

## Air Diffusers

### Slot Diffusers PURELINE50

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#### Product overview

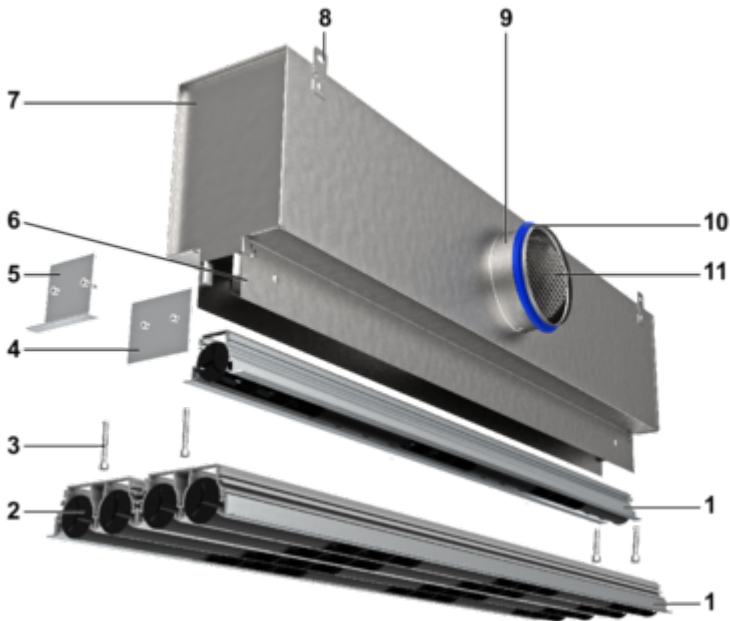


Fig. 1: Schematic illustration of PL50-\*-SF

- |   |                                       |    |  |
|---|---------------------------------------|----|--|
| 1 | Diffuser face with 1, 2, 3 or 4 slots | 7  | Plenum box                                 |
| 2 | Adjustable air control element        | 8  | Suspension lug                             |
| 3 | Screw fixing                          | 9  | Spigot                                     |
| 4 | End plate                             | 10 | Lip seal                                   |
| 5 | End angle                             | 11 | Damper unit for volume flow rate balancing |
| 6 | Neck                                  |    |  |

Optional equipment: 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.

### Other applicable documentation

In addition to these instructions, the following documents must be observed:

- Product data sheets

### 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 explanations and illustrations provided in this manual for special versions, the use of additional order options or as a result of recent technical changes.

## Safety

### 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.

Installation in humid rooms, areas with potentially explosive atmospheres or rooms with dust-laden or aggressive air has to be assessed beforehand because it depends on the actual conditions on site.

## Staff

### Qualification

#### Trained personnel

Trained 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.

#### 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.

### Repair and replacement parts

Only qualified personnel must repair the products, and they have to use genuine replacement parts.

### 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 blades on site 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.

## Assembly

### General information

Note for assembly:

- 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.



### **Protecting the product from contamination**

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.

### Installation in ceiling systems

#### Installation in T-bar ceilings

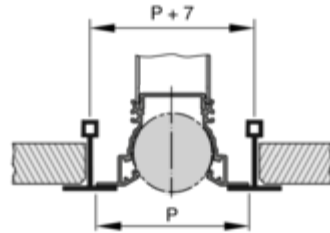


Fig. 2: Slot diffuser with extended border

Length of installation opening with end angle:  $L1 + 29 \text{ mm}$

#### Installation in continuous ceilings

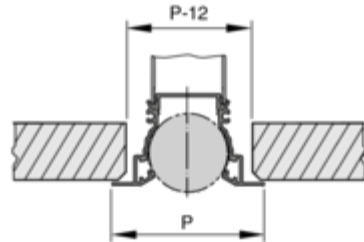


Fig. 3: Slot diffuser with extended border

Length of installation opening with end angle:  $L1 + 9 \text{ mm}$

#### Installation in panelled ceilings

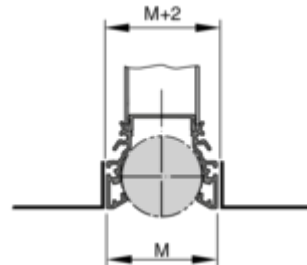


Fig. 4: Slot diffuser without extended border

Length of installation opening with end plate:  $L1 + 9 \text{ mm}$

## Assembly of plenum box

### Plenum box suspension

#### Personnel:

- Trained personnel

#### Protective equipment:

- Industrial safety helmet
- Protective gloves
- Safety shoes

If possible, install the slot diffuser 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). Take the weights into consideration & Chapter 7.1 'Dimensions and weights' on page 13.

In case of larger dimensions, it is best to either ask someone to give you a hand or use a lift during assembly.

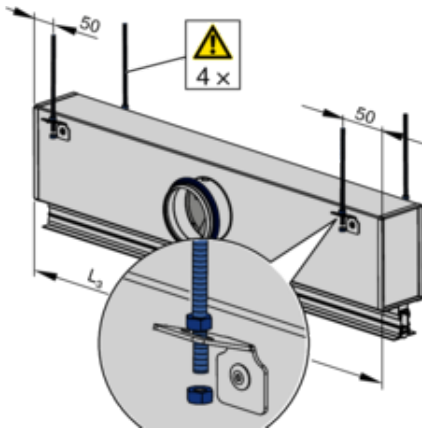
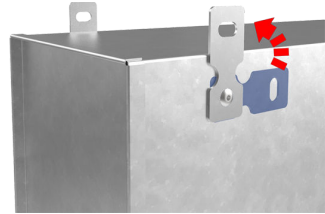


Fig. 5: Plenum box suspension

1. ▶ Fix any suspension elements, e.g., threaded rods, to the ceiling.



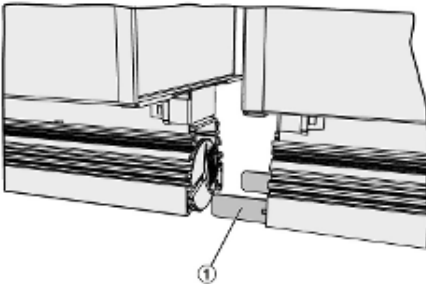
2. ▶ Turn up the suspension lugs
3. ▶ Bend the suspension lugs once by approx. 90° when using threaded rods.
4. ▶ It is recommended to secure the threaded rod from above and below with nuts.
5. ▶ Use all of the available suspension points on the plenum box.

### Duct connection

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

**Installation of front rail**

**Connection of the slot diffuser**

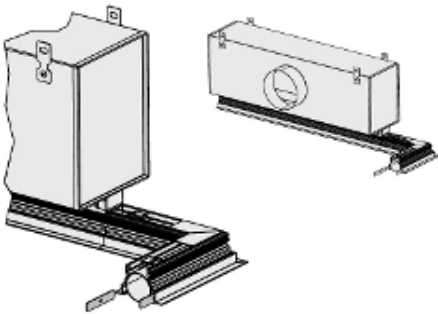


*Fig. 6: Assembly of slot diffusers*

In the case of a continuous linear arrangement of slot diffusers, alignment of the diffuser faces is achieved by inserting the supplied connectors (Fig. 6/1).

Fix the connectors (2 each per front rail) into place on one side, then push them halfway into the next front rail.

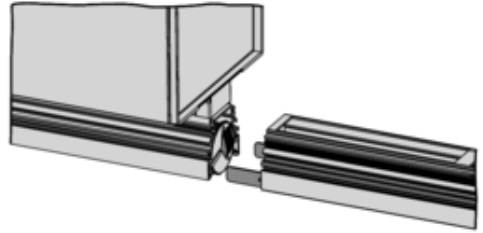
**Connection of the corner section CS**



*Fig. 7: Assembly of the corner section CS*

The corner section is fixed into place on site. The corner section is positioned on the front rail with the enclosed connectors (2 pieces per corner section). Fix the connectors into place on one side, then push them halfway into the front rail.

**Connection of the transfer rail CD and non-active section BD**



*Fig. 8: Assembly of the transfer rail CD and non-active section BD*

The transfer rail or non-active section is fixed into place on site. The included connectors (2 pieces per front rail) are used to position and align the transfer rail and non-active section. Fix the connectors into place on one side, then push them halfway into the next front rail.

## End plate EP

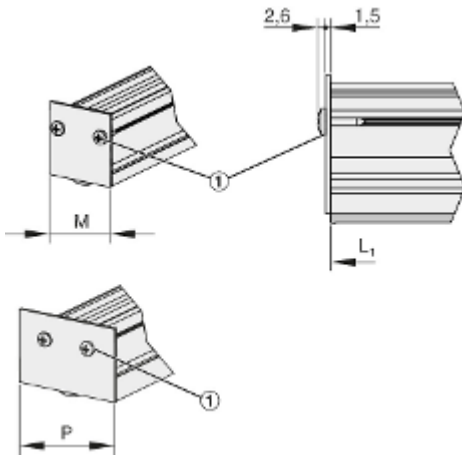


Fig. 9: EP end plate without / with extended border

## End angle EA

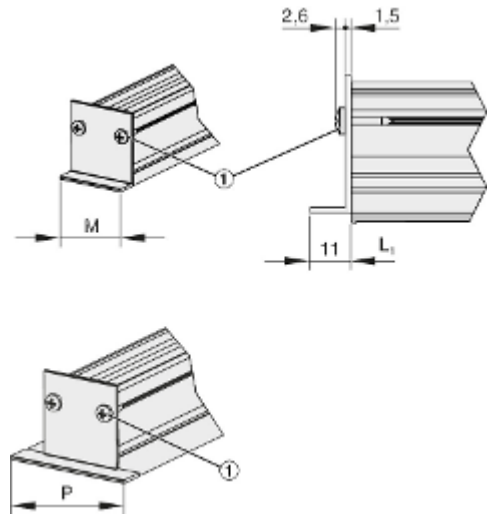


Fig. 10: EA end angle without / with extended border

**!** NOTICE!

When combining front rails with extended borders and end plates, make sure that the installation opening cannot be covered. The installation opening can only be covered with an end angle.

Single diffusers are factory fitted with end plates or end angles. For continuous linear arrangement, two end pieces (1 pair) are required to close off the front rail. The end pieces must be fitted by others. For this purpose, the end plates or end angles must be fixed with screws. ↪ (Fig. 9/1) and (Fig. 10/1)

**Diffuser face fixing**

**Assembly of the permanent diffuser face fixing**

The front rails of the PF variant are firmly connected to the plenum box and must not be dismantled during installation. The slot diffuser must be installed before the suspended ceiling is made.

**Assembling the detachable diffuser face fixing**

For slot diffusers with detachable diffuser face fixing (variant SF or DS+PB), the diffuser face can be fixed to the plenum box after the suspended ceiling has been completed.

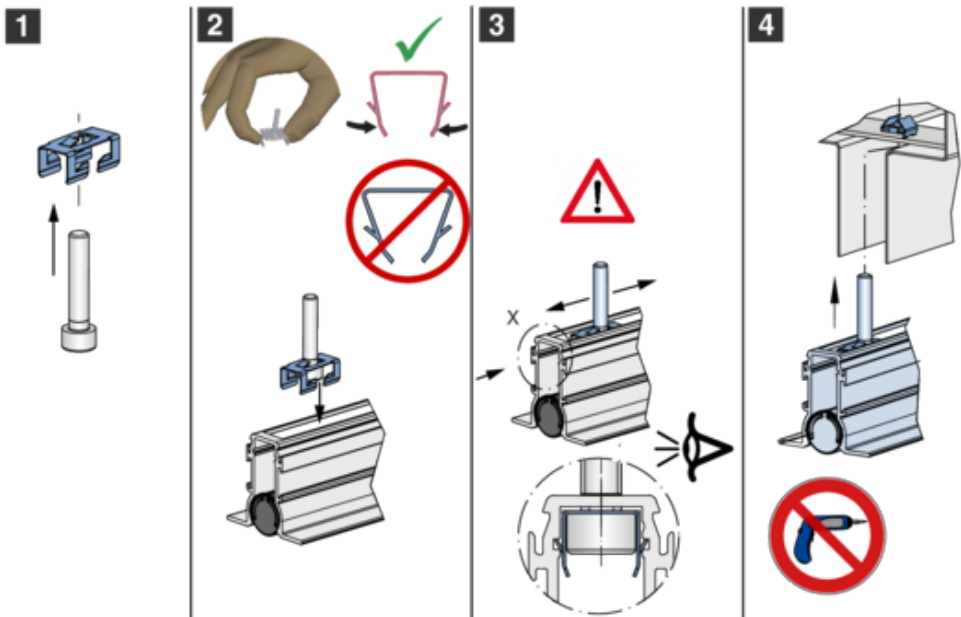


Fig. 11: Front rails with detachable diffuser face fixing

1. Assemble the loose fixing material as shown.
2. Press the clamp together slightly and insert it into the back of the front rail, but do not compress the clamp too much.
3. Check and position the fixing material in the groove, positioning according to Figure Fig. 13 to Fig. 16.
4. Using the screws, insert the diffuser face into the mounting points provided on the cross bar on 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).



Arrangement of the fixing points in the cross bar

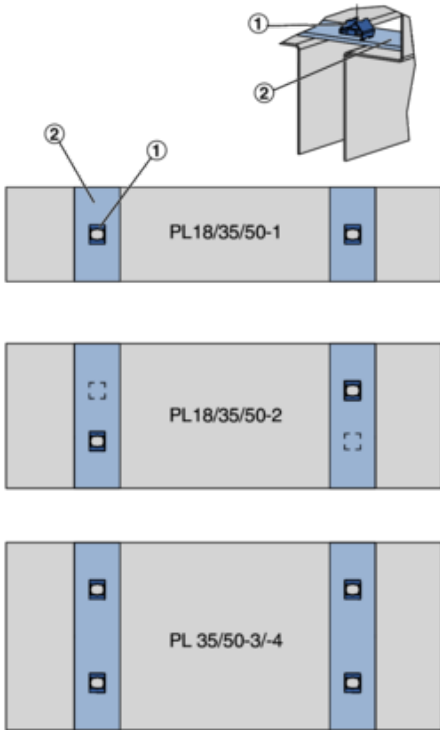


Fig. 12: Assignment of the cross bar for fastening the front rail

- 1 Cross bar clamp
- 2 Cross bar

Positioning of the fixing material on the front rail

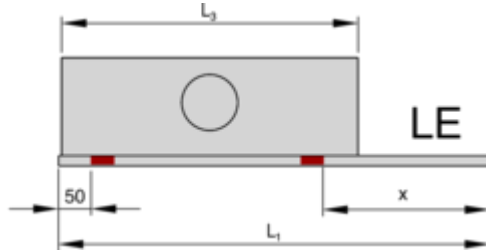


Fig. 13: Front rail longer than plenum box, position of plenum box LE,  $X = (L_1 - L_3) + 45$

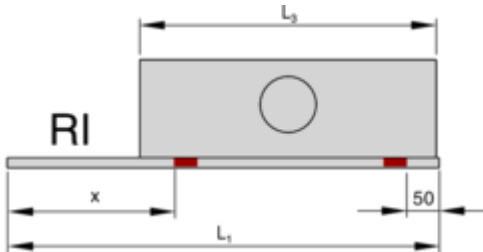


Fig. 14: Front rail longer than plenum box, position of plenum box RI,  $X = (L_1 - L_3) + 45$

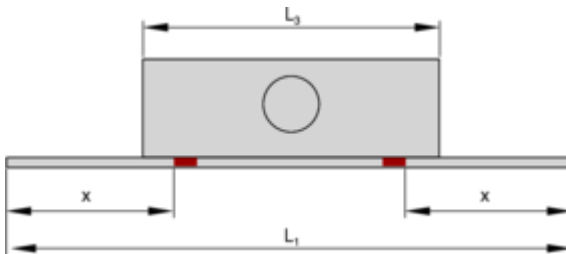


Fig. 15: Front rail longer than plenum box, position of plenum box centre,  $X = (L_1 - L_3) / 2 + 45$

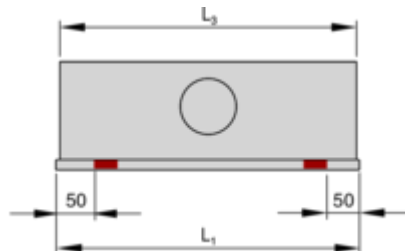


Fig. 16: Front rail length = plenum box length

**Front rail DF – Installation into continuous ceiling with spring clip fixing**

**Note:** only for diffusers with extended border B00 and without end piece or with end angle. The end panel variant is not possible in combination with front rail -DF.

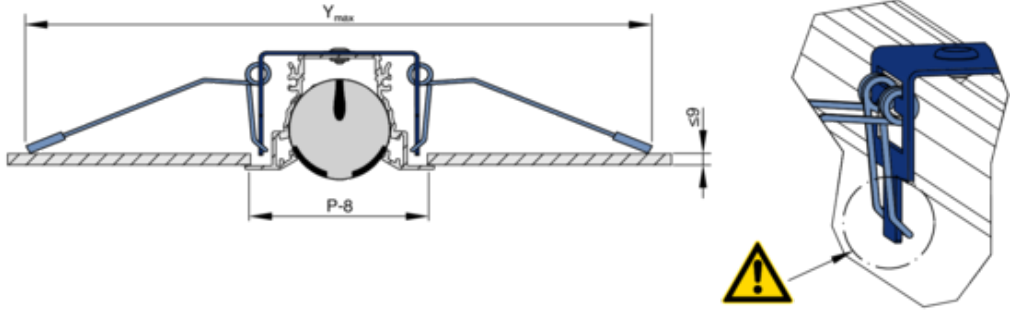


Fig. 17: Position of the spring, ceiling thickness up to 9 mm

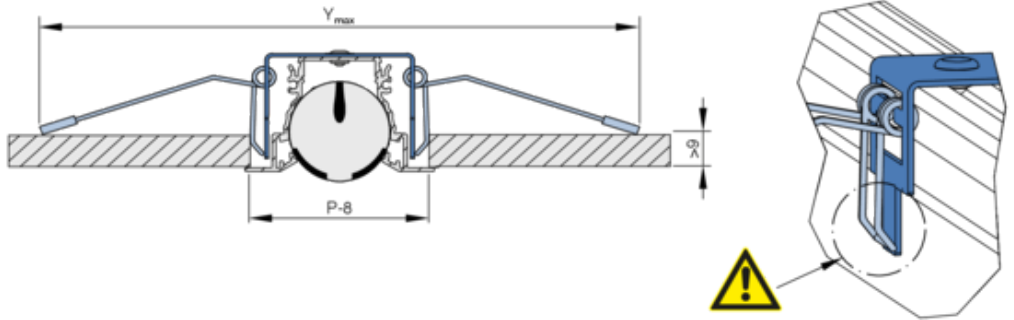


Fig. 18: Position of the spring, ceiling thickness greater than 9 mm

Variant	$Y_{max}$
PL50-1*-DF	180
PL50-2*-DF	225
PL50-3*-DF	280
PL50-4*-DF	320

**Retrofit of spring clip fixing DF**

If required, the spring clip fixing can be retrofitted. The front rail with extended border B00 is required for retrofitting. Assembly is carried out by others depending on the length of the front rail, in accordance with the following images. Installation of the front rail into the ceiling in accordance with Fig. 17 and Fig. 18

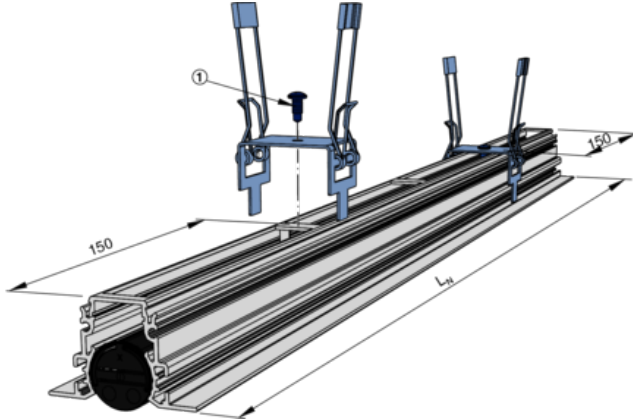


Fig. 19: 2 fixing points up to  $L_N < 1500$  mm

- 1 Self-drilling screw Ø3.5 - 4.5, max. length 10 mm (provided by others)

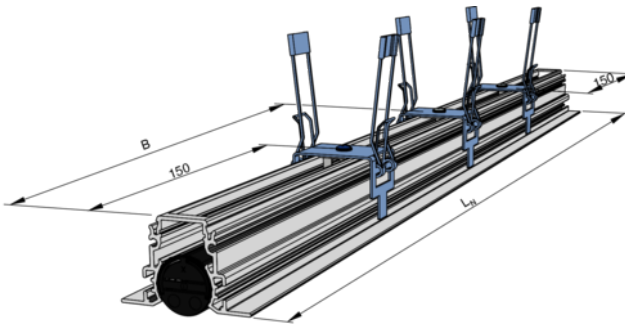


Fig. 20: 3 fixing points from  $L_N \geq 1500$  mm

$L_N$ [mm]	$B$ [mm]
600 - 1350	–
1500	750
1650	750
1800	900
1950	900

Technical data  
Dimensions and weights

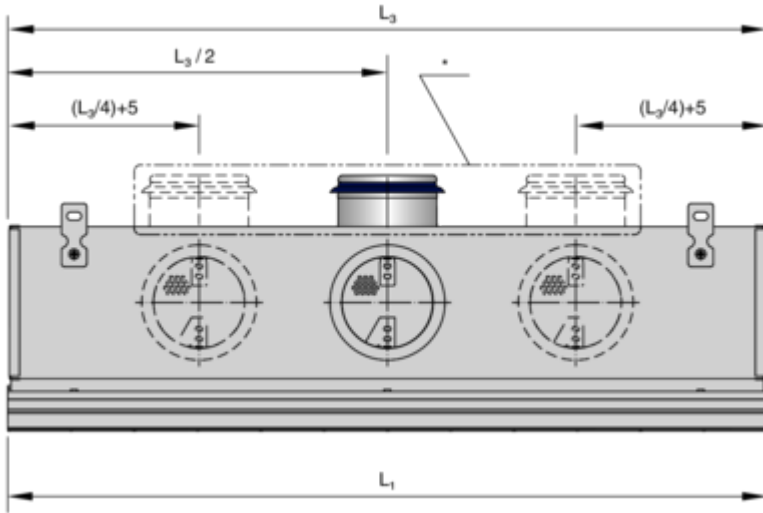


Fig. 21: Dimensions and spigot arrangement, \* spigot arrangement for plenum box variant VS

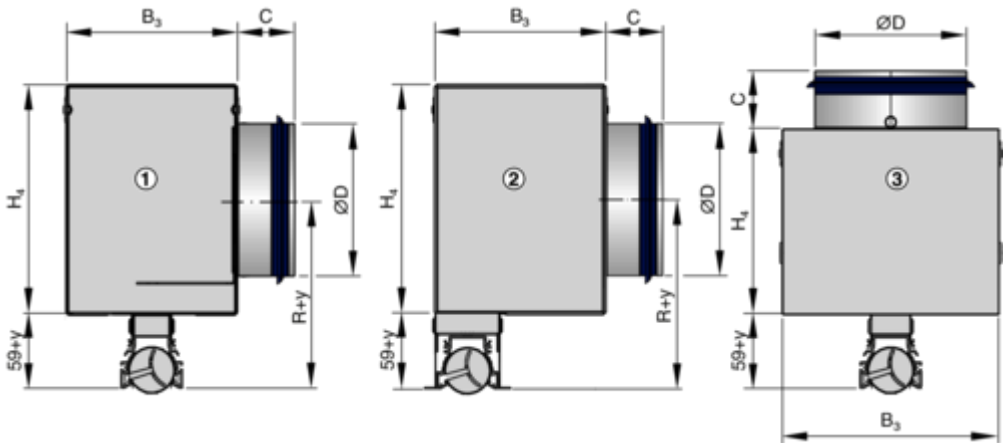


Fig. 22: Plenum box variants

- 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)

L <sub>N</sub>	L <sub>1</sub> [mm]	L <sub>3</sub> [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	B <sub>3</sub> [mm]		H <sub>4</sub> [mm]	
	HS/HA	values	HS/HA	values
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 + Y [mm]
PL50-1	152 + Y
PL50-2	172 + Y
PL50-3	197 + Y
PL50-4	229 + Y

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

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

Plenum box variant	Weight [kg/m]			
	Number of slots			
	1	2	3	4
Front rail	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	4.8	6.0	7.2	8.5
Plenum box VS	4.8	5.2	6.0	7.3
Plenum box VS+L	5.9	6.3	7.2	8.2

Total weight [kg] = weight of front rail + weight of plenum box  
Enter lengths in [m]

Front rails

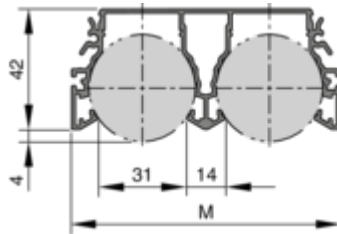


Fig. 23: PL50-2

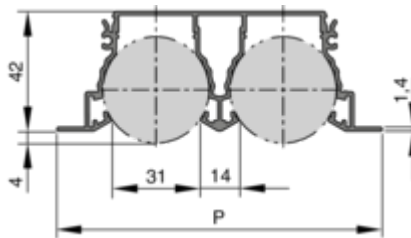


Fig. 24: PL50-2/B00

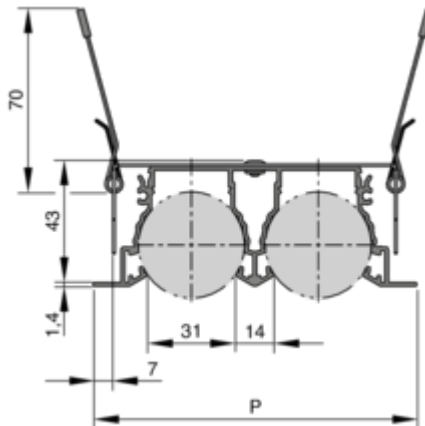


Fig. 25: PL50-2-DF/.../B00

Variant	M [mm]	P [mm]
PL50-1	50	70
PL50-2	95	115

Variant	M [mm]	P [mm]
PL50-3	140	160
PL50-4	185	205

## Setting the air discharge direction


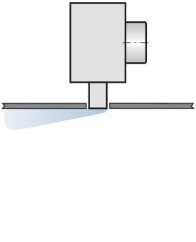
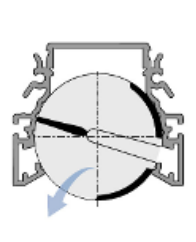

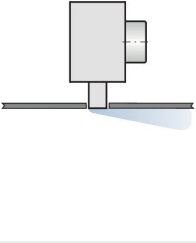
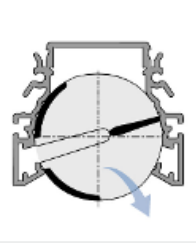
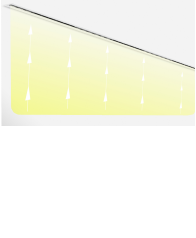
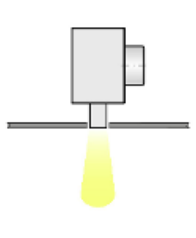
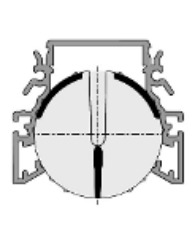
These are only schematic diagrams to illustrate the setting of the air control blades.

The air control blades have notches on the mullions that are used for adjustment. If necessary, we recommend that you use both hands to adjust the air control blades.

## Air discharge – ceiling installation

Air discharge		Setting of the air control elements	
Alternating horizontal air discharge			
Alternating air control elements set to left-hand or right-hand air discharge			
Alternating angled air discharge			
Alternating air control elements set to left-hand or right-hand air discharge			
Vertical air discharge			



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

## Initial commissioning

### General information

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 unit: The damper unit can also be operated when the diffuser face is mounted.

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

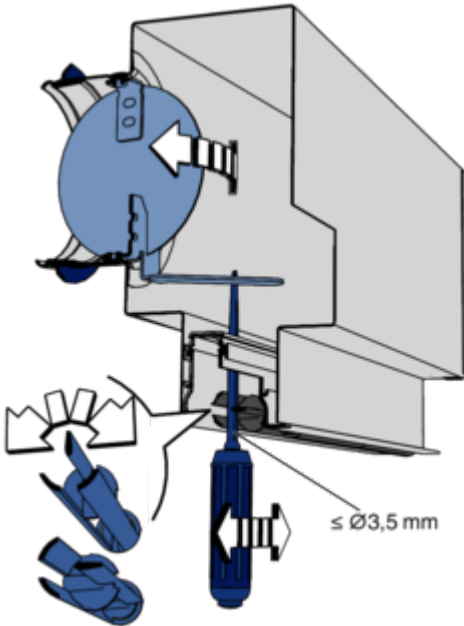


Fig. 26: Setting the damper unit in case of a horizontal spigot, e.g., with a screwdriver

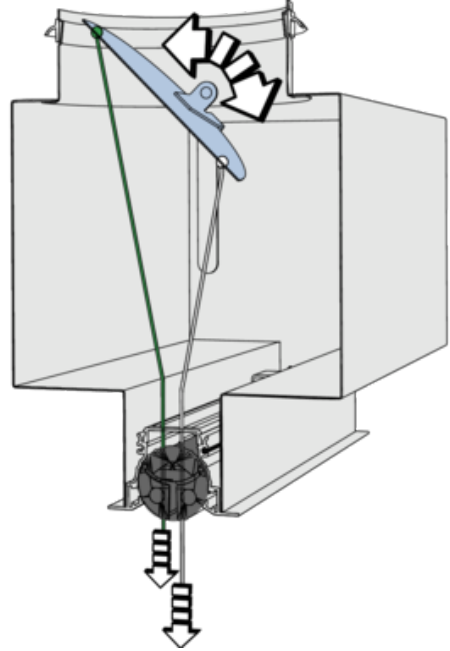


Fig. 27: Setting the damper unit with a vertical spigot

When pulling the cords:

White cord - Open the damper unit

Green cord - Close the damper unit

**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.