

Air diffusers

Slot Diffusers Type PURELINE50

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Product overview

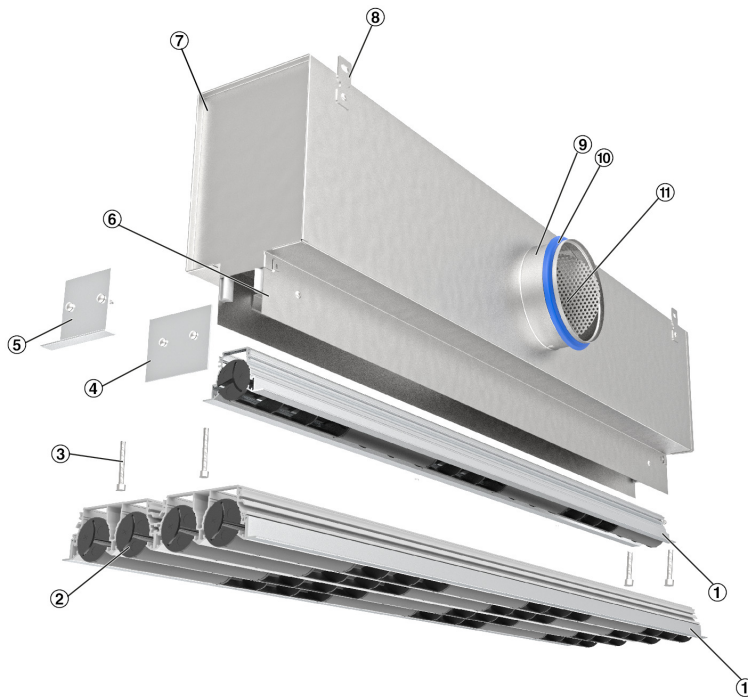


Fig. 1: Schematic illustration of PL50-*-SF

- ① Diffuser face (with 1- to 4-slots)
- ② Adjustable air control element
- ③ Screw fixing
- ④ End plate
- ⑤ End angle
- ⑥ Neck

- ⑦ Plenum box
- ⑧ Suspension lug
- ⑨ Connector
- ⑩ Lip seal
- ⑪ Damper unit for volume flow rate balancing

Optional equipment: ③ ④ ⑤ ⑩ ⑪

Important notes

Information on the installation manual

This manual enables operating or service personnel to correctly install the product described below and to use it safely and efficiently.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and general safety regulations also apply.

Qualified staff

Specialist personnel

Specialist personnel are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to carry out their assigned duties, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The manufacturer does not accept any liability for damages resulting from:

- Non-compliance with this manual
- Incorrect use
- Operation or handling by untrained individuals
- Unauthorised modifications

The actual scope of delivery may differ from the information in this manual for special constructions, additional order options or as a result of recent technical changes.

Personal protective equipment

Personal protective equipment must be worn for any work in order to reduce health or safety hazards to the minimum.

The appropriate protective equipment for a job must be worn for as long as the job takes.

Industrial safety helmet



Industrial safety helmets protect the head from falling objects, suspended loads, and the effects of striking the head against stationary objects.

Protective gloves



Protective gloves protect hands from friction, abrasions, punctures, deep cuts, and direct contact with hot surfaces.

Safety shoes



Safety shoes protect the feet from crushing, falling parts and prevent slipping on a slippery floor.

Correct use

Air terminal devices are used for the ventilation of internal spaces in industrial and comfort areas. The air terminal devices are connected to a supply air or extract air system (by others), which is typically connected to an air handling unit.

Air terminal devices supply cold or warm air to rooms (within the stated supply air to room air temperature differences).

Installation, operation and maintenance may have to meet increased hygiene requirements for certain areas of application.

The installation of air terminal devices in humid rooms, areas with potentially explosive atmospheres or rooms with dust-laden or aggressive air has to be assessed for each individual case.

Transport and storage

Delivery check

Upon delivery, carefully remove the packaging and check the unit for transport damage and completeness. In case of any damage or an incomplete shipment, contact the shipping company and your supplier immediately. Put the product back into its packaging after the delivery check to protect it from dust and contamination.



Fixing and installation material

Fixing and installation material is not part of the supply package (unless stated otherwise), but has to be provided by others; it has to be suitable for the installation situation.



Factory setting

The air control elements are factory set to a certain position. Changing this factory setting increases the commissioning time and cost. Be careful when you unpack and install the air control elements so as not to accidentally change their position.

Transport on site



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes and a hard hat.

Please note:

- Be careful when unloading or moving the product, and pay attention to the symbols and information on the packaging.
- If possible, take the product in its transport packaging up to the installation location.
- Use only lifting and transport gear designed for the required load.
- Always secure the load against tipping and falling.
- Do not move bulky items just by yourself. Get help to prevent injuries and damage.

Storage

Please note:

- Store the product only in its original packaging
- Protect the product from the effects of weather
- Protect the product from humidity, dust and contamination
- Storage temperature: -10 °C to 50 °C.
- Relative humidity: 95% max., no condensation

Packaging

Properly dispose of packaging material.

Technical data

Dimensions and weight

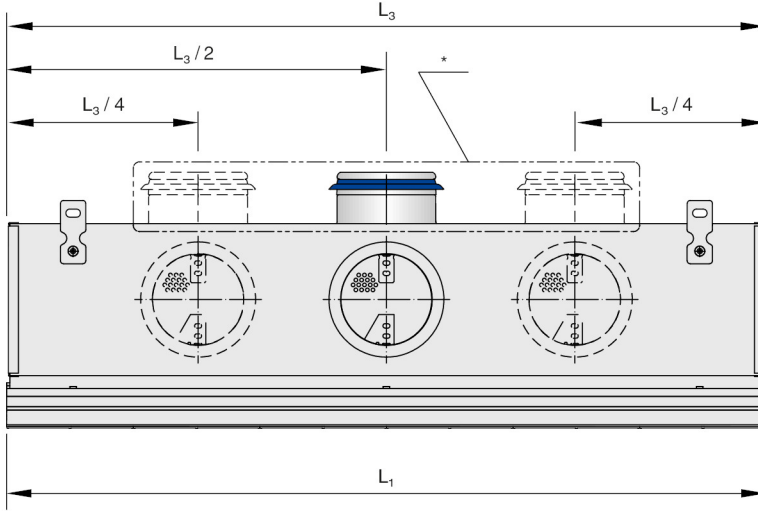


Fig. 2: Dimensions and spigot arrangement, * spigot arrangement for construction VS

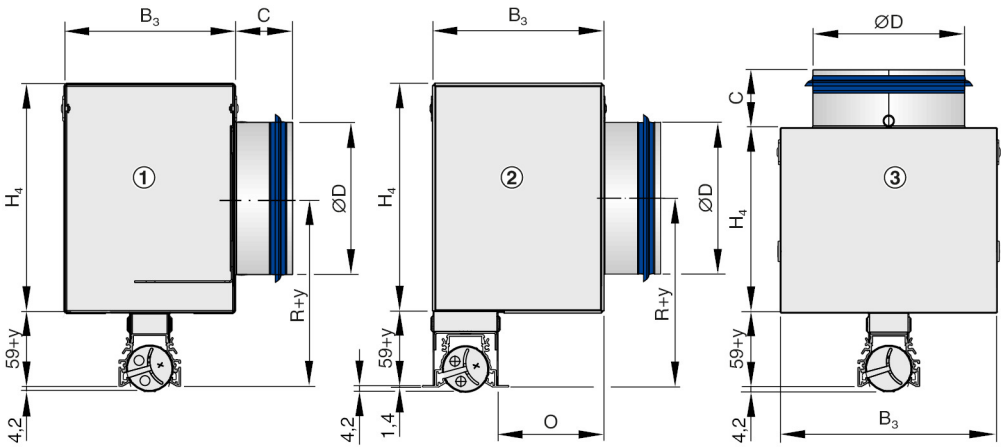


Fig. 3: Plenum box variants

- 1 PL50-*-HS (symmetric position of plenum box, side entry spigot)
- 2 PL50-*-HA (asymmetric position of plenum box, side entry spigot)
- 3 PL50-*-VS (symmetric position of plenum box, top entry spigot)

Nominal length	L ₁ [mm]	L ₃ [mm]
600	600	595
750	750	745
900	900	895
1050	1050	1045
1200	1200	1195
1350	1350	1345
1500	1500	1495
1650	1650	1645
1800	1800	1795
1950	1950	1945

Variant	B3 [mm]		H4 [mm]	
	HS/HA	VS	HS/HA	VS
PL50-1	138	176	185	150
PL50-2	183	214	225	
PL50-3	238	270	275	175
PL50-4	278	335	340	210

Variant	R [mm]	O [mm]	
		PF-HA	SF-HA
PL50-1	152 + Y	98	84
PL50-2	172 + Y		
PL50-3	197 + Y		82
PL50-4	229 + Y		

Neck extension Y = 0 / 22 / 47 / 72 / 97 / 121

Variant	ØD [mm]	C [mm]
PL50-1	123	48
	158	50
PL50-2	158	
	198	
PL50-3	198	48
	248	48
PL50-4	248	48
	313	50

Diffuser faces

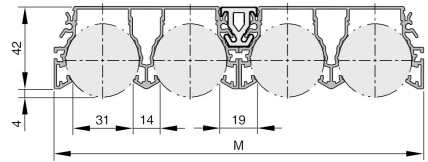


Fig. 4: PL50-4 (without extended border)

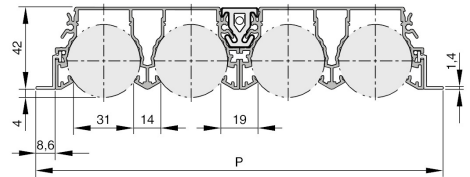


Fig. 5: PL50-4/B00 (with extended border)

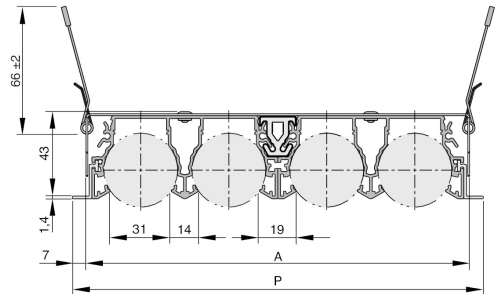


Fig. 6: PL50-4-DF/.../B00

Variant	M	P	A
	[mm]		
PL50-1	50	70	56
PL50-2	95	115	101
PL50-3	150	170	156
PL50-4	190	210	196

Plenum box variant	Weight [kg/m]			
	Number of slots			
	1	2	3	4
Diffuser face	1.0	1.6	3.1	3.4
Plenum box HS/HA	4.1	5.1	6.1	7.3
Plenum box HS/HA+L (lining)	4.8	6.0	7.2	8.5
Plenum box VS	4.8	5.2	6.0	7.3
Plenum box VS+L (lining)	5.9	6.3	7.2	8.2

Total weight [kg] =
 Weight of diffuser face × L₁
 + Weight of plenum box × L₃

Enter lengths in [m]

Technical data

Nominal lengths	600 – 1950 mm, in increments of 150 mm
Number of slots	1, 2, 3 or 4
Minimum volume flow rate, with Δt _z = -10 K	10 l/s or 36 m ³ /h
Maximum volume flow rate, with L _{WA} ≅ 50 dB(A)	608 l/s or 2190 m ³ /h
Supply air to room air temperature difference	-10 to +10 K

Assembly

General information

Personnel:

- Specialist personnel

Protective equipment:

- Industrial safety helmet
- Protective gloves
- Safety shoes

Note:

- For room heights up to 4 m (lower edge of suspended ceiling)
- Flush ceiling installation
- Fix the product only to load-bearing structural elements.
- Load suspension systems only with the weight of the product. Adjacent components and connecting ducts must be supported separately.
- The air terminal devices must remain accessible for cleaning even after installation.
- Installation and sealing material which the manufacturer provides is usually supplied in an extra bag.

Before you install the product, take suitable precautions to protect air distribution components from contamination during installation (VDI 6022). If this is not possible, at least cover the product or take other precautions to protect it from contamination. In this case you have to ensure that the product cannot be started. Ensure that all components are clean before you install them. If necessary, clean them thoroughly. If you have to interrupt the installation procedure, protect all openings from the ingress of dust or moisture.

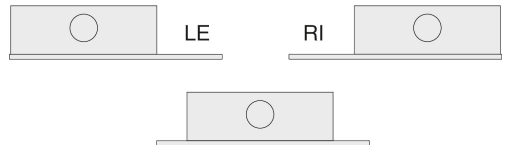


Fig. 7: Position of plenum box

If (L₃+ 5) < L₁, the plenum box can be positioned to the left, to the right or in the centre.

Ceiling installation

If possible, install the device before fixing the ceiling tiles; if this is not possible, remove the adjacent ceiling tiles.

Use only approved and adequately sized suspension systems (fixing material is not included in the supply package). Dimensions and weight ↪ Chapter 4 'Technical data' on page 4.

If you have to install larger devices, it is best to either ask someone to give you a hand or use a lift.

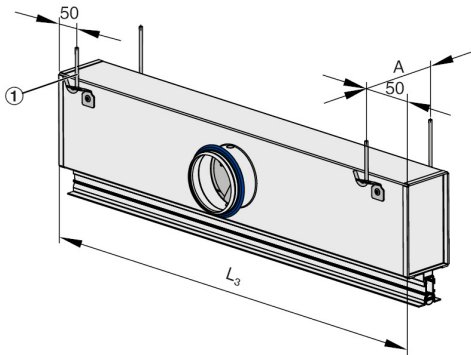
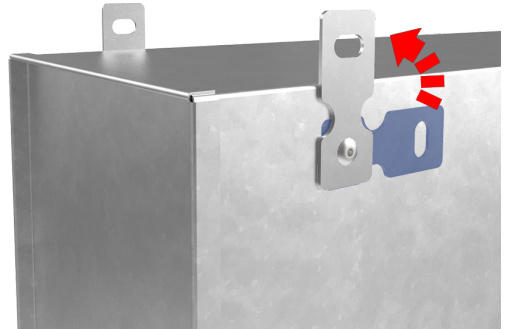


Fig. 8: Plenum box suspension

Variant	A [mm]		L ₃
	HS/HA	VS	
PL50-1	178	216	↪ Table on page 5
PL50-2	223	254	
PL50-3	278	310	
PL50-4	318	375	

- ▶ Fix the suspension parts such as ropes, cables or metal hangers (Fig. 8/1) to the ceiling.



- ▶ Turn up the suspension lugs.
- ▶ Use all of the available suspension points on the plenum box.

Linear run

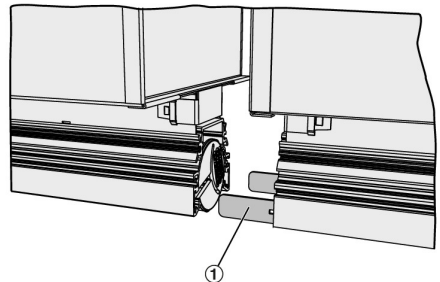


Fig. 9: Linking slot diffusers

- ▶ The supplied alignment plates (Fig. 9/1) help you align slot diffusers for a continuous linear arrangement.

Fix an alignment plate (2 each per diffuser) on one side, then connect the next diffuser to it.

Fixing EP end plates

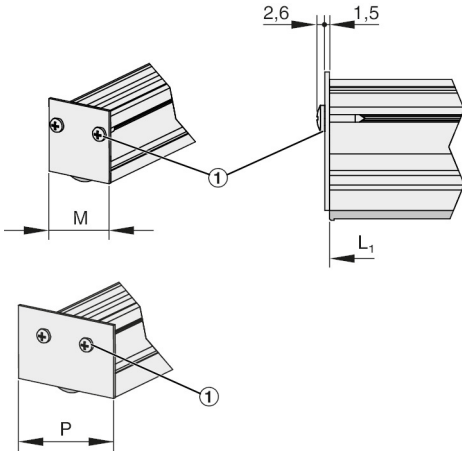


Fig. 10: EP end plate without and with extended border

Fixing EA end angles

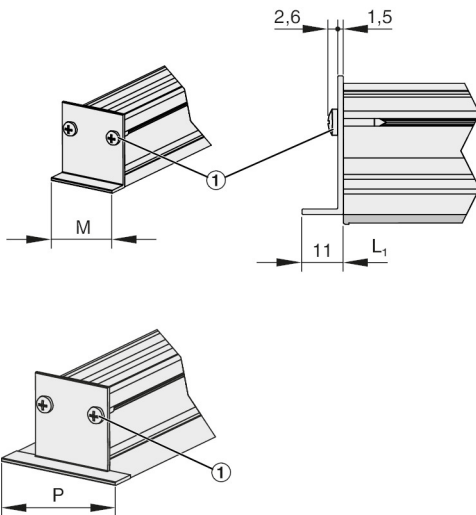


Fig. 11: EA end angle without and with extended border

Single diffusers are factory fitted with end plates or end angles. For a continuous linear arrangement, they must be fitted by others. The end plates or end angles must be fitted with screws (Fig. 10/1 and Fig. 11/1).

Connecting corner sections

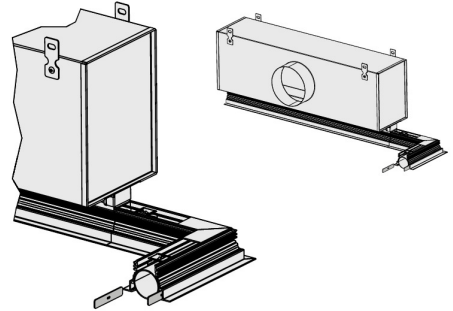


Fig. 12: Fitting a corner section with extended border

Corner sections are supplied with two alignment plates.

Installation in panelled ceilings

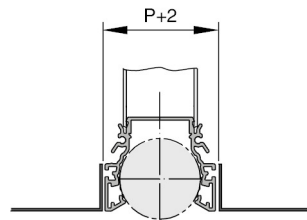


Fig. 13: Installation without extended border into a ceiling with rectangular panels; required length of installation opening when an end plate is used: $L1 + 9$

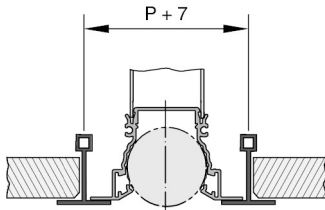
T-bar ceiling

Fig. 14: Installation with extended border into a T-bar ceiling; required length of installation opening when an end angle is used: $L1 + 29$

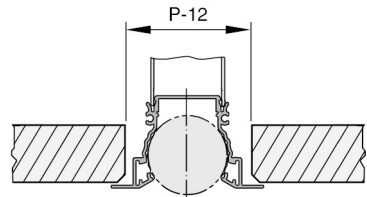
Installation in continuous ceilings

Fig. 15: Installation with extended border into a continuous ceiling; required length of installation opening when an end angle is used: $L1 + 9$

Assembling the detachable diffuser face fixing

The face of slot diffusers with detachable diffuser face fixing (variant FS or DS) can be fixed to the plenum box after the false ceiling has been completed.

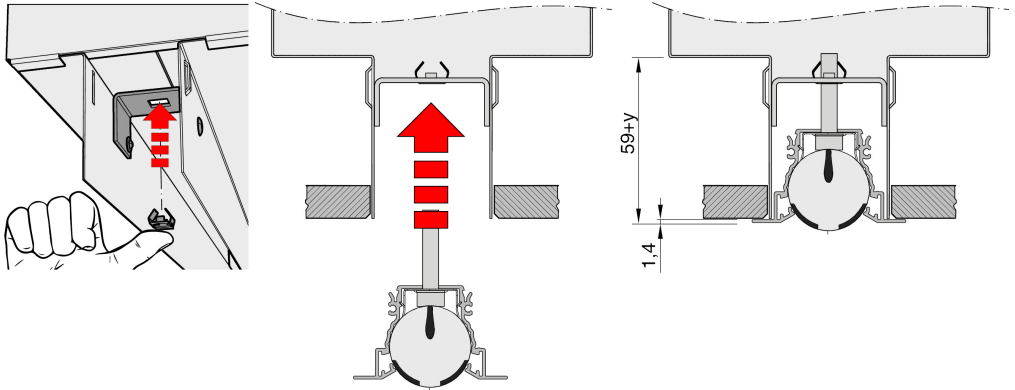


Fig. 16: PL50-1-SF

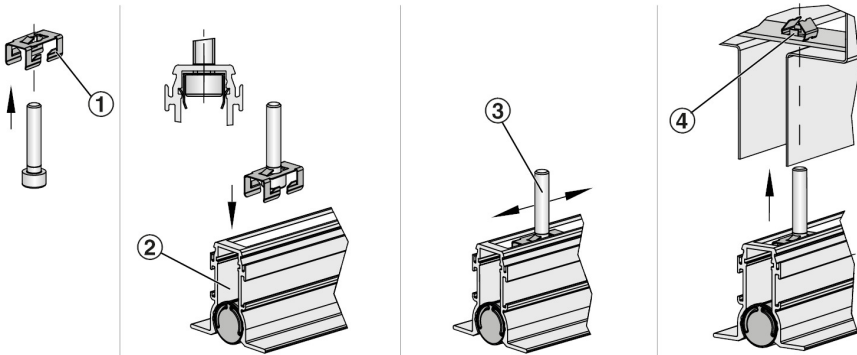


Fig. 17: Diffuser faces with detachable fixing

Assemble the fixing material as shown. The fixing material ① is supplied separately. Then insert the fixture into the diffuser face ② and position it as required ③. Move the diffuser face towards the plenum box so that the screws fit into the supplied fixing holes ④ in the plenum box. Using an Allen key (SW4) simplifies the fixing procedure. To remove the diffuser face, first remove the Allen screws (SW4 Allen key).

Installation into continuous ceilings with spring clip fixing

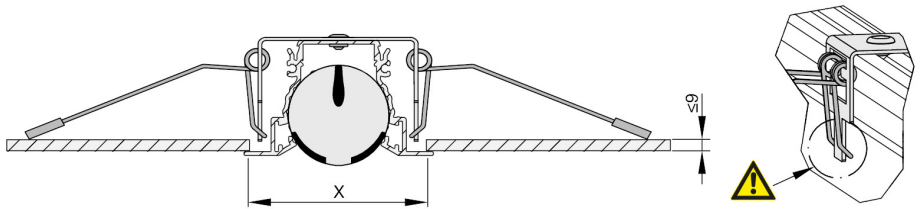


Fig. 18: Position of the spring, ceiling thickness up to 9 mm

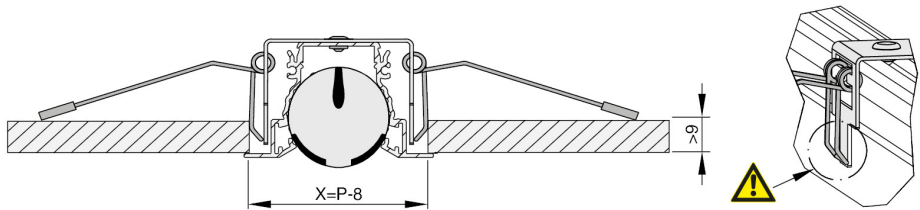


Fig. 19: Position of the spring, ceiling thickness greater than 9 mm, installation dimensions ↪ 'Diffuser faces' on page 5

Retrofit of spring clip fixing DF

If required, the spring clip fixing can be retrofitted. Assembly is carried out by others depending on the length of the diffuser face and in accordance with the following images. Installation of the diffuser face into the ceiling in accordance with Fig. 18 and Fig. 19

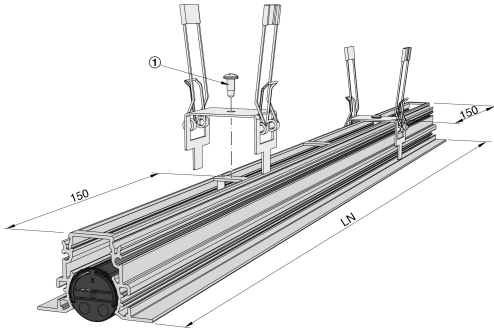


Fig. 20: LN 600 to 1350 mm

- 1 Self-drilling screw $\varnothing 3.5 - 4.5$, max. length 10 mm (provided by others)

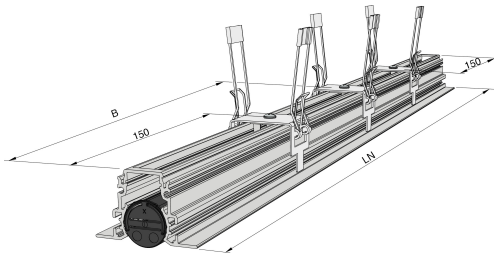


Fig. 21: LN 1500 to 1950 mm

LN	Number of self-drilling screws	B
600 - 1350	2	—
1500	3	750
1650		750
1800		900
1950		900

Duct connection

The plenum box has a spigot for duct connection. Variants with a double lip seal allow for a sufficiently tight connection; additional sealing is not required.

Initial commissioning, maintenance and cleaning

Initial commissioning

Before you start commissioning:

- Check that the air terminal devices are correctly seated.
- Remove protective film, if any.
- Ensure that all air terminal devices are clean and free from residues and foreign matter.
- Check that electrical connections (if any) have been correctly made.
- Ensure that the devices have been correctly fixed and connected to the ducting.

For commissioning see also VDI 6022, part 1 – 'Hygiene requirements for ventilation and air-conditioning systems and units'.

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 -D): The damper blade can be adjusted even after the diffuser face has been installed.

Move the air control element near the spigot in such a way that it is possible to insert a screwdriver.

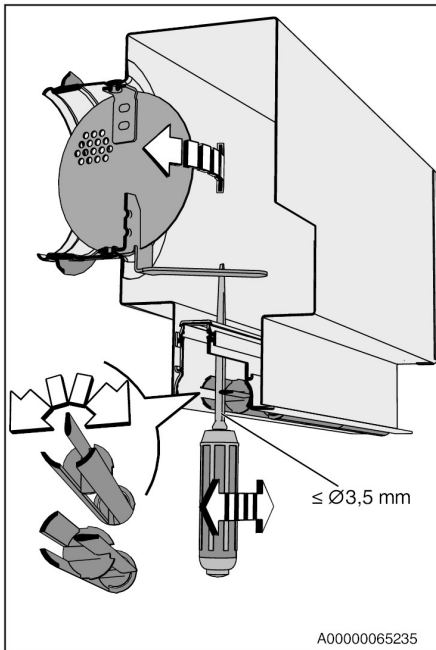



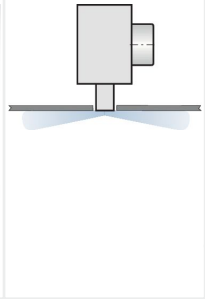
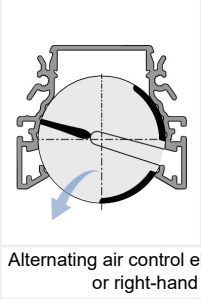
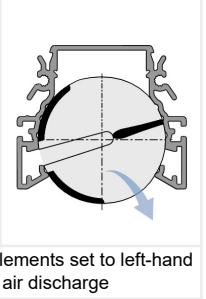

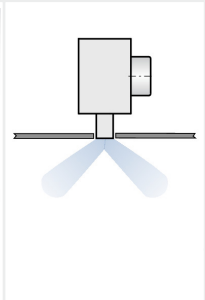
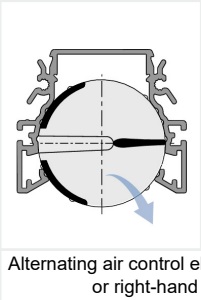
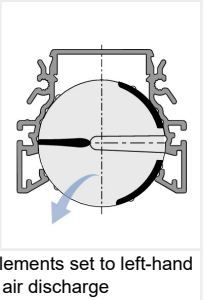
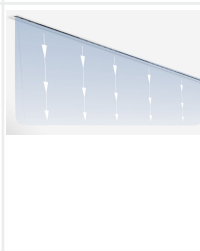
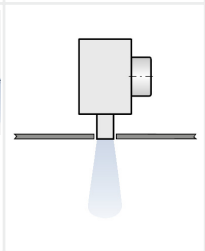
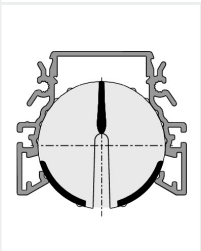

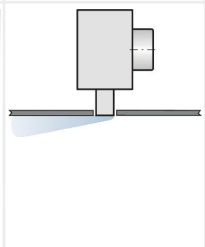
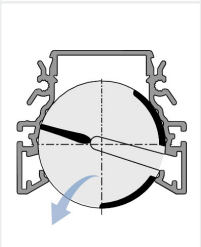
Fig. 22: Setting the damper blade, e.g. with a screwdriver

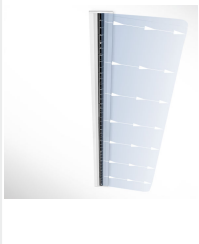
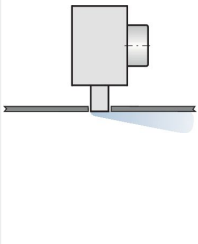
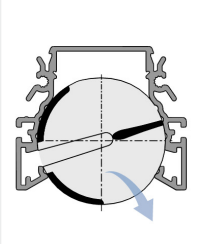
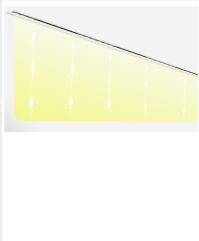
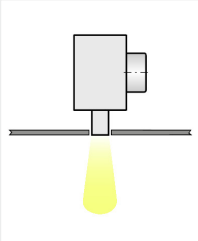
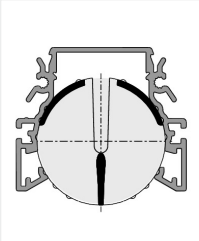
Setting the air discharge direction

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

The mullions of the air control elements have grooves that make it easier to adjust the elements. We recommend you to use both hands to adjust the air control elements.

Air discharge – ceiling installation

Air discharge	Setting of the air control elements		
<p>Alternating horizontal air discharge</p> 			
<p>Alternating air control elements set to left-hand or right-hand air discharge</p>			
<p>Alternating angled air discharge</p> 			
<p>Alternating air control elements set to left-hand or right-hand air discharge</p>			
<p>Vertical air discharge</p> 			
<p>One-way horizontal air discharge to the left</p> 			

Air discharge	Setting of the air control elements			
One-way horizontal air discharge to the right				
extract air				

Maintenance and cleaning

Please note:

- The cleaning intervals given in the VDI 6022 standard apply.
- Clean surfaces with a damp cloth.
- Use only common household cleaners, do not use any aggressive cleaning agents.
- Do not use cleaning agents that contain chlorine.
- Do not use equipment for removing stubborn contamination, e.g. scrubbing sponges or scouring cream, as it may damage the surfaces.

