

# Slot diffusers for ceiling installation

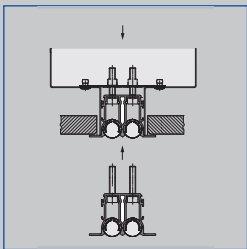
## Type PureLine18



Spigot with optional damper blade and optional lip seal



Alternating horizontal air discharge



Detachable diffuser face fixing



PL18-2/.../B00/P1-RAL 9010, installation in continuous ceilings



### Particularly slim diffuser face, available in numerous variants for many different installation situations

Slot diffusers with 18 mm diffuser face (nominal width) and adjustable air control elements

- Nominal length 600 – 2000 mm (length of air control element 100 mm), 1 or 2 slots
- Volume flow rate range 5 – 84 l/s or 17 – 302 m<sup>3</sup>/h
- Individually adjustable air control elements for horizontal, angled or vertical air discharge
- One-way or alternating air discharge meets individual local requirements
- Uniform air pattern reduces contamination of the ceiling due to the induction of room air
- Air control elements have grooves that allow for precise positioning

#### Optional equipment and accessories

- Attractive appearance due to extruded aluminium sections with anodised finish or powder coating
- Symmetric or asymmetric position of plenum box
- Plenum box with lining
- End plates, end angles, corner sections
- Different looks due to choice of black, grey or white air control elements

### Type

PureLine18

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### Application

#### Application

- Type PureLine18 slot diffusers are used as supply air or extract air devices in comfort zones
- Particularly unobtrusive diffuser due to its sleek design
- Installation into suspended ceilings
- For room heights up to 4 m (lower edge of suspended ceiling)
- For suspended ceilings; suitable for restricted ceiling voids due to the low overall height of the plenum box
- Suitable for continuous linear arrangement
- Adjustable air control elements allow for horizontal, angled or vertical air discharge
- Mixed flow system with one-way or alternating air discharge, can be adapted to the building structure
- 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

#### Special characteristics

- Uniform air pattern reduces contamination of the ceiling due to the induction of room air
- Horizontal, angled or vertical air discharge by means of manually adjustable air control elements
- Comfortable indoor climate due to high induction and rapid reduction of temperature differences and airflow velocities
- High-quality look thanks to anodised extruded aluminium sections (E6-C-0, natural colour) or powder coating (RAL CLASSIC colour)
- Diffuser face has been optimised for maximum volume flow rate at low sound power levels
- Suitable for continuous linear arrangement

#### Nominal sizes

- $L_N$ : 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000 mm
- Diffuser face also available in intermediate sizes

### Description

#### Variants

- PL18-\*: 1 or 2 slots
- PL18\*-DF: Diffuser face with spring clip
- PL18\*-DS: Diffuser face with extended border (B00) and screw fixing
- PL18\*-PB: Plenum box for screw fixing
- PL18\*-PF: Diffuser face and plenum box, non-detachable fixing
- PL18\*-SF: Diffuser face and plenum box, detachable fixing
- PL18\*-CS: Corner section

Position of plenum box on the front diffuser

- Central position
- On the left (LE)
- On the right (RI)

Plenum box variant

- Symmetric position of plenum box, side entry spigot (HS)
- Symmetric position of plenum box, top entry spigot (VS)
- Asymmetric position of plenum box, side entry spigot (HA)

#### Construction

Diffuser face finish

- Anodised, E6-C-0, natural colour
- P1: Powder-coated RAL 9010, pure white, gloss level 50%
- P1: Powder-coated RAL 9006, white aluminium, gloss level 30%
- P1: Powder-coated in any other RAL CLASSIC colour, gloss level 70%

#### Attachments

- D: Damper blade for volume flow rate balancing
- LS: Lip seal
- L: Internal insulation
- EP: Two end plates
- EA: Two end angles

Single diffusers are factory fitted with end plates or end angles.

#### Accessories

- EP: Two end plates
- EA: Two end angles

For a continuous linear arrangement the end plates or end angles have to be ordered separately and fitted by others.

### Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- 4 suspension points for on-site installation (by others)
- The manually adjustable air control elements have grooves that make it easier to adjust the elements and lock them in the required position
- Spigot with groove for lip seal (if accessory with lip seal has been ordered)
- Diffuser face sizes from 600 to 2000 mm, in increments of 1 mm
- Plenum boxes are only available in nominal lengths

### Materials and surfaces

- Diffuser face made from extruded aluminium sections
- Air control elements made of ABS plastic, UL 94, V-0, flame retardant
- Plenum box made of galvanised sheet steel
- End plates and end angles made of aluminium
- Lip seal made of rubber
- Lining is mineral wool with vinyl closed cell foam
- Diffuser face with anodised finish, E6-C-0, natural colour
- P1: Powder-coated, RAL CLASSIC colour
- Air control elements similar to RAL 9005, black
- G: Air control elements similar to RAL 9006, grey
- W: Air control elements similar to RAL 9010, white

### Mineral wool

- Where the mineral wool comes into contact with air, it is faced with glass fibre fabric as a protection against abrasion due to airflow velocities up to 20 m/s
- 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
- Inert to fungal and bacterial growth

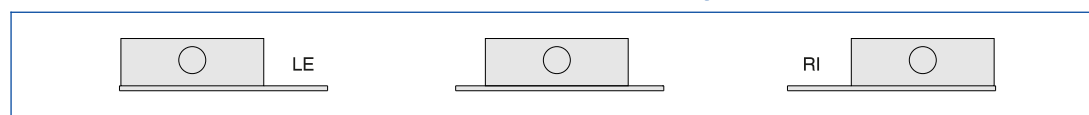
### Standards and guidelines

- 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

### PL plenum box, positioned on the left, in the centre, on the right



### Functional description

Slot diffusers direct the air from air conditioning systems into the room, either horizontally, at an angle or vertically.

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 PureLine18 slot diffusers are factory fitted with manually adjustable air control elements.

The air pattern can be adjusted to meet different local requirements.

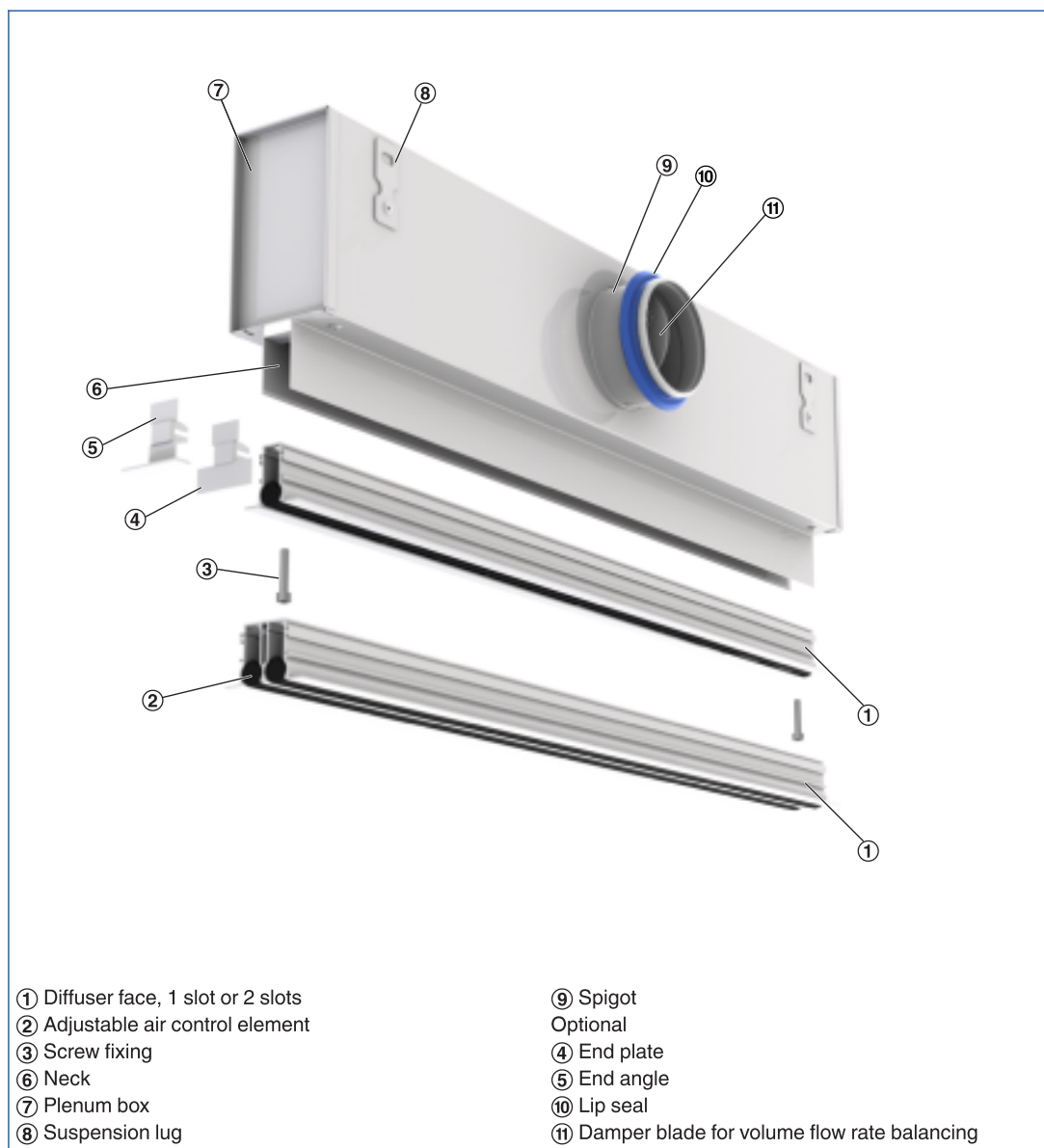
Air discharge is one-way or alternating horizontal. Other patterns: heating mode with vertical air discharge; angled air discharge.

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, PureLine18 diffusers may also be used for extract air.

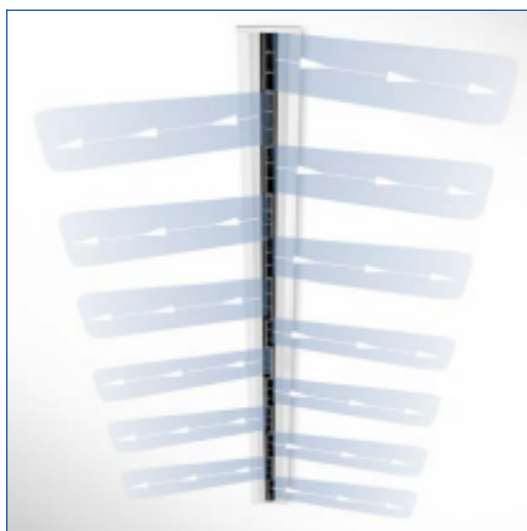
### Schematic illustration of PL18-\*-SF



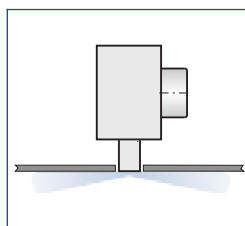
### Air patterns

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

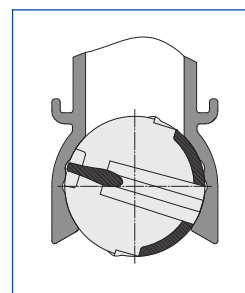
#### Alternating horizontal air discharge



#### Alternating horizontal air discharge

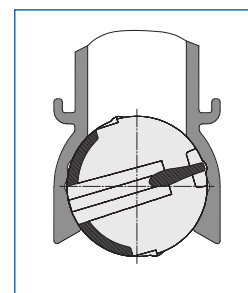


#### Setting of the air control elements



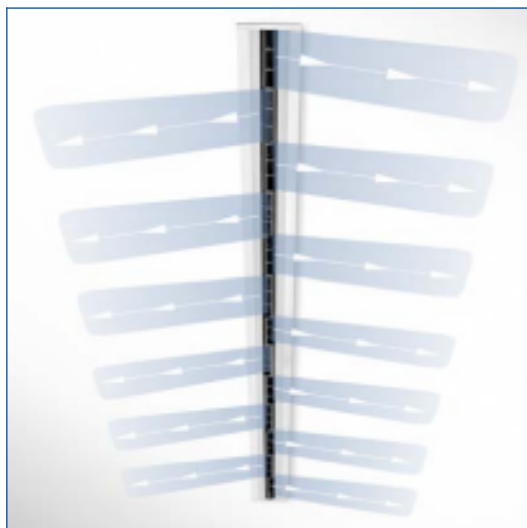
Air discharge:  
horizontal left

#### Setting of the air control elements

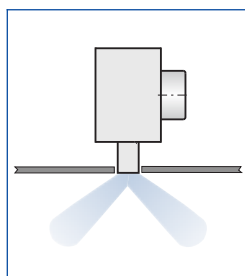


Air discharge:  
horizontal right

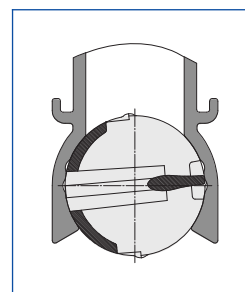
#### Alternating angled air discharge



#### Alternating angled air discharge (AS)

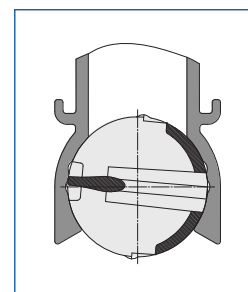


#### Setting of the air control elements



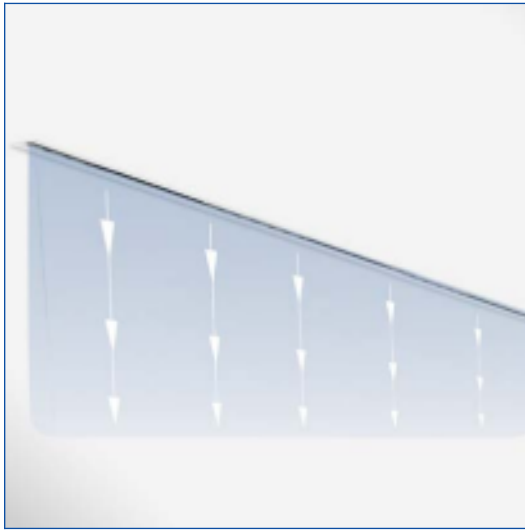
Air discharge: angled  
right

#### Setting of the air control elements

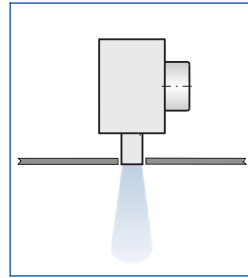


Air discharge: angled  
left

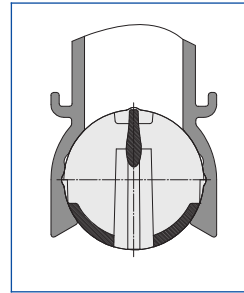
**Vertical air discharge**



**Vertical air discharge (V)**



**Setting of the air control elements**

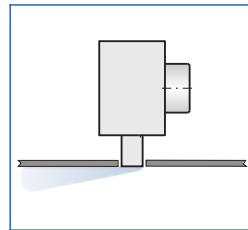


Air discharge: vertical

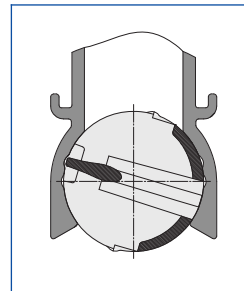
**One-way horizontal air discharge to the left**



**One-way horizontal left (HL)**



**Setting of the air control elements**

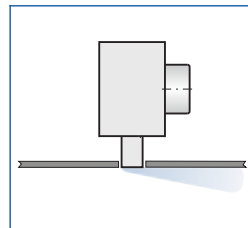


Air discharge:  
horizontal left

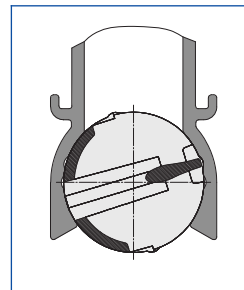
**One-way horizontal air discharge to the right**



**One-way horizontal right (HR)**



**Setting of the air control elements**



Air discharge:  
horizontal right

|                                                          |                                        |
|----------------------------------------------------------|----------------------------------------|
| Nominal length                                           | 600 – 2000 mm, in increments of 100 mm |
| Number of slots                                          | 1 or 2                                 |
| Minimum volume flow rate, with $\Delta t_z = -10$ K      | 5 l/s or 17 m <sup>3</sup> /h          |
| Maximum volume flow rate, with $L_{WA} \approx 50$ dB(A) | 84 l/s or 302 m <sup>3</sup> /h        |
| Supply air to room air temperature difference            | -10 to +10 K                           |

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 of Type PL18, with individually manually adjustable air control elements and 1 or 2 slots.

Air discharge can be alternating horizontal, alternating angled, vertical, one-way horizontal to the left or one-way horizontal to the right.

The slot diffusers are intended to be installed in suspended ceilings and are suitable for supply air and extract air. Ready-to-install component which consists of a diffuser face with a choice of black, grey or white air control elements.

Variants with plenum box have 1 or 2 spigots; symmetrically positioned plenum boxes may have side entry or top entry spigots, while asymmetrically positioned plenum boxes have only side entry spigots.

The plenum boxes are fitted with 4 suspension lugs.

The diffuser face fixing can be detachable or non-detachable.

Spigots are suitable for circular ducts according to EN 1506 or EN 13180. The sound power level of air-regenerated noise is measured according to EN ISO 5135.

### Special characteristics

- Uniform air pattern reduces contamination of the ceiling due to the induction of room air
- Horizontal, angled or vertical air discharge by means of manually adjustable air control elements
- Comfortable indoor climate due to high induction and rapid reduction of temperature differences and airflow velocities
- High-quality look thanks to anodised extruded aluminium sections (E6-C-0, natural colour) or powder coating (RAL CLASSIC colour)
- 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 ABS plastic, UL 94, V-0, flame retardant
- Plenum box made of galvanised sheet steel
- End plates and end angles made of aluminium
- Lip seal made of rubber
- Lining is mineral wool with vinyl closed cell foam
- Diffuser face with anodised finish, E6-C-0, natural colour
- P1: Powder-coated, RAL CLASSIC colour
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- Where the mineral wool comes into contact with air, it is faced with glass fibre fabric as a protection against abrasion due to airflow velocities up to 20 m/s
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- 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
- Inert to fungal and bacterial growth

### Construction

#### Diffuser face finish

- Anodised, E6-C-0, natural colour
- P1: Powder-coated RAL 9010, pure white, gloss level 50%
- P1: Powder-coated RAL 9006, white aluminium, gloss level 30%
- P1: Powder-coated in any other RAL CLASSIC colour, gloss level 70%

### Technical data

- Nominal length: 600 – 2000 mm, in increments of 100 mm
- Number of slots: 1 or 2
- Minimum volume flow rate, with  $\Delta t_z = -10$  K: 5 l/s or 17 m<sup>3</sup>/h
- Maximum volume flow rate, with  $L_{WA} \approx 50$  dB(A): 84 l/s or 302 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)]

Asymmetrically positioned plenum box



Plenum box with top entry spigot



Plenum box shorter than diffuser face, left position, with two side entry spigots



Plenum box shorter than diffuser face, central position, with side entry spigot



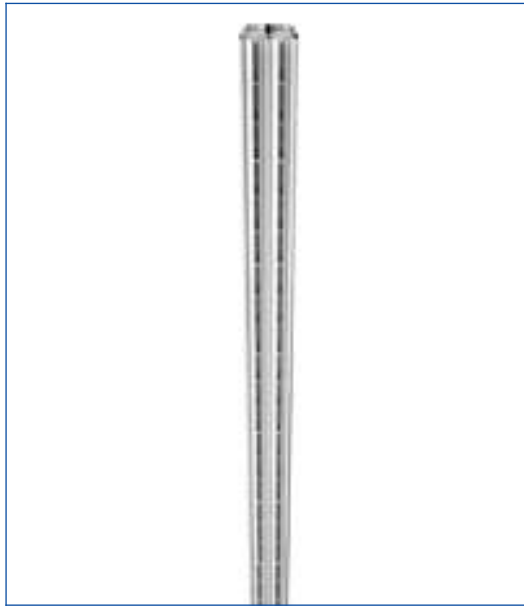
PL 18 corner section



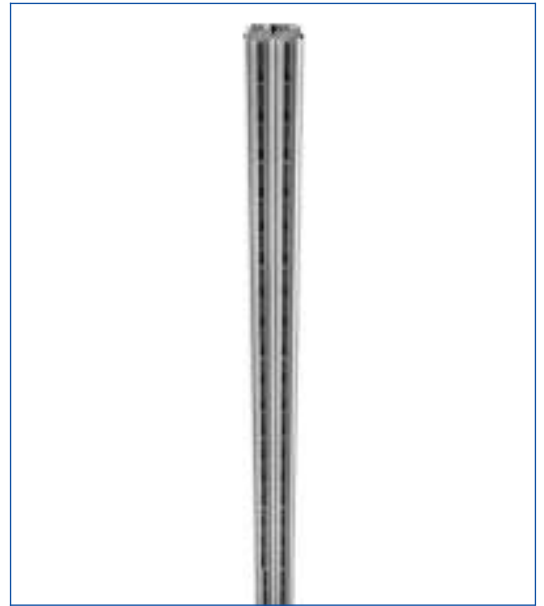
Diffuser face with black air control elements



Diffuser face with white air control elements

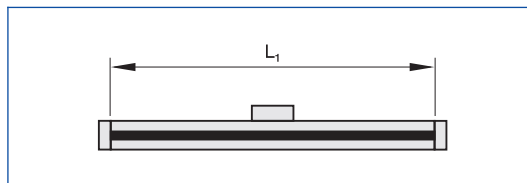


Diffuser face with grey air control elements

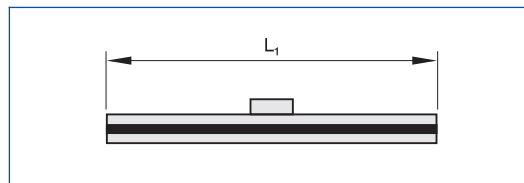


### Diffuser face

### End angles on both ends



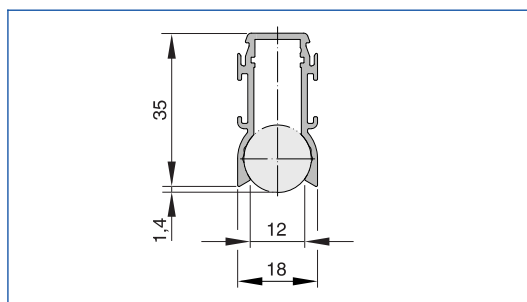
### Without end piece



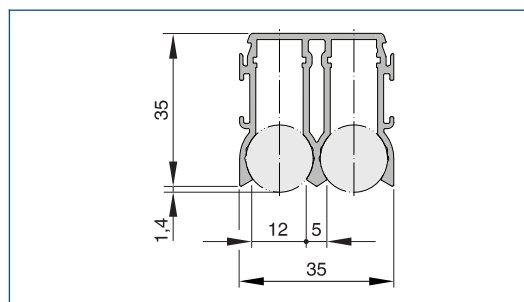
| Nominal length | L <sub>1</sub><br>mm |      |
|----------------|----------------------|------|
| 600            |                      | 600  |
| 700            |                      | 700  |
| 800            |                      | 800  |
| 900            |                      | 900  |
| 1000           |                      | 1000 |
| 1100           |                      | 1100 |
| 1200           |                      | 1200 |
| 1300           |                      | 1300 |
| 1400           |                      | 1400 |
| 1500           |                      | 1500 |
| 1600           |                      | 1600 |
| 1700           |                      | 1700 |
| 1800           |                      | 1800 |
| 1900           |                      | 1900 |
| 2000           |                      | 2000 |

### Profile

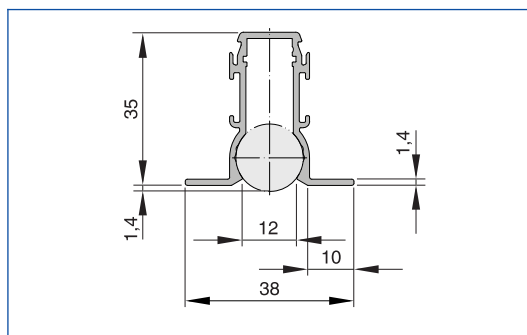
### PL18-1 profile



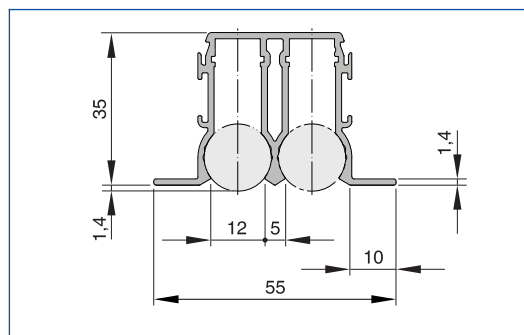
### PL18-2 profile



### PL18-1/B00 profile

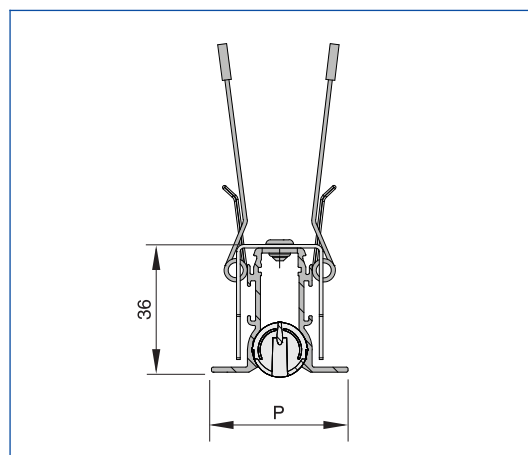


### PL18-2/B00 profile

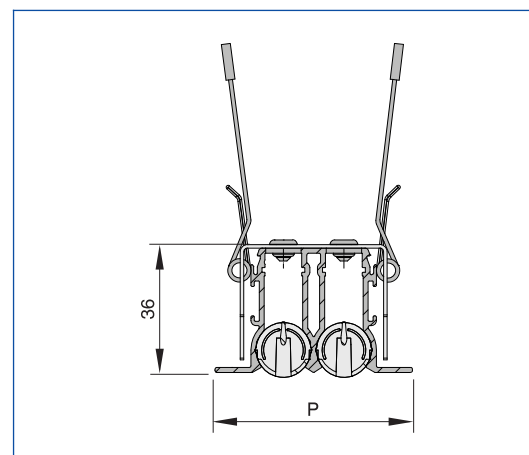


Diffuser face with spring clip

PL18-1-\*-DF (diffuser face with spring clip)



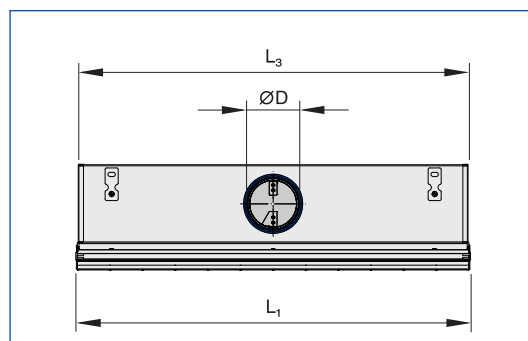
PL18-2-\*-DF (diffuser face with spring clip)



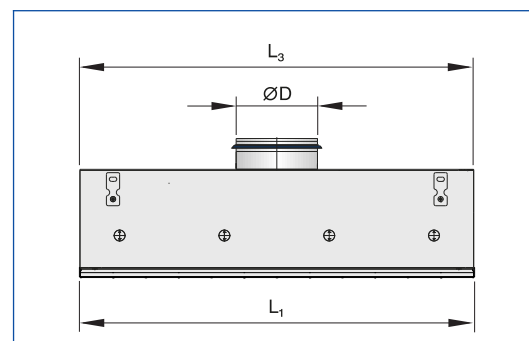
| Variant | With extended border |    |
|---------|----------------------|----|
|         | P                    |    |
|         | mm                   |    |
| PL18-1  |                      | 38 |
| PL18-2  |                      | 55 |

Diffuser face and plenum box

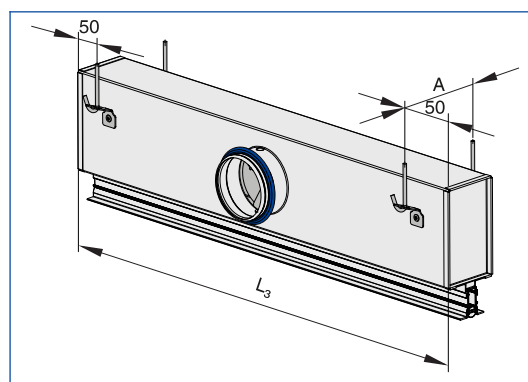
Plenum box with side entry spigot (HS / HA)



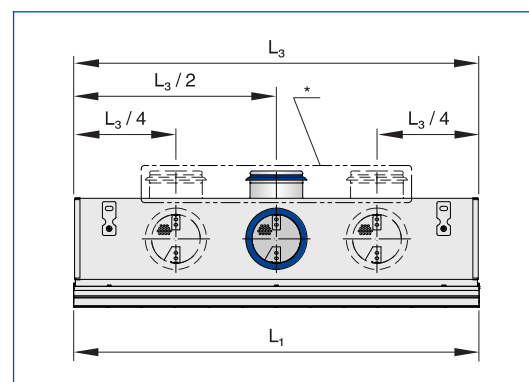
Plenum box with top entry spigot (VS)



Plenum box fixing points



Spigot arrangement



**PL18-\*-HS (symmetric position of plenum box, side entry spigot)**

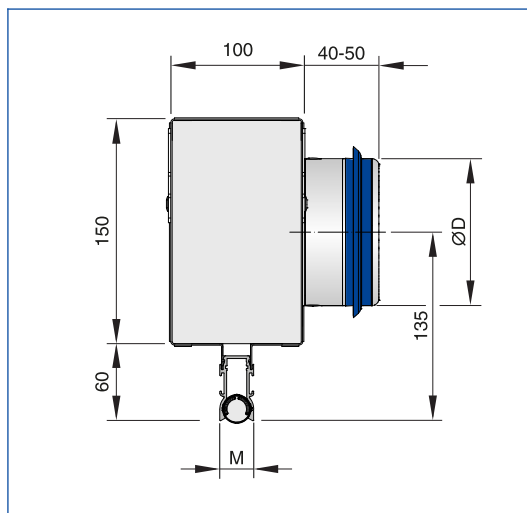


Illustration shows PL18-1-HS

**PL18-\*-HA (asymmetric position of plenum box, side entry spigot)**

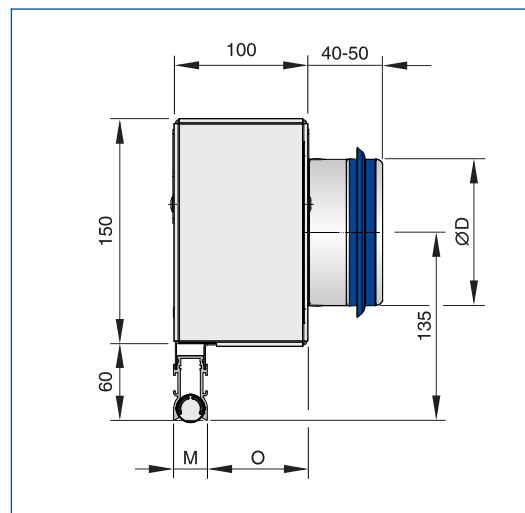


Illustration shows PL18-1-HA

**PL18-\*-HS-\*-B00 (symmetric position of plenum box, side entry spigot)**

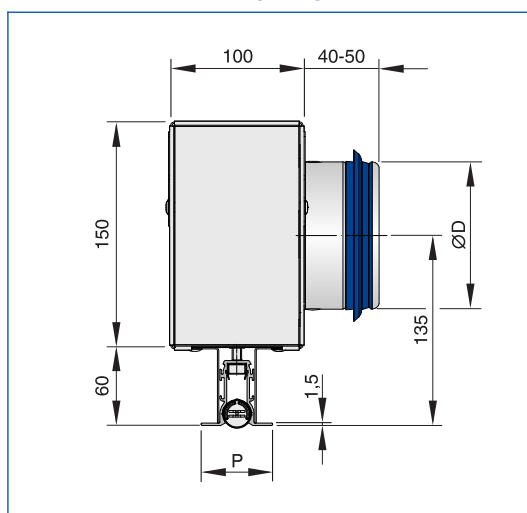


Illustration shows PL18-1-HS-B00

**PL18-\*-HA-\*-B00 (asymmetric position of plenum box, side entry spigot)**

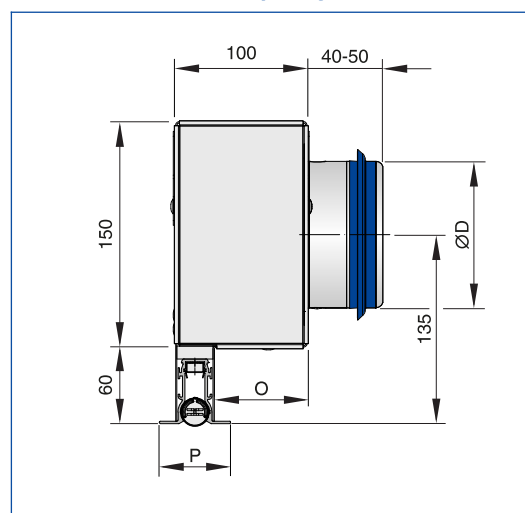


Illustration shows PL18-1-HA-B00

**PL18-\*-VS (symmetric position of plenum box, top entry spigot)**

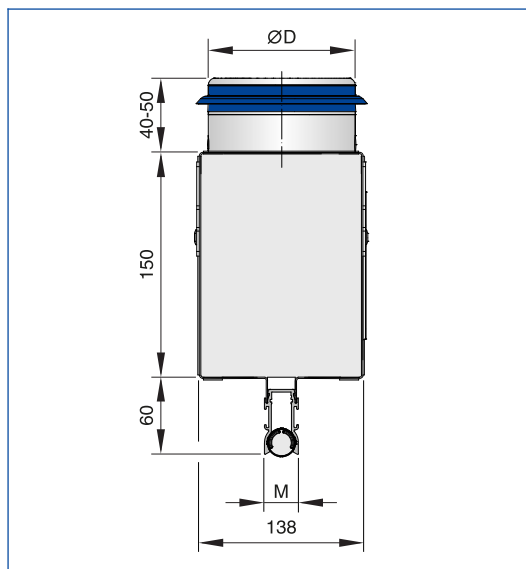


Illustration shows PL18-1-VS

### Dimensions [mm]

| Nominal length | L <sub>1</sub> | L <sub>3</sub> |
|----------------|----------------|----------------|
| 600            | 600            | 595            |
| 700            | 700            | 695            |
| 800            | 800            | 795            |
| 900            | 900            | 895            |
| 1000           | 1000           | 995            |
| 1100           | 1100           | 1095           |
| 1200           | 1200           | 1195           |
| 1300           | 1300           | 1295           |
| 1400           | 1400           | 1395           |
| 1500           | 1500           | 1495           |
| 1600           | 1600           | 1595           |
| 1700           | 1700           | 1695           |
| 1800           | 1800           | 1795           |
| 1900           | 1900           | 1895           |
| 2000           | 2000           | 1995           |

| Variant        | M  | P   | O     |       | ØD     |
|----------------|----|-----|-------|-------|--------|
|                |    | B00 | PF-HA | SF-HA |        |
| PL18-1-HS / HA | 18 | 38  | 84    | 80    | 78/98  |
| PL18-2-HS / HA | 35 | 55  | 67    | 63    | 98/123 |
| PL18-1-VS      | 18 | 38  |       |       | 78/98  |
| PL18-2-VS      | 35 | 55  |       |       | 98/123 |

| Variant | ØD  | C  |
|---------|-----|----|
| PL18-1  | 78  | 42 |
| PL18-1  | 98  | 50 |
| PL18-2  | 98  | 50 |
| PL18-2  | 123 | 48 |

| No. of spigots | Nominal size |
|----------------|--------------|
| 1              | 600          |
| 1              | 700          |
| 1              | 800          |
| 1/2            | 900          |
| 1/2            | 1000         |
| 1/2            | 1100         |
| 1/2            | 1200         |
| 2              | 1300         |
| 2              | 1400         |
| 2              | 1500         |
| 2              | 1600         |
| 2              | 1700         |
| 2              | 1800         |
| 2              | 1900         |
| 2              | 2000         |

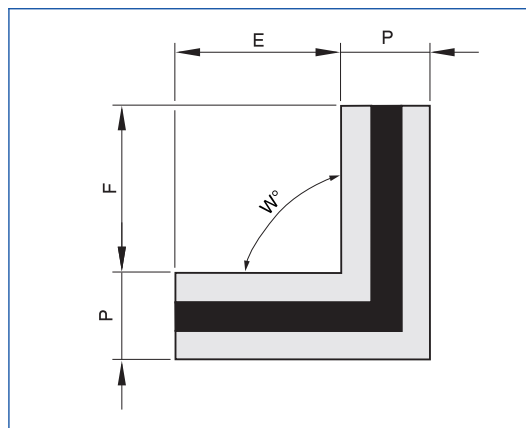
### Weights

| Plenum box variant | Variant | kg/m |
|--------------------|---------|------|
| Diffuser face      | PL18-1  | 0.5  |
| Diffuser face      | PL18-2  | 0.8  |
| Plenum box HS/HA   | PL18-1  | 3.4  |
| Plenum box HS/HA   | PL18-2  | 3.4  |
| Plenum box VS      | PL18-1  | 2.9  |
| Plenum box VS      | PL18-2  | 2.8  |

Total weight = weight of diffuser face + weight of plenum box

### Corner section

### PL18-\*-CS

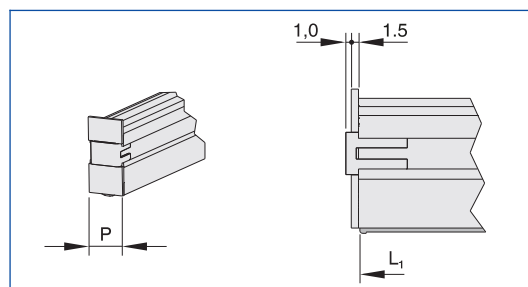


| Variant | Without extended border | With extended border |
|---------|-------------------------|----------------------|
|         | P                       |                      |
|         | mm                      |                      |
| PL18-1  | 18                      | 38                   |
| PL18-2  | 35                      | 55                   |

|                  | E   | F   | W    |
|------------------|-----|-----|------|
| Min. entry value | 100 | 100 | 45°  |
| Max. entry value | 300 | 300 | 175° |

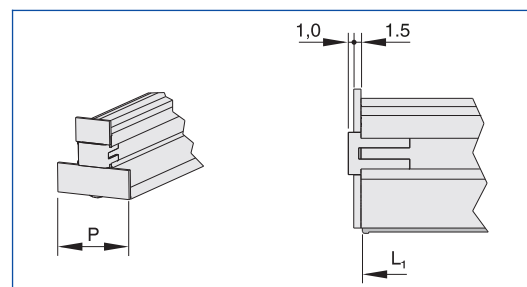
### End plate

### End plate EP



Profile without extended border

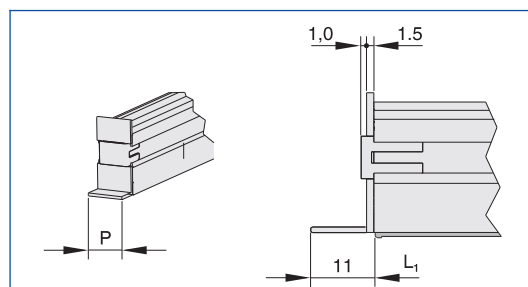
### End plate EP



Profile with extended border

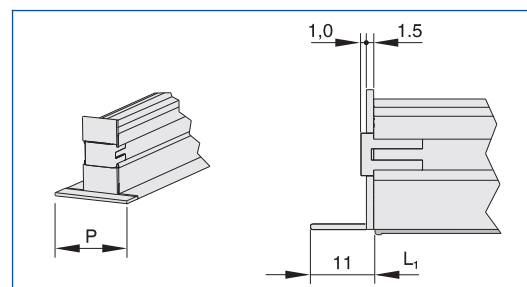
### End angle

### End angle EA



Profile without extended border

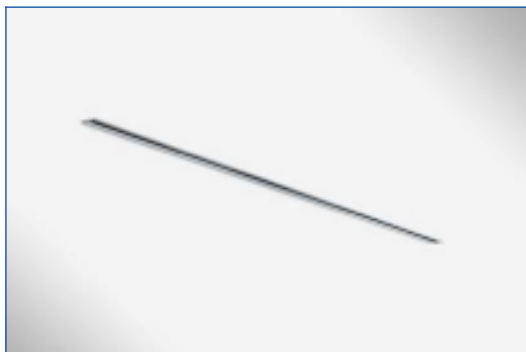
### End angle EA



Profile with extended border

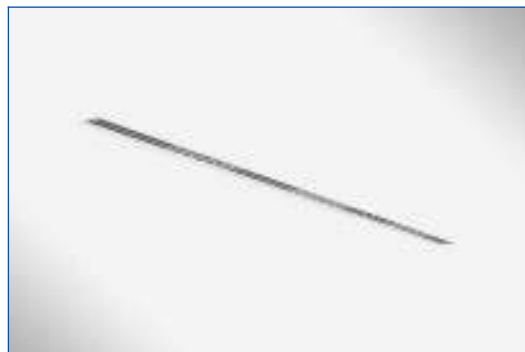
| Variant | Without extended border |    | With extended border |    |
|---------|-------------------------|----|----------------------|----|
|         | P                       |    |                      |    |
|         | mm                      |    |                      |    |
| PL18-1  |                         | 18 |                      | 38 |
| PL18-2  |                         | 35 |                      | 55 |

**PL18-1/.../B00, installation in continuous ceilings**



Anodised, E6-C-0, natural colour

**PL18-2/.../B00/P1-RAL 9010, installation in continuous ceilings**



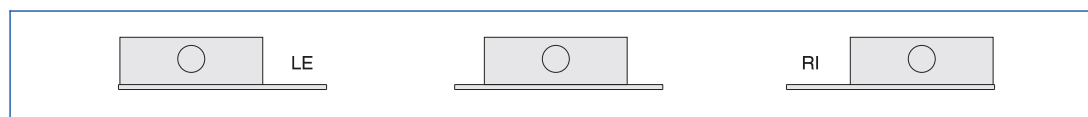
Powder-coated RAL 9010, pure white

### Installation and commissioning

- For room heights up to 4 m (lower edge of suspended ceiling)
- Flush ceiling installation
- Horizontal or vertical duct connection
- If  $(L_3 + 5) < L_1$ , the plenum box can be positioned to the left, to the right or in the centre.
- For a continuous linear arrangement connect the diffusers with alignment plates
- If necessary, carry out volume flow rate balancing with the damper blade
- Fixing material for fixing the slot diffusers is to be provided by others

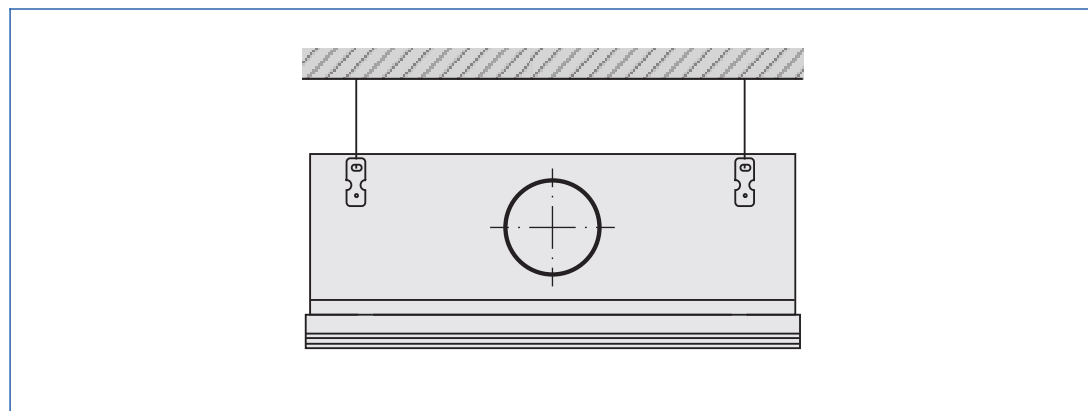
These are only schematic diagrams to illustrate installation details.

### PL plenum box, positioned on the left, in the centre, on the right

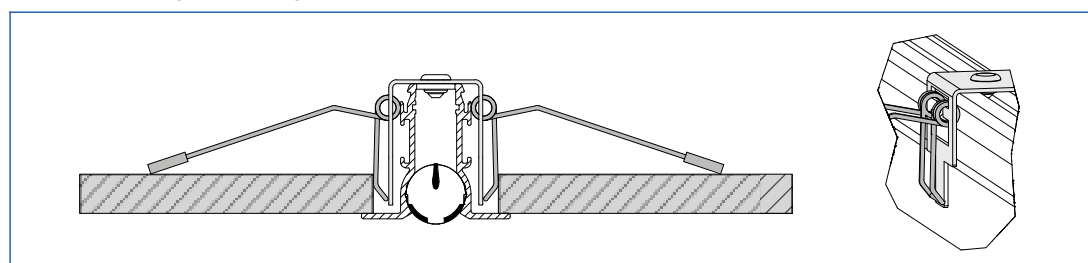


These are only schematic diagrams to illustrate installation details.

### Suspension

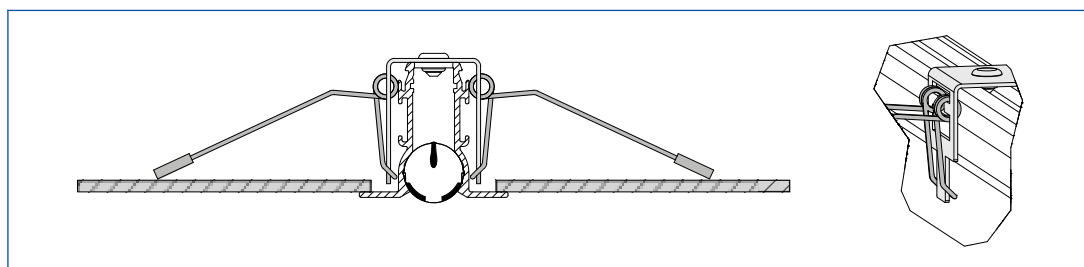


### PL18-DF spring clip fixing



If ceiling thickness is  $> 9$  mm

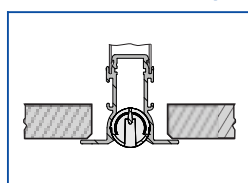
### PL18-DF spring clip fixing



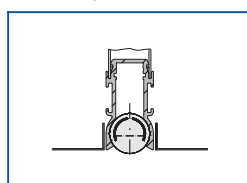
If ceiling thickness is  $\leq 9$  mm

### Ceiling systems

#### Continuous ceiling

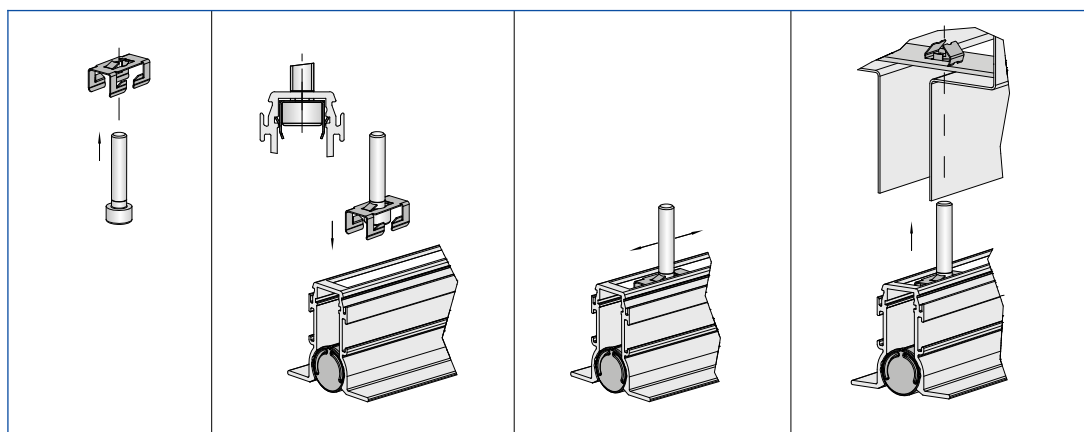


#### Rectangular panels



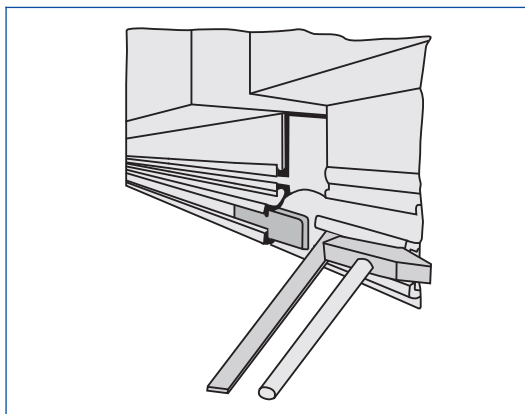
### Detachable diffuser face fixing

#### PL35 with detachable diffuser face fixing

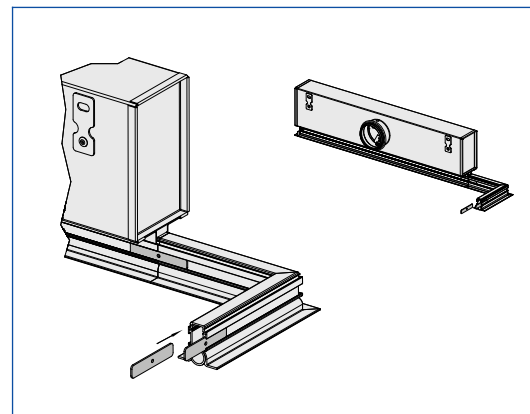


### Slot diffusers, linear run

### Continuous linear arrangement



### Fitting corner sections



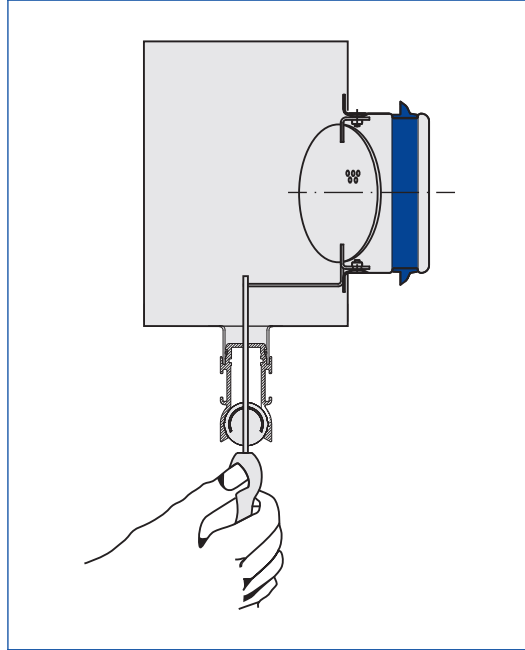
- Each slot diffuser (without end pieces) is supplied with two alignment plates

### 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.

### Volume flow rate balancing



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