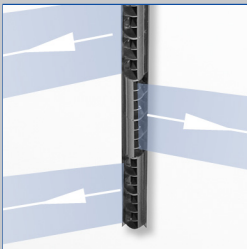
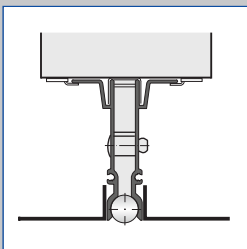


Slot diffusers for ceiling installation

Type VSD15



Alternating horizontal air discharge



Installation in panelled ceilings



Installation in continuous ceilings

With slim diffuser face

Slot diffusers with 15 mm diffuser face (nominal width) and adjustable air control elements

- Nominal lengths from 600 to 1500 mm, 1 slot
- Volume flow rate range from 7 to 30 (l/s)/m or 25 to 108 (m³/h)/m
- Diffuser face made of extruded aluminium sections
- For variable and constant volume flows
- 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
- Damper blade for volume flow rate balancing, can be adjusted through the diffuser face
- Plenum box with lining
- End angle, end seal
- White air control elements

Type		Page
VSD15	General information	VSD15 – 2
	Function	VSD15 – 4
	Technical data	VSD15 – 7
	Quick sizing	VSD15 – 8
	Specification text	VSD15 – 9
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	Dimensions and weight	VSD15 – 15
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	Installation details	VSD15 – 19
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Application

Application

- Type VSD15 slot diffusers are used as supply air or extract air devices in comfort zones
- 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 (supply air variant)
- 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 suspended ceilings; suitable for restricted ceiling voids due to the low overall height of the plenum box
- Ideal for suspended panelled ceilings with

- standard 16 mm gaps
- Suitable for continuous linear arrangement

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
- Ideal for suspended panelled ceilings with standard 16 mm gaps
- Suitable for continuous linear arrangement

Nominal sizes

- L_N: 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500 mm
- Diffuser face available in intermediate sizes from 300 to 2000 mm, in increments of 1 mm

Description

Variants

- VSD15-F: Diffuser face only
- VSD15-...: Diffuser face without extended border
- VSD15-...-Z0: Diffuser face with extended border
- VSD15-...: Black air control elements
- VSD15-.../WW: White air control elements

Connection

- A: Plenum box
- D: Plenum box with lining

Parts and characteristics

- Diffuser face with individually adjustable air control elements
- Plenum box for horizontal duct connection
- Connecting pins and alignment plates to connect and align slot diffusers for a continuous linear arrangement

Attachments

- M: Damper blade for volume flow rate balancing
- A9: End seal (only for diffuser face without extended border)
- CA: End angle (only for diffuser face with extended border Z0)

Accessories

- Lip seal

Useful additions

- ED: Two end seals (only for diffuser face without extended border)
- EW: Two end angles (only for diffuser face with extended border Z0)
- To be ordered separately for continuous linear runs

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 made of galvanised sheet steel
- Lip seal made of rubber
- Lining is mineral wool

- Diffuser face without extended border is powder-coated RAL 9005, jet black
- Diffuser face with extended border is anodised, 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

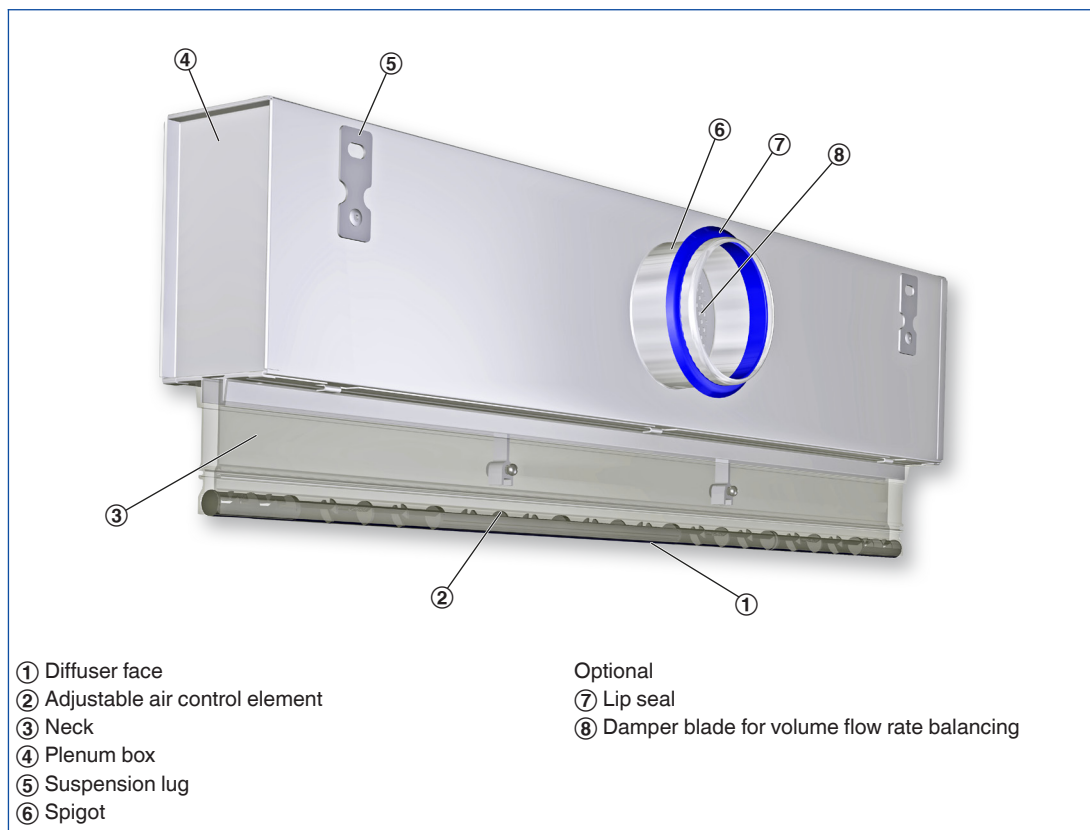
Slot diffusers direct the air from air conditioning systems into the room, either horizontally or at an angle. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. The result is a mixed flow ventilation in comfort zones, with good overall room ventilation, creating only very little turbulence in the occupied zone. Type VSD15 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.

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

To give rooms an aesthetic, uniform look, Type VSD15 diffusers may also be used for extract air.

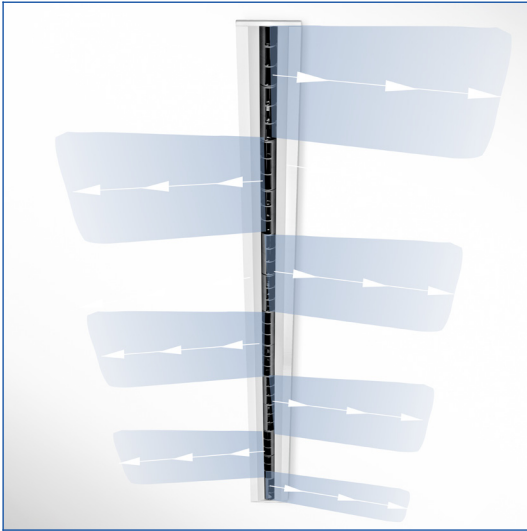
Schematic illustration



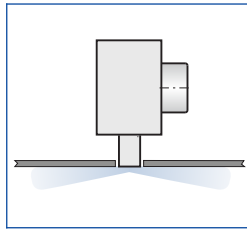
Air patterns

These are only schematic diagrams to illustrate the setting of the air control blades.

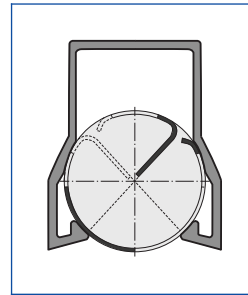
Alternating horizontal air discharge



Alternating horizontal (WH)

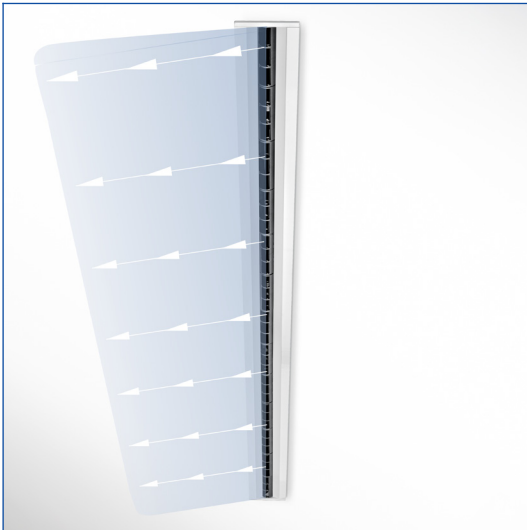


Setting of the air control elements

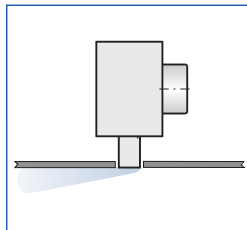


Alternating air control elements (200 mm) as shown

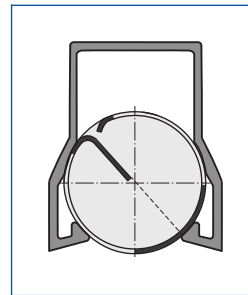
One-way horizontal air discharge to the left



One-way horizontal left (HL)

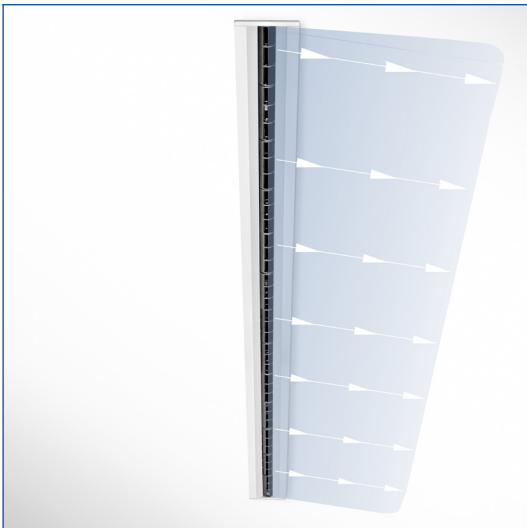


Setting of the air control elements

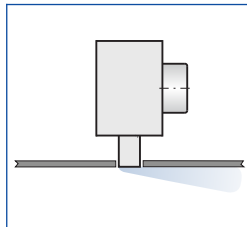


All air control elements as shown

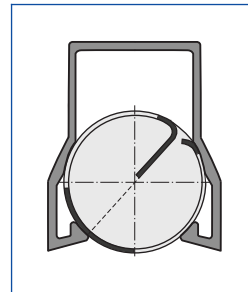
One-way horizontal air discharge to the right



One-way horizontal right (HR)

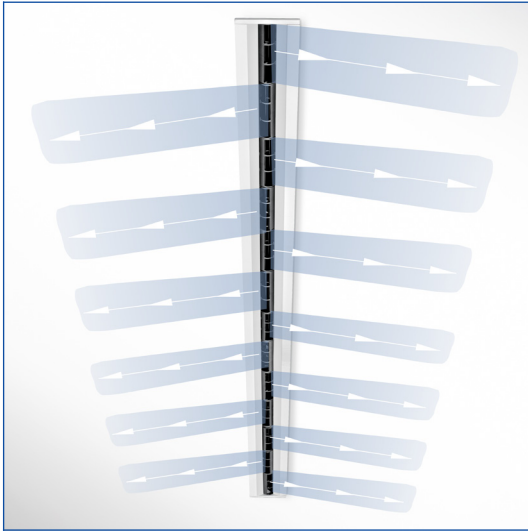


Setting of the air control elements

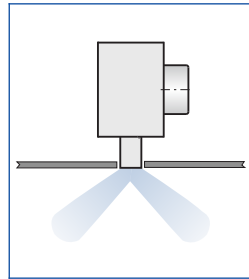


All air control elements as shown

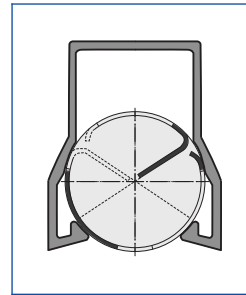
Alternating angled air discharge



Schräge,
wechselseitige
Strömung (WS)



Setting of the air
control elements



Alternating air control
elements (100 mm) as
shown

Nominal length	600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500 mm
Number of slots	1
Minimum volume flow rate	7 (l/s)/m or 25 (m ³ /h)/m
Maximum volume flow rate, with $L_{WA} \cong 50$ dB(A)	30 (l/s)/m or 108 (m ³ /h)/m
Supply air to room air temperature difference	-10 to +10 K

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°.

Exact values for all parameters can be determined with our Easy Product Finder design programme.

VSD15, supply air, alternating horizontal air discharge, sound power level and total differential pressure

Nominal length	\dot{V} l/s	\dot{V} m ³ /h	Damper blade position					
			0°		45°		90°	
			Δp_t	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}
			Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
600	5	18	5	15	6	<15	10	<15
	10	36	20	34	24	32	39	32
	15	54	45	45	55	43	88	43
	20	72	80	53	98	50	157	50
700	5	18	4	<15	5	<15	9	<15
	10	36	16	30	20	28	35	29
	15	54	35	41	45	39	78	39
	20	72	62	49	80	47	139	47
800	6	22	5	<15	6	<15	11	<15
	15	54	29	38	39	36	72	37
	20	72	51	46	69	44	128	45
	25	90	80	52	108	50	200	50
900	7	25	5	15	7	<15	15	<15
	15	54	24	35	34	34	68	35
	20	72	43	43	61	42	120	42
	25	90	67	49	95	48	188	48
1000	7	25	5	<15	7	<15	14	<15
	10	36	9	22	14	21	29	22
	20	72	37	41	55	39	115	40
	30	108	84	51	125	50	258	51
1100	8	29	5	<15	8	<15	18	<15
	10	36	8	20	13	19	28	20
	20	72	33	39	51	37	110	38
	30	108	75	49	115	48	248	49
1200	9	32	6	15	10	<15	22	15
	15	54	17	29	27	28	60	29
	25	90	47	43	75	42	167	43
	35	126	92	52	147	51	328	52
1300	9	32	6	<15	9	<15	21	<15
	15	54	16	27	26	26	59	28
	25	90	43	41	71	40	164	41
	35	126	85	50	140	49	321	50
1400	10	36	6	15	11	<15	26	15
	20	72	26	33	44	33	103	34
	30	108	58	44	98	43	231	45
	40	144	103	52	175	51	411	52
1500	10	36	6	<15	10	<15	25	<15
	20	72	24	32	42	31	101	33
	30	108	54	43	95	42	228	43
	40	144	97	50	168	50	405	51

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 one slot, for one-way horizontal, alternating horizontal or alternating angled air discharge. For supply air or extract air. For installation into suspended ceilings, particularly into panelled ceilings with standard 16 mm gaps. 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 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
- High induction results in a rapid reduction of the temperature difference and airflow velocity
- Ideal for suspended panelled ceilings with standard 16 mm gaps
- 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
- Lip seal made of rubber
- Lining is mineral wool
- Diffuser face without extended border is powder-coated RAL 9005, jet black
- Diffuser face with extended border is anodised, 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 – 1500 mm
- Number of slots: 1
- Minimum volume flow rate: 7 (l/s)/m or 25 (m³/h)/m
- Maximum volume flow rate, with $L_{WA} \approx 50$ dB(A): 30 (l/s)/m or 108 (m³/h)/m
- Supply air to room air temperature difference: -10 to +10 K

Sizing data

- \dot{V} _____
[m³/h]
- Δp_i _____
[Pa]
- Air-regenerated noise
- L_{WA} _____
[dB(A)]

VSD15

VSD15 – A – M – Z0 – L / 900 / CA / P1 – RAL ... / WS / WW									
1	2	3	4	5	6	7	8	9	10

1 Type

VSD15 Slot diffuser

2 Connection

- F** Diffuser face only
- A** Plenum box
- D** Plenum box with lining

Diffusers with a shorter plenum box as well as non-active diffusers require a rear blanking plate
Length of blanking plate = $L_1 - L_3$

3 Damper blade for volume flow rate balancing

No entry: none

- M** With

4 Extended border

No entry: none

- Z0** With extended border

5 Accessories

No entry: none

- L** With lip seal

6 Nominal size [mm]

Nominal length L_N

- 600
- 700
- 800
- 900
- 1000
- 1100
- 1200
- 1300
- 1400
- 1500

Order example: VSD15-A-M/900/A9/P1-RAL9010/WS/WW

Connection	Plenum box
Damper blade for volume flow rate balancing	With
Extended border	Without
Accessories	Without
Nominal size	900 mm
End pieces	End seals on both ends
Exposed surface	RAL 9010, pure white, gloss level 50 %
Air pattern	Alternating angled
Colour of air control elements	White

7 End pieces

No entry: none

- A9** End seals on both ends (VSD15)
- CA** End angles on both ends (VSD15-Z0)
To be ordered separately for slot diffusers for linear arrangement

8 Exposed surface

No entry: VSD15 powder-coated RAL 9005, black

VSD15-Z0 with anodised finish 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 %

9 Air pattern

No entry: alternating horizontal (WH)

- WS** Alternating angled

- HL** Horizontal left (opposite direction from spigot)

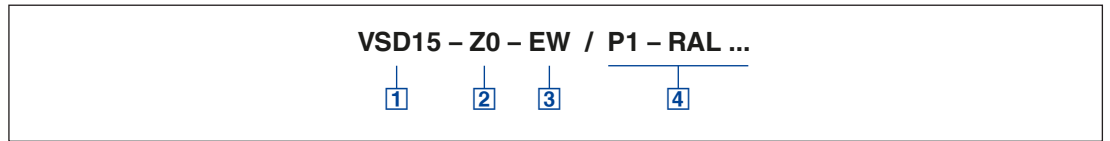
- HR** Horizontal right (same direction as spigot)

10 Colour of air control elements

No entry: similar to RAL 9005, black

- WW** Similar to RAL 9010, white

VSD15



1 Type

VSD15 Slot diffuser

2 Extended border

No entry: none

Z0 With extended border

3 End pieces

ED Two end seals (only VSD15)

EW Two end angles (only VSD15-Z0)

4 Surface

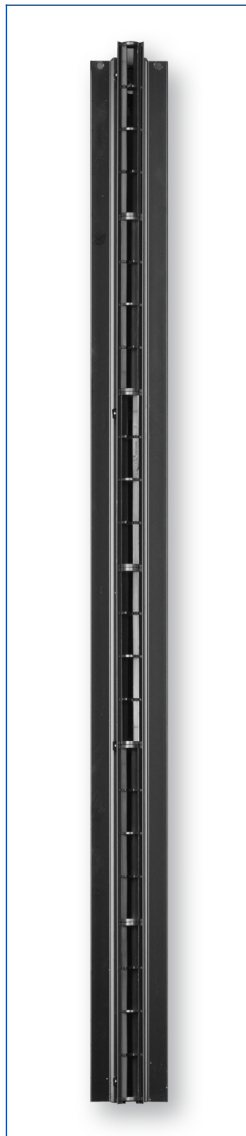
No entry: VSD15 powder-coated

RAL 9005, black

VSD15-Z0 with anodised finish E6-C-0,
natural colour

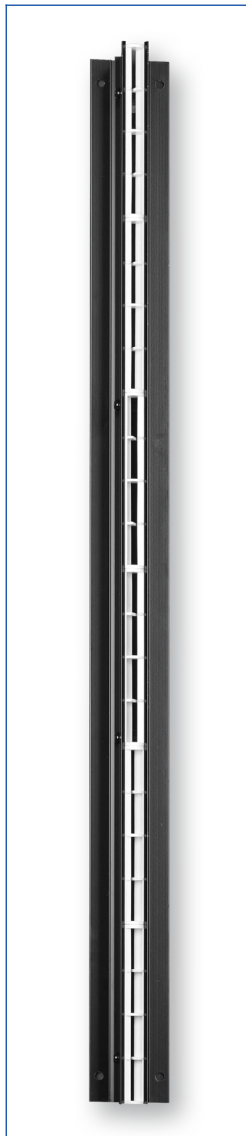
P1 Powder-coated, specify RAL CLASSIC
colour

VSD15



Diffuser face without extended border, black air control elements

VSD15/.../WW



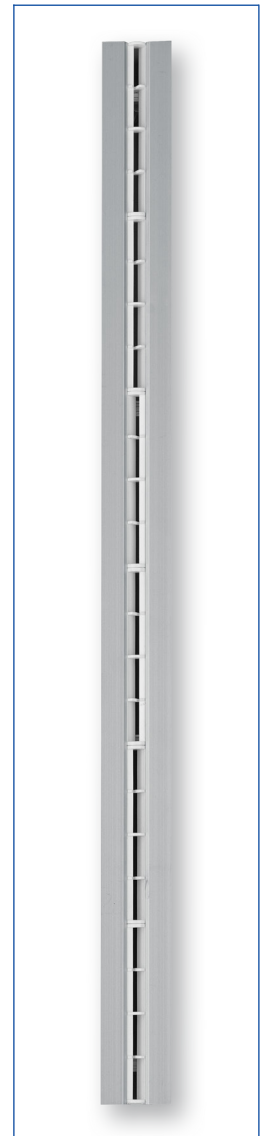
Diffuser face without extended border, white air control elements

VSD15-...-Z0



Diffuser face with extended border, black air control elements

VSD15-...-Z0/.../WW



Diffuser face with extended border, white air control elements

VSD15-A

Variant

- Slot diffuser with plenum box

Parts and characteristics

- Plenum box for horizontal duct connection
- Damper blade (optional)
- Lip seal (optional)

VSD15-D

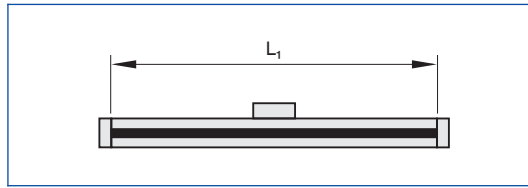
Variant

- Slot diffuser with plenum box
- Plenum box with lining

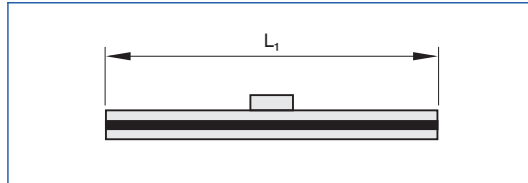
Parts and characteristics

- Plenum box for horizontal duct connection
- Thermal and acoustic insulation (lining)
- Damper blade (optional)
- Lip seal (optional)

Endwinkel beidseitig



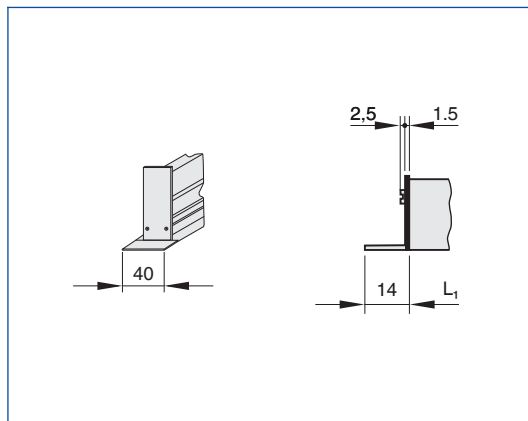
Without end piece



VSD15

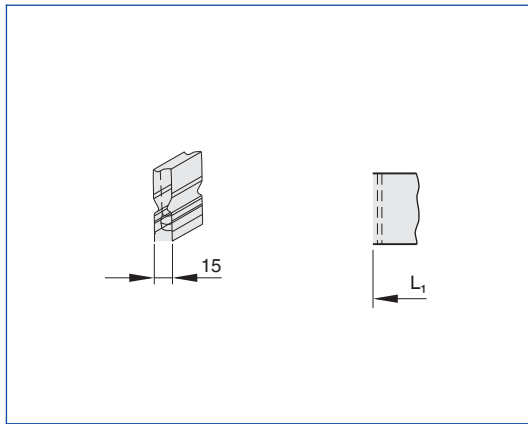
Nominal length	L_1 mm
600	600
700	700
800	800
900	900
1000	1000
1100	1100
1200	1200
1300	1300
1400	1400
1500	1500

End angle CA



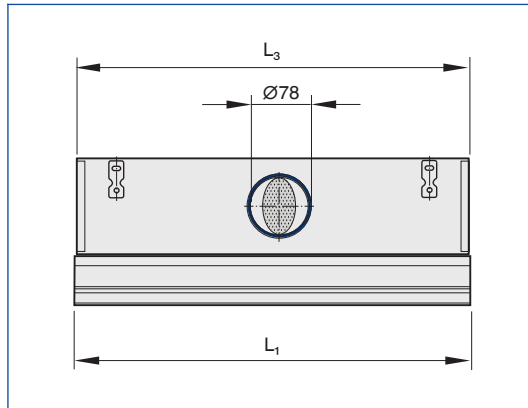
Only for diffuser face with extended border Z0

End seal A9

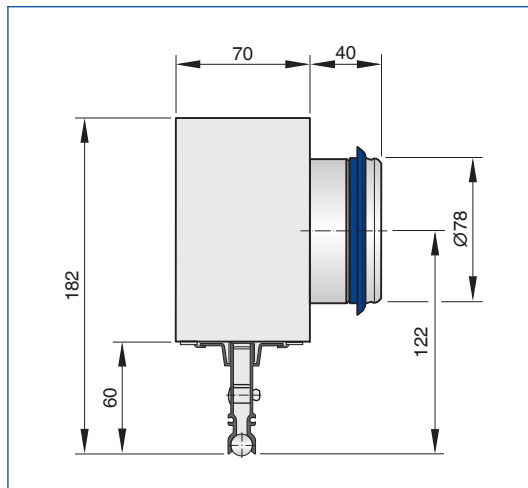


Only for diffuser face without extended border

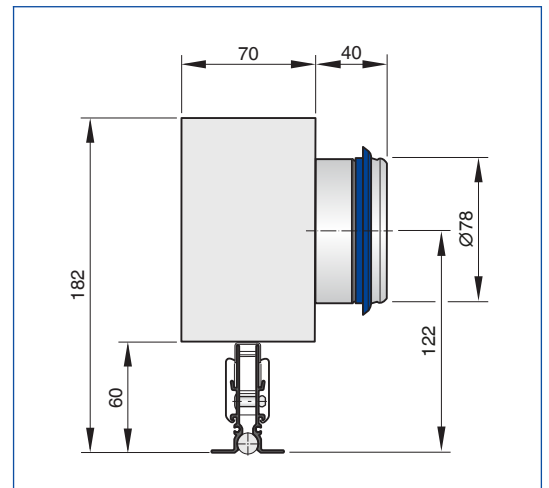
VSD15



VSD15-A



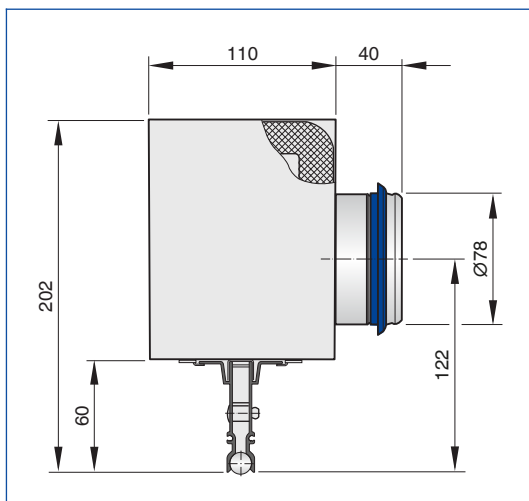
VSD15-A-Z0



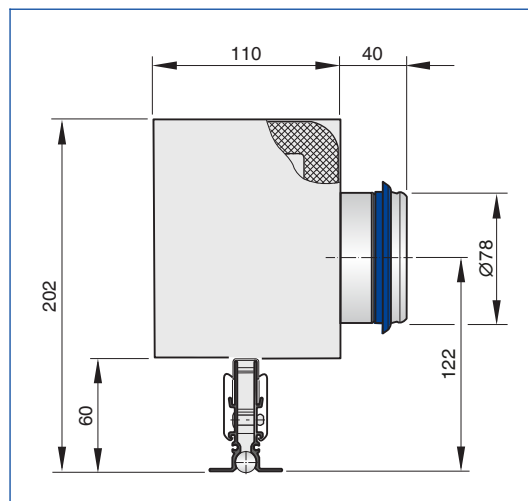
VSD15-A

Nominal length	L_1 mm	L_3 mm	m kg
600	600	595	1.8
700	700	695	2.2
800	800	795	2.5
900	900	895	2.8
1000	1000	995	3.1
1100	1100	1095	3.4
1200	1200	1195	3.7
1300	1300	1295	4.0
1400	1400	1395	4.3
1500	1500	1495	4.6

VSD15-D



VSD15-D-Z0

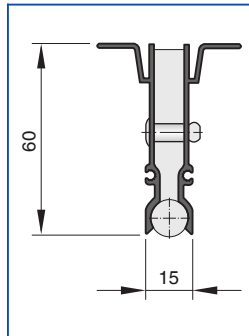


VSD15-D

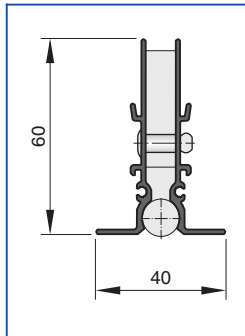
Nominal length	L_1	L_3	m kg
	mm	mm	
600	600	595	2.6
700	700	695	3.0
800	800	795	3.4
900	900	895	3.8
1000	1000	995	4.3
1100	1100	1095	4.7
1200	1200	1195	5.1
1300	1300	1295	5.6
1400	1400	1395	6.0
1500	1500	1495	6.4

Profiles

VSD15



VSD15-...-Z0



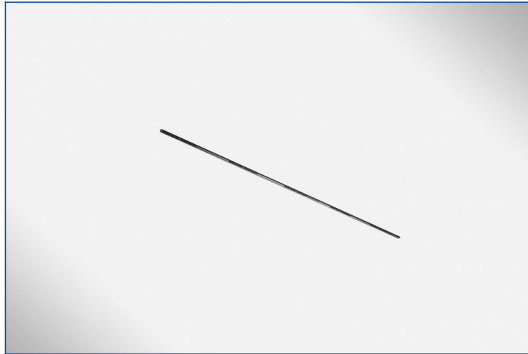
VSD15

Nominal length	A_{eff}	
	m^2	m^2
600	0.0021	0.0021
700	0.0025	0.0025
800	0.0028	0.0028
900	0.0032	0.0032
1000	0.0035	0.0035
1100	0.0039	0.0039
1200	0.0042	0.0042
1300	0.0046	0.0046
1400	0.0049	0.0049
1500	0.0053	0.0053

A_{eff} : One-way horizontal and alternating horizontal air discharge

$A_{\text{eff WS}}$: Alternating angled air discharge

VSD15-...-Z0/.../P1-RAL 9010, installation in
continuous ceilings



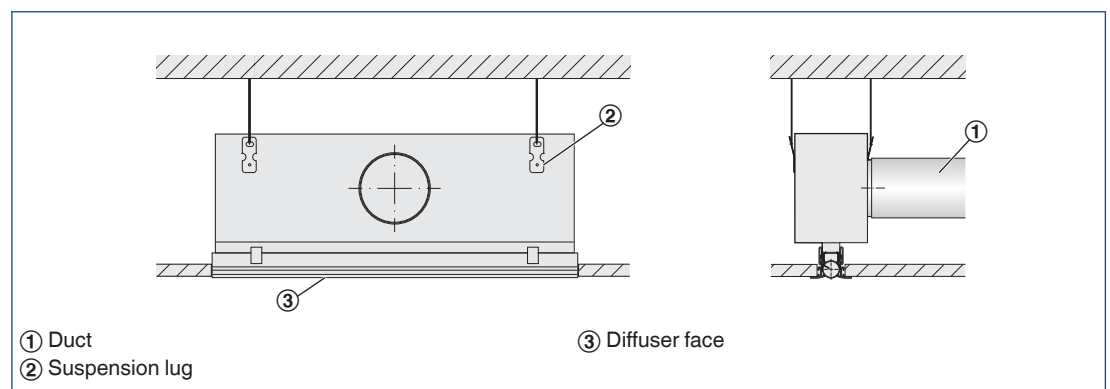
Powder-coated RAL 9010, pure white

Installation and commissioning

- Preferably for rooms with a clear height up to 4.0 m
- Flush ceiling installation
- Horizontal duct connection
- Diffusers with a shorter plenum box as well as non-active diffusers require a rear blanking plate; length of blanking plate = $L_1 - L_3$
- For a continuous linear arrangement connect the diffusers with connecting pins and alignment plates
- If necessary, carry out volume flow rate balancing with the damper blade

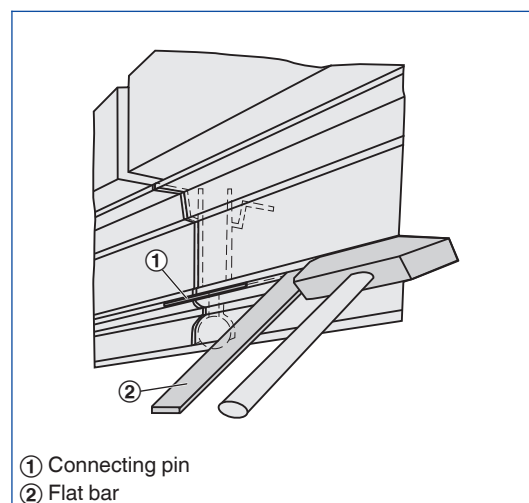
These are only schematic diagrams to illustrate installation details.

Installation with plenum box



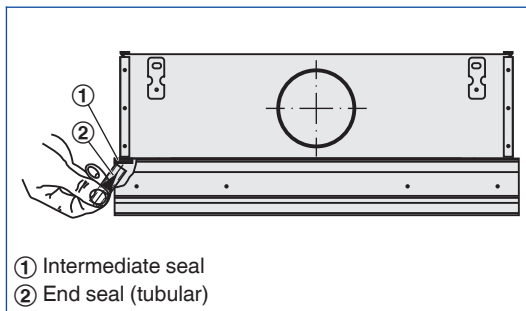
- Horizontal duct connection
- Four suspension lugs
- Suspension with cords, wires or hangers, to be provided by others

Continuous linear arrangement



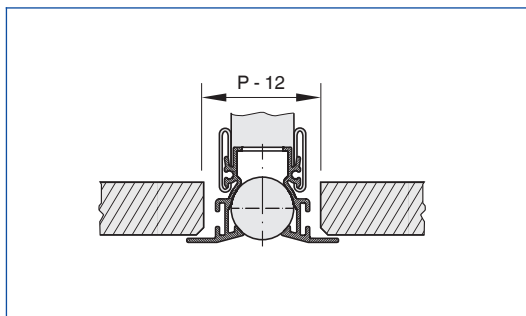
- Each slot diffuser (without end pieces) is supplied with two connecting pins
- Connecting pins are used to align slot diffusers for linear runs
- Insert the connecting pins into a slot diffuser
- Connect the next slot diffuser to it

End seal



- Continuous linear runs require an end seal on each end to ensure that no air leaks
- End seals can be either factory fitted or fitted by others
- Single diffusers require end seals on both ends
- End seals are suitable only for slot diffusers without extended border

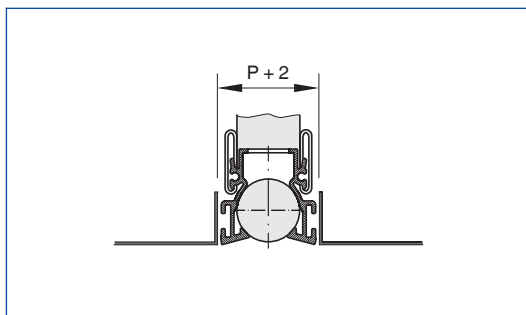
Continuous ceiling



Slot diffuser with extended border

- Fix the plenum box to the ceiling slab
- Adjust plasterboard ceiling tile as required

Ceiling panels with rectangular edges



Slot diffuser without extended border

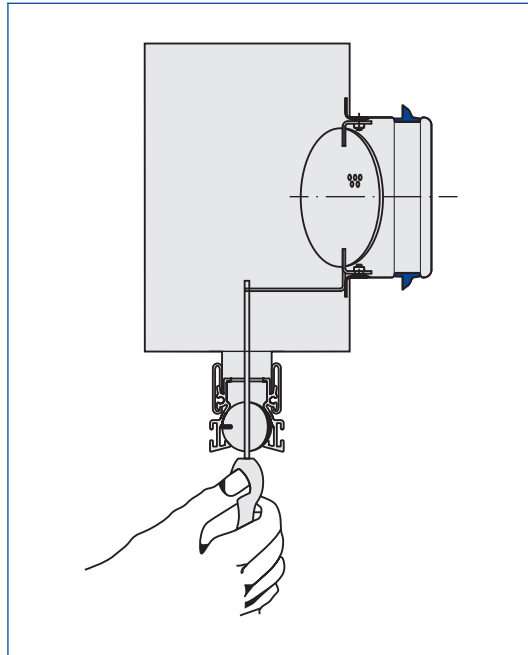
- Fix the plenum box to the ceiling slab
- The ceiling tile or panel of a panelled ceiling has no contact with the diffuser

Volume flow rate balancing

When several diffusers are connected to just one volume flow controller, it may be necessary to balance the volume flow rates.

- Slot diffusers with plenum box and damper blade (variant -M): The damper blade can be adjusted even after the diffuser face has been installed.

Volume flow rate balancing



- Move the air control element near the spigot in such a way that it is possible to insert a screw driver

Principal dimensions

ØD [mm]

Outer diameter of the spigot

ØD₁ [mm]

Outer diameter of a circular diffuser face

ØD₂ [mm]

Diameter of a circular diffuser face style

ØD₃ [mm]

Diameter of a circular plenum box

□Q₁ [mm]

Outer diameter of a square diffuser face

□Q₂ [mm]

Dimensions of a square diffuser face style

□Q₃ [mm]

Dimensions of a square plenum box

H₁ [mm]

Distance (height) from the lower edge of the

suspended ceiling to the lower edge of the diffuser face

H₂ [mm]

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

H₃ [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

Definitionen

L_{WA} [dB(A)]

Schalleistungspegel des Strömungsgeräusches, A-bewertet

Ṃ [m³/h] und [l/s]

Volumenstrom

Δt_z [K]

Zulufttemperaturdifferenz, Zulufttemperatur minus Raumtemperatur

Δp_t [Pa]

Gesamtdruckdifferenz

Alle Schalleistungspegel basieren auf 1 pW.