 mm
- Number of slots: 3
- Minimum volume flow rate: 8 – 15 l/s or 30 – 54 m<sup>3</sup>/h
- Maximum volume flow rate, with  $L_{WA} \cong 50$  dB(A): 25 – 40 l/s or 90 – 144 m<sup>3</sup>/h
- Supply air to room air temperature difference: –10 to +10 K

#### Sizing data

- $\dot{V}$  \_\_\_\_\_  
[m<sup>3</sup>/h]
- $\Delta p_t$  \_\_\_\_\_  
[Pa]

#### Air-regenerated noise

- $L_{WA}$  \_\_\_\_\_  
[dB(A)]

VSD35-3-AZ

VSD35 - 3 - AZ - AS - ZT - M - L / 900 / C2 / W00 / P1 - RAL ... / WW									
1	2	3	4	5	6	7	8	9	10

1 Type

**VSD35-3-AZ** Slot diffuser as supply and extract air combination

2 Connection

Plenum box  
**AK** With rigid fixing  
**AS** With screw fixing

3 Acoustic lining for cross talk reduction (accessory)

No entry: none  
**ZT** With

4 Damper blade for volume flow rate balancing

No entry: none  
**M** With

5 Accessories

No entry: none  
**L** With lip seal

6 Nominal size [mm]

**600**  
**750**  
**900**  
**1050**  
**1200**

**Order example: VSD35-3-AZ-AS-ZT-M-L/900/C2/W00/P1-RAL 9010/WW**

Connection	With screw fixing
Acoustic lining (accessory)	With
Damper blade for volume flow rate balancing	With
Accessories	Lip seal
Nominal size	900 mm
End pieces	End angles
Fixing	Fixing brackets
Exposed surface	RAL 9010, pure white, gloss level 50 %
Colour of air control elements	White

7 End pieces

No entry: none  
**C2** Both ends with factory fitted end angles

8 Fixing (accessory)

No entry: none  
**W00** Fixing brackets for fixing the diffuser to the wall (supplied separately)

9 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 %

10 Colour of air control elements

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

VSD35-3-AZ



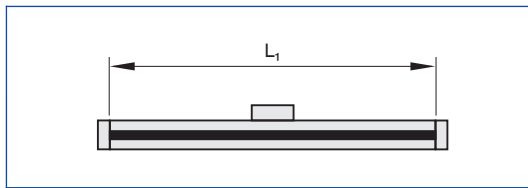
Black air control elements

VSD35-3-AZ/.../WW

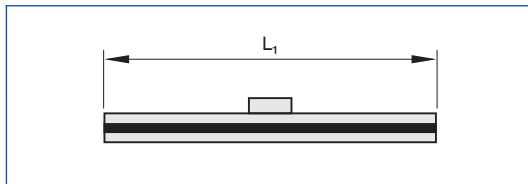


White air control elements

End pieces on both ends



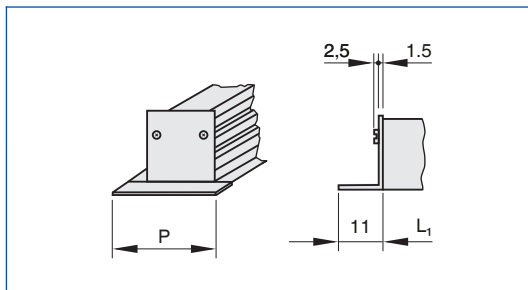
Without end piece



VSD35-3-AZ

Nominal length	$L_1$ mm
600	600
750	750
900	900
1050	1050
1200	1200

End angle C2

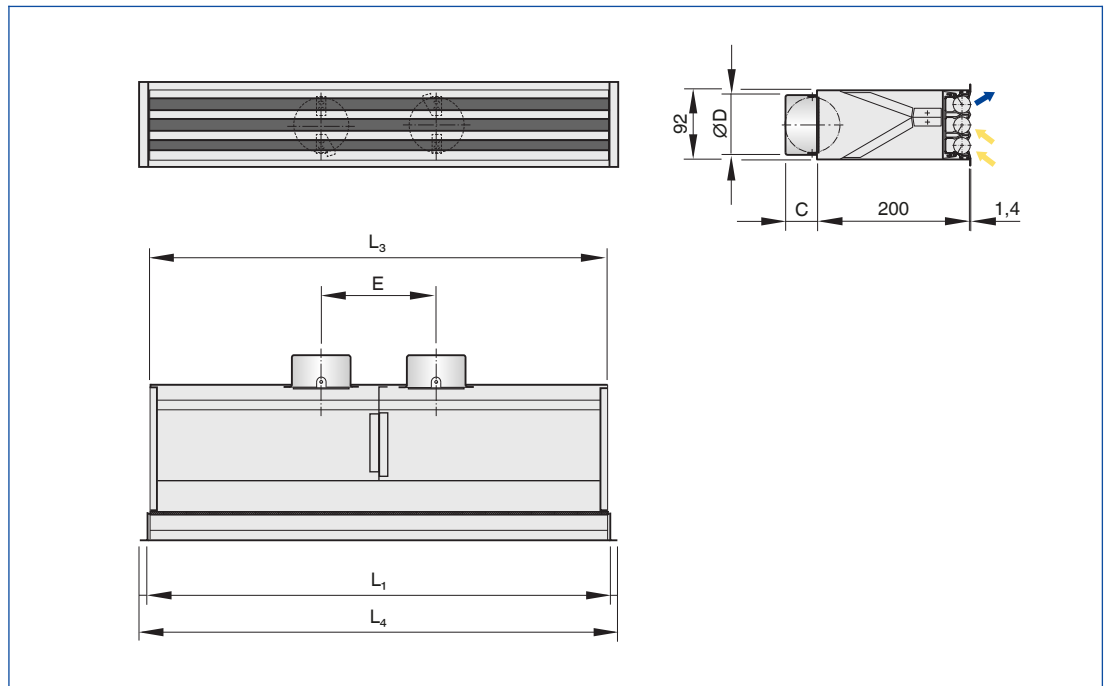


Profile with extended border

VSD35-3-AZ

Variant	P mm
VSD35-3-AZ	109

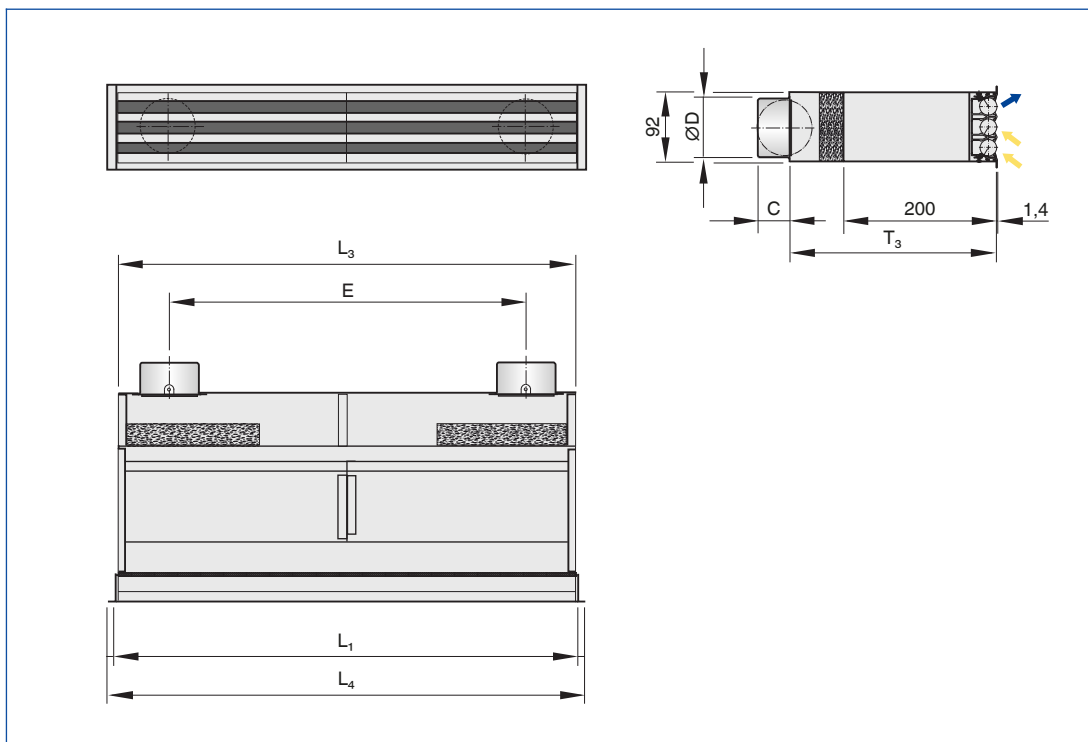
VSD35-3-AZ



VSD35-3-AZ

Nominal length	L <sub>1</sub> mm	L <sub>3</sub> mm	L <sub>4</sub> mm	ØD mm	C mm	E mm	m kg
600	600	595	622	78	40	150	3.9
750	750	745	772	78	40	150	4.8
900	900	895	922	78	40	150	5.6
1050	1050	1045	1072	78	40	150	6.5
1200	1200	1195	1222	78	40	150	7.4

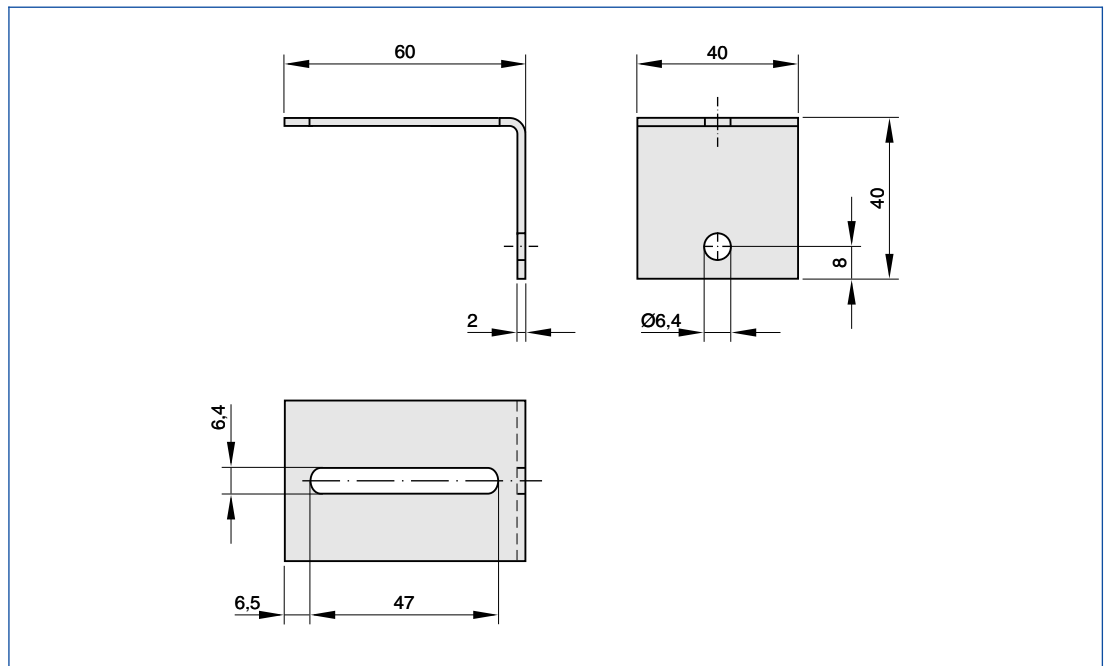
VSD35-3-AZ-...-ZT



VSD35-3-AZ-ZT

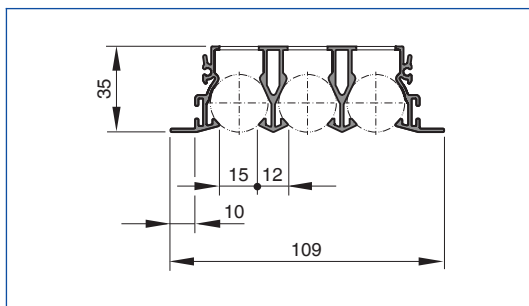
Nominal length	L <sub>1</sub> mm	L <sub>3</sub> mm	L <sub>4</sub> mm	T <sub>3</sub> mm	ØD mm	C mm	E mm	m kg
600	600	595	622	270	78	40	464	4.9
750	750	745	772	270	78	40	464	5.8
900	900	895	922	290	78	40	664	7.2
1050	1050	1045	1072	290	78	40	664	8.1
1200	1200	1195	1222	290	78	40	664	8.9

Fixing brackets (supplied separately)



Profiles

VSD35-3-AZ



VSD35-3-AZ

Nominal length	$A_{\text{eff}}$ $\text{m}^2$
600	0.0039
750	0.0049
900	0.0058
1050	0.0068
1200	0.0078

$A_{\text{eff}}$ : One-way angled air discharge (supply air)

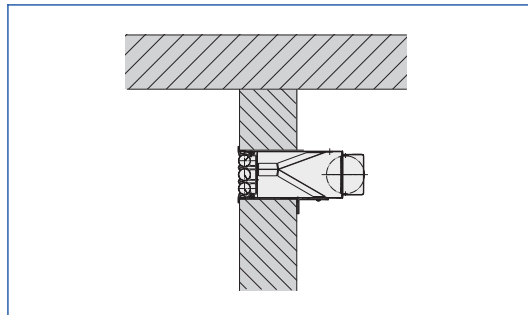


**Installation and commissioning**

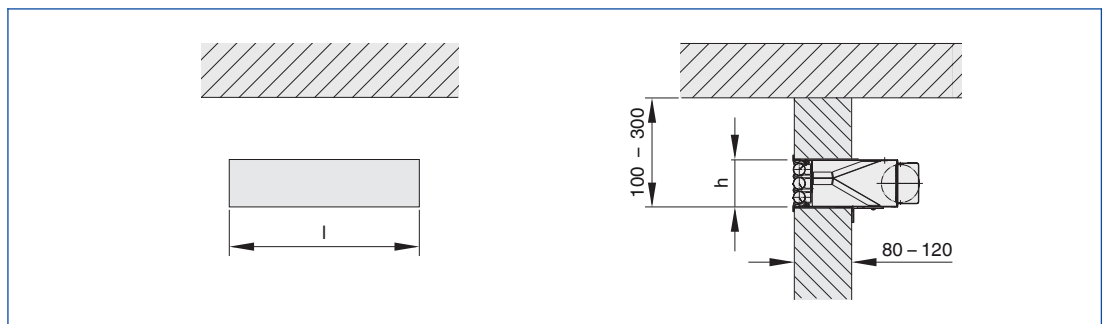
- Preferably for rooms with a clear height up to 4.0 m
- For wall and bulkhead installation
- Horizontal duct connection
- If necessary, carry out volume flow rate balancing with the damper blade

These are only schematic diagrams to illustrate installation details.

**Slot diffuser installation with a fixing brackets**



**Installation opening**



**Installation opening**

Nominal length	l		h	
	mm		mm	
600		612		98
750		762		98
900		912		98
1050		1062		98
1200		1212		98

### Principal dimensions

#### $\varnothing D$ [mm]

Outer diameter of the spigot

#### $\varnothing D_1$ [mm]

Outer diameter of a circular diffuser face

#### $\varnothing D_2$ [mm]

Diameter of a circular diffuser face style

#### $\varnothing D_3$ [mm]

Diameter of a circular plenum box

#### $\square Q_1$ [mm]

Outer diameter of a square diffuser face

#### $\square Q_2$ [mm]

Dimensions of a square diffuser face style

#### $\square Q_3$ [mm]

Dimensions of a square plenum box

#### $H_1$ [mm]

Distance (height) from the lower edge of the

suspended ceiling to the lower edge of the diffuser face

#### $H_2$ [mm]

Height of a ceiling diffuser, from the lower edge of the suspended ceiling to the upper edge of the spigot

#### $H_3$ [mm]

Height of a ceiling diffuser with plenum box, from the lower edge of the suspended ceiling to the upper edge of the plenum box or of the spigot

#### $A$ [mm]

Position of the spigot, defined by the distance of the spigot centre line to the lower edge of the suspended ceiling

#### $C$ [mm]

Length of the spigot

#### $m$ [kg]

Weight

### Nomenclature

#### $L_{WA}$ [dB(A)]

A-weighted sound power level of air-regenerated noise

#### $\dot{V}$ [ $m^3/h$ ] and [l/s]

Volume flow rate

#### $\Delta t_z$ [K]

Supply air to room air temperature difference, i.e.

supply air temperature minus room temperature

#### $\Delta p_t$ [Pa]

Total differential pressure

#### $A_{eff}$ [ $m^2$ ]

Effective air discharge area

All sound power levels are based on 1 pW.