



Picture 1. Plafond is suitable when the ceiling should be free from equipment.

Use

Offices, hotels, hospitals, schools, banks, etc.

Installation

Visible installation in corners between a wall and a ceiling, or on a wall.

Worth noting

Especially suitable when the ceiling should be free from equipment (see picture 1). The supply air is directed along the ceiling or wall. Available with Drypac™ condensation protection or Regula Secura condensation guard. EHG's supply air beams are Eurovent-certified and tested according to EN-15116 and EN-14518.



Key figures

Length: 47.2" - 141.7"
Size: Plafond B has the format 12.6" × 11.9".
Plafond C has the format 9.4" × 9.1".
Plafond D has the format 14.1" × 11.9".
Capacity: Cooling effect of up to 4,535 BTU
Air quantity of up to 85 cfm

Function

Plafond's function is based on the induction principle. Ventilation air with a certain dynamic pressure is released through specially-formed nozzles into a dispersal zone, thereby creating a low static pressure. This low pressure causes warm air from the room to be sucked towards the ventilation air passing through the battery. The volume of the warm indoor air is 4 to 5 times that of the ventilation air. The air is cooled as it passes through the battery, which consists of aluminium ribs with copper ducts filled with cold running water. The heat of the room is absorbed through the aluminium ribs and then transferred through the copper pipe to the water circuit and on to a central cooling unit. Despite the small external dimensions of the product, the construction makes it possible to achieve a high cooling effect. The nozzles releasing the ventilation air are designed to maintain the Coanda effect, i.e. the adhesive capacity of the air in the duct, in the nozzles. The air then follows the side of the duct towards the ceiling or the wall. In this way, the air "adheres" to the room's ceiling or wall, where the air velocity later diminishes.

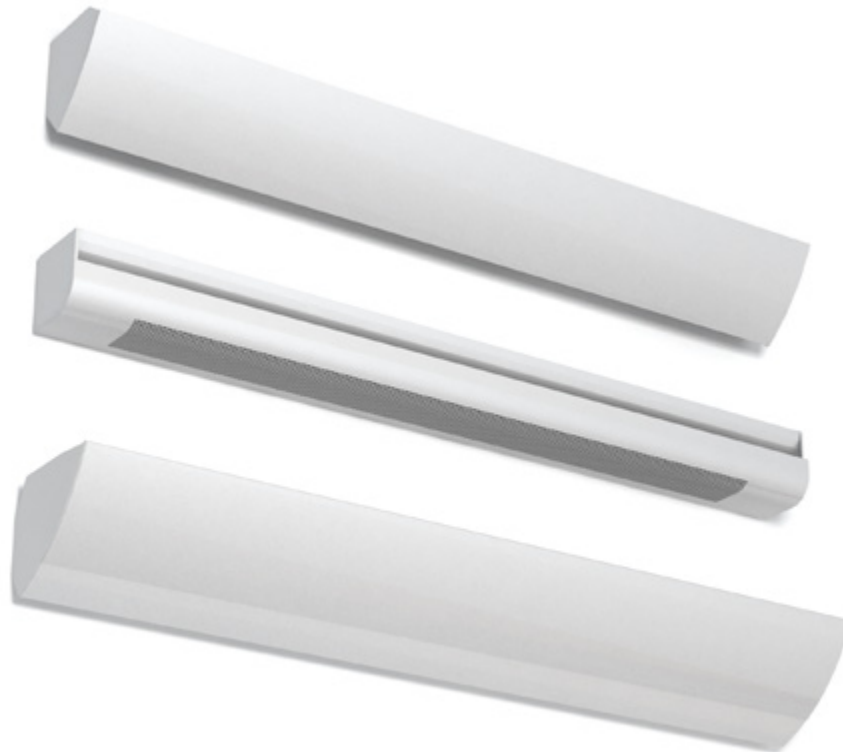
Design

Plafond is available in three designs: B, C and D (see picture 2). The shape of the product is suitable for installation in a corner between a wall and a ceiling, or directly on a wall. If a uniform appearance throughout the whole room is desired, Plafond can be supplied either with an inactive part or fitted with side covers. The side covers have the same shape as the product, and can be designed to extend from wall to wall, max. 141.7".

For the best possible accessibility for cleaning, suspension, adjustment or maintenance, the whole front plate of Plafond can be removed. Valves and controls can be placed behind the front plate, so they are easily accessible for adjustment and maintenance. The beam is suspended before the front plate is put into place.

Plafond can be ordered with a preset airflow at a selected air pressure. By removing the nozzle plugs or plugging more nozzles, respectively, the airflow, if necessary, can be increased or decreased at a later time. The increase, however, is limited by the number of nozzles.

The water pipes are made of copper. Nevertheless, the water should be oxygen-free to prevent corrosion.



Picture 2. Plafond B (top), Plafond C (middle) and Plafond D (bottom).

Chilled beams

Plafond

Hygiene

Everything is accessible

The requirement for all parts of the beam to be easy to clean is met by the removable front plate (see picture 3). A cleaning hatch on the beam's air duct provides easy access so the air duct can be cleaned from the inside. The cooling battery is accessible from three sides and therefore can be cleaned thoroughly. The same applies to the Coanda nozzles, which are accessible from the sides or from underneath. All of this allows thorough cleaning of the product. It is of primary importance to be able to clean the batteries in products installed in premises with high concentrations of dust particles.

Room environment

The ventilation principle in Plafond can be selected according to the layout of the room and the location of the product. If the air is directed upwards, the ventilation principle is to spread the cooled air across the ceiling (see pictures 5 to 6). The heated air is then absorbed from the central area of the room and fed to the beam for further cooling. If the air is directed downwards, the ventilation principle is to spread the cooled air down along the walls (see picture 4).

The air reaches the floor, and then it is dispersed in the room. When the room air is heated, it rises to the ceiling to be cooled again. In both scenarios, the room is well ventilated.

Conventional supply air beams, which spread the air linearly, can create high air velocities, as the air stream tends to be compressed and concentrated towards the centre. To reduce air velocities, the air distribution in the EHG Plafond is angled outwards. The outer nozzles point slightly outwards, which leads to air velocities that are significantly lower than those from conventional supply air beams, with a linear outlet.

As regards to noise, the nozzles are shaped like an inverted trumpet, i.e. some what negatively directed at the outlet, which also leads to very low noise from the nozzle.

Plafond's one-way air injection is especially suited for premises where the ceiling has beams or is at different levels. The construction is designed to enable the product to be installed with the air direction horizontal or vertical. The product's air circulation can thereby be adapted to the conditions of the specific room, resulting in low air velocities.



Picture 3. Battery and air duct are accessible for maintenance and cleaning.



Picture 4. Plafond D with air injection across the wall.



Picture 5. Plafond C with air injection across the ceiling.



Picture 6. Plafond C with air injection across the ceiling.

Data

Versions

Size: Plafond is available in three different designs:
Plafond B has the format 12.6" x 11.9"
Plafond C has the format 9.4" x 9.1"
Plafond D has the format 14.1" x 11.9"

Lengths: Plafond is available in lengths from 47.2" - 141.7" in steps of 4".

Water connection: The water connection is horizontal or vertical, with outer diameter of 0.6".

Air connection: The air connection can be rotated into a horizontal or vertical position, 4"Ø.

Design: The perforations in the front plate are available in two versions, Slot and Dot. Slot is the standard perforation supplied.

Nozzle angle: The nozzles can be ordered with different angles, 0°, 16° or 30°. The standard is 30°.

Surface treatment: Plafond is manufactured as standard from enamelled sheet metal, color white, RAL 9010.

Airflow control: The product has a preset pressure drop value, so on-site adjustment is not necessary. A prerequisite is that the duct system in the building has a relatively low-pressure drop compared to that of the product. Where a damper is desired, you can order a balancing damper.

Plus features

Factory preinstalled.

Heating: There is a heating option by way of an additional heating pipe in the battery.

Drypac™: Anti-condensation treated cooling batteries that enable water temperatures below the dew point without drips.

Air vent: Air vents are installed on the return side of the connection pipe.

Color: Special colors and other surface finishes, e.g. galvanised and powder coating. Please contact EHG for more information.

Accessories

Side covers: Available in lengths of up to 141.7". Supplied non-perforated.

Cooling effect

Drypac™ condensation protection

Drypac™ is a condensation protection consisting of Perlite (volcanic stone), which is applied to the fin surfaces. Drypac™ has properties that enable it to work with a supply temperature that is 39.2° F below the dew point, for continuous operation, and 41 to 46.4° F below the dew point for limited periods. Drypac™ provides both an increased effect output and increased security against condensation drips. At a working temperature above the dew point, output is reduced by 17 % but when the working temperature is below the dew point, there is no reduction in output. This means that the effect is highest when the need is greatest.

Chilled beams

Plafond

Couplings & connections

Plafond is supplied in lengths from 47.2" to 141.7" in steps of 4". The connection dimension is 0.6" o.d. for the water and 4" for the air.

Plafond is available with a large number of coupling options. This is how to find the designation for the coupling option you require for Plafond:

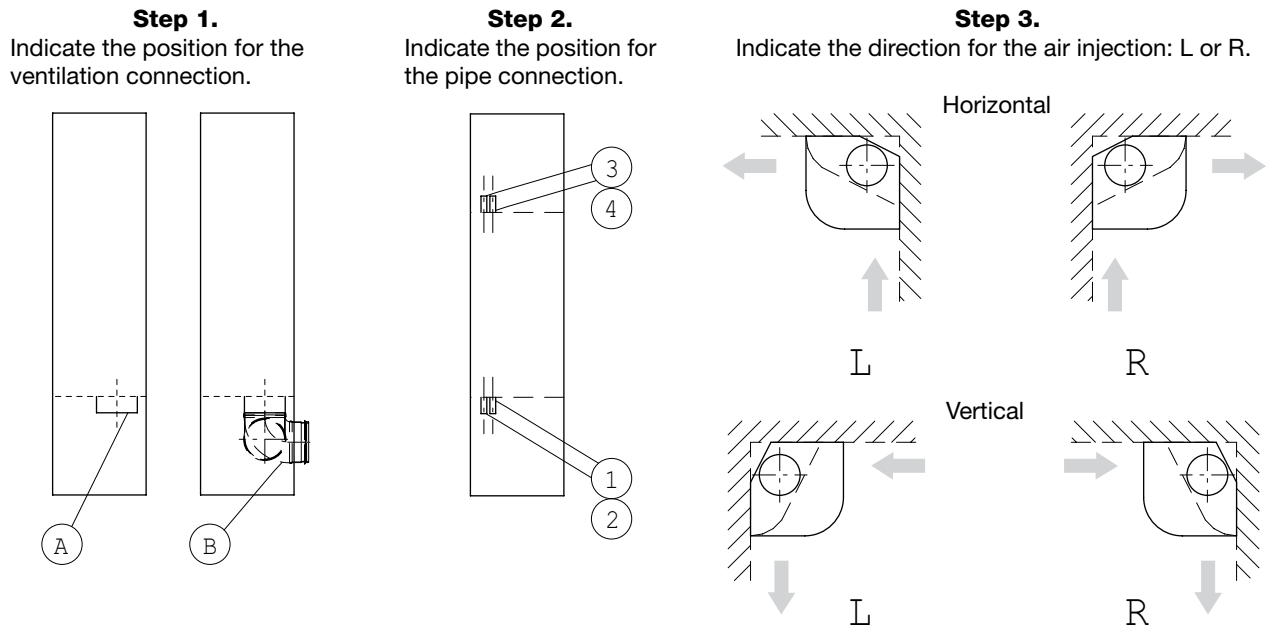


Figure 1 Connections 2 and 4 are vertical and are provided with elbow couplings.

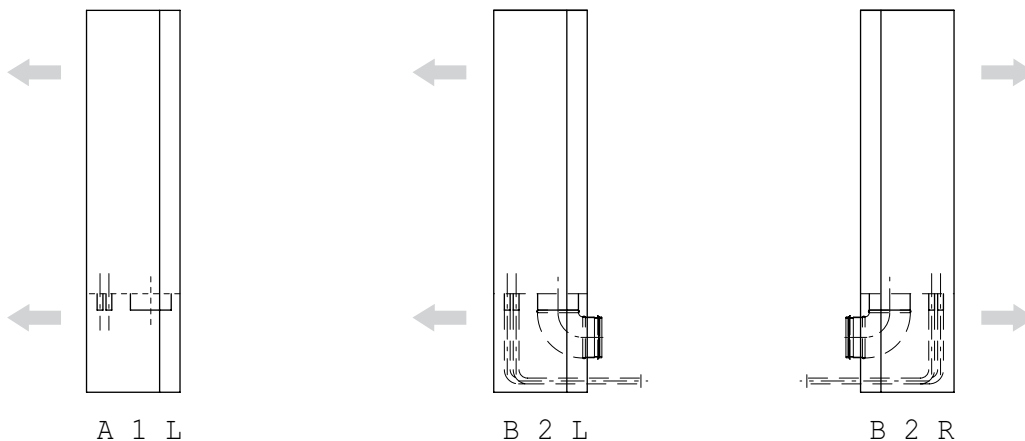


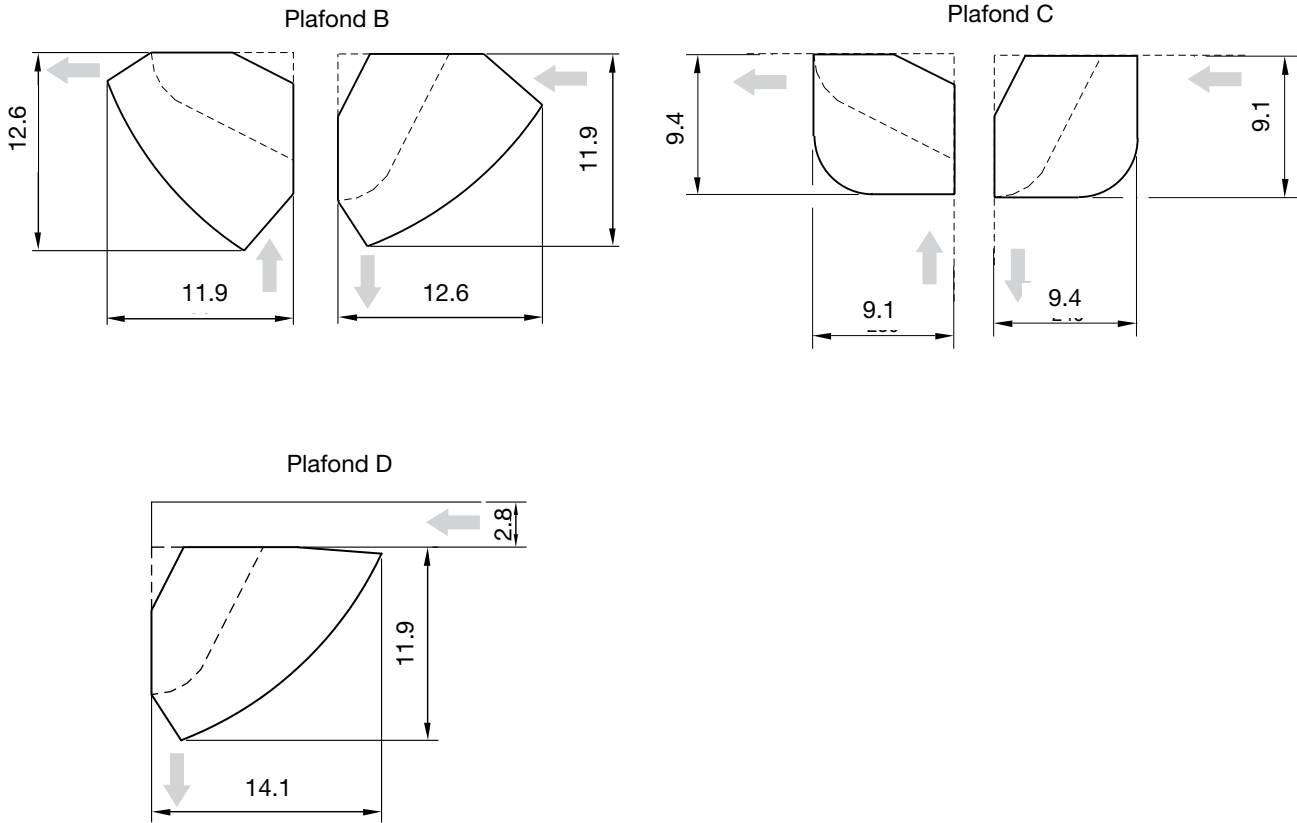
Figure 2. Examples of standard coupling options, horizontal air injection. Type A1L, therefore, has the air connection on the end piece, pipe on the same end piece and the direction of air injection L.

Chilled beams

Plafond

Width & height, (in)

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Length, in

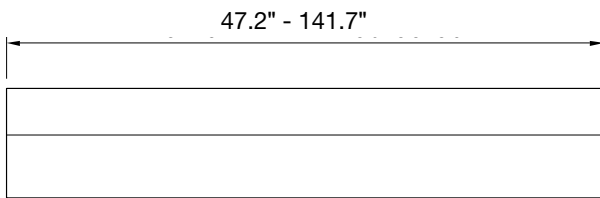
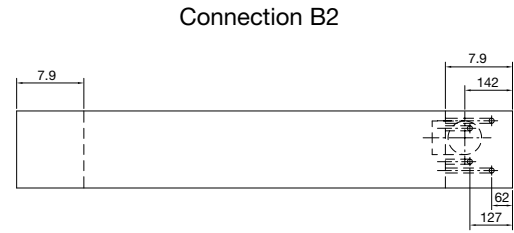
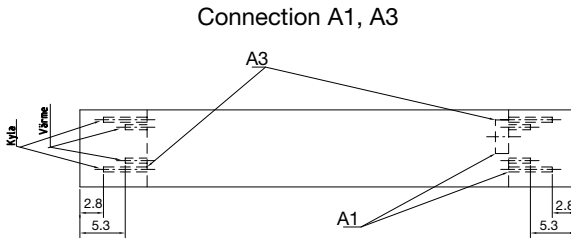


Figure 3. Plafond B, C and D, width, height and length.

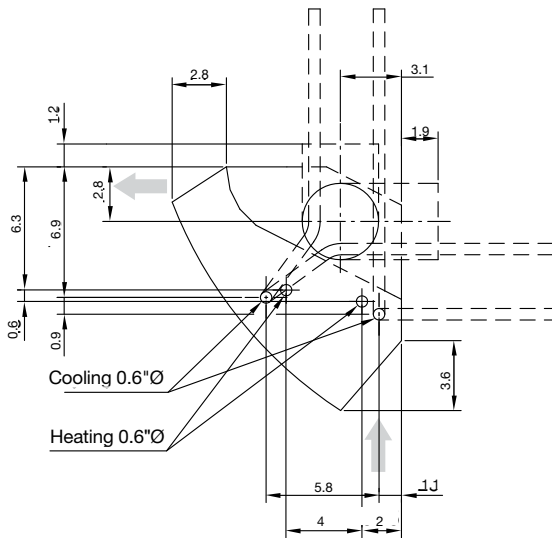
Chilled beams

Plafond

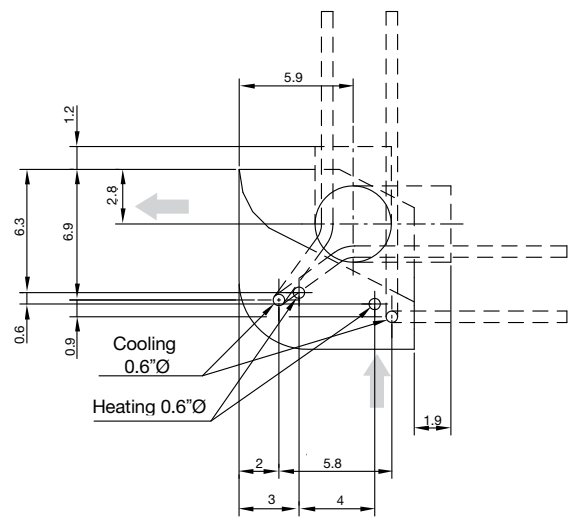
Dimensions, (in)



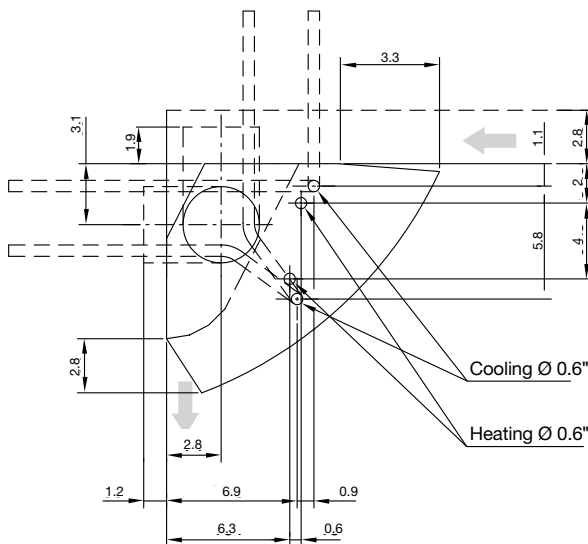
Plafond B



Plafond C



Plafond D



Weight and water volume

	Plafond
Weight, lb/ft	7.8
Water content, cooling gal/ft	0.05
Water content, heating gal/ft	0.03
Copper pipes, quality	SS/EN 12449
Pressure class	PN10

Table 8. Plafond, weight and water volume.

Figure 4. Plafond B, C and D, dimensions.

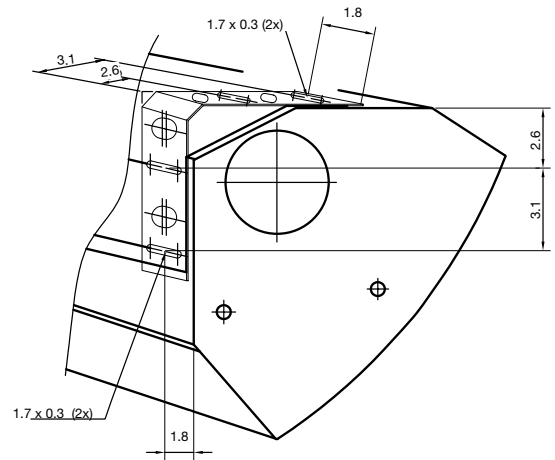
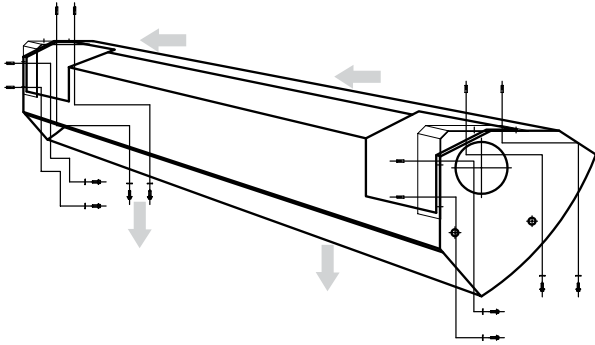
Chilled beams

Plafond

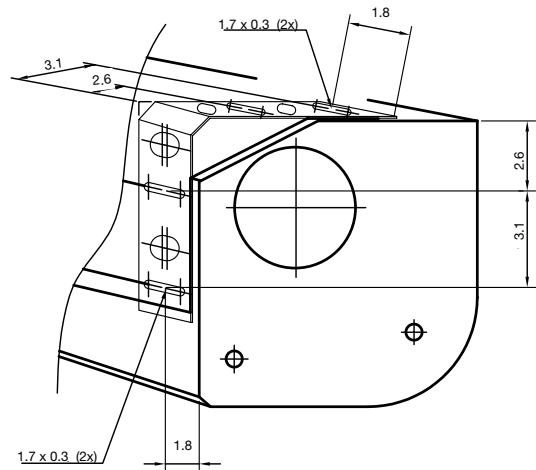
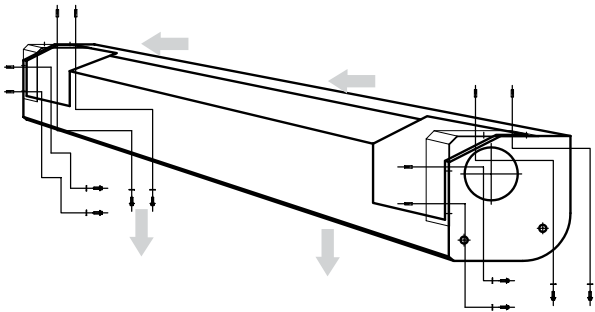
Suspension, (in)

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Plafond B



Plafond C



Plafond D

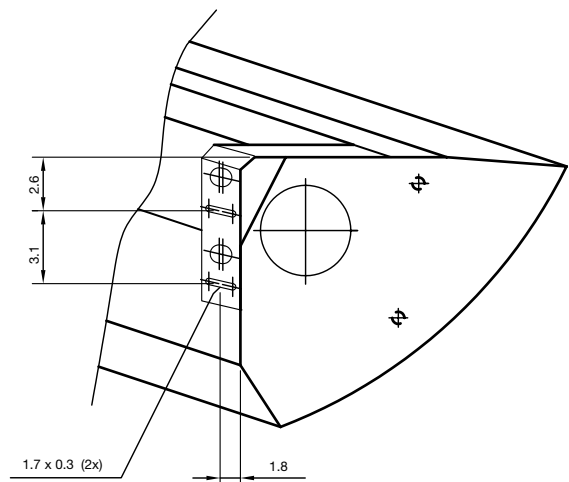
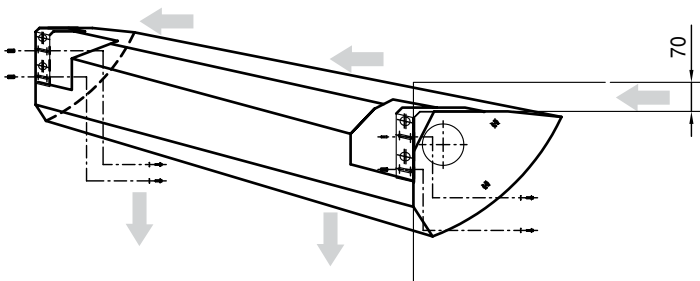


Figure 5. Plafond B, C and D.

Chilled beams

Plafond

Installation examples

Plafond is always installed visibly and fixed to the ceiling or wall.

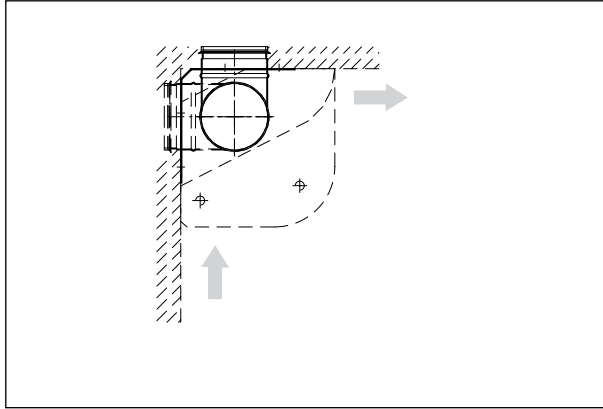


Figure 6. Plafond with air distribution along the ceiling.

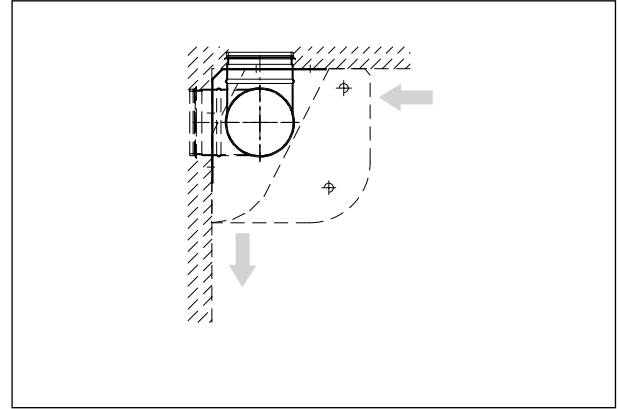


Figure 7. Plafond with air distribution along the wall.

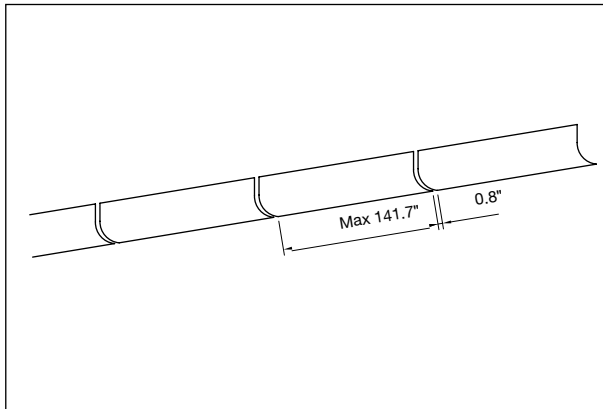


Figure 8. Several Plafond beams installed side by side.

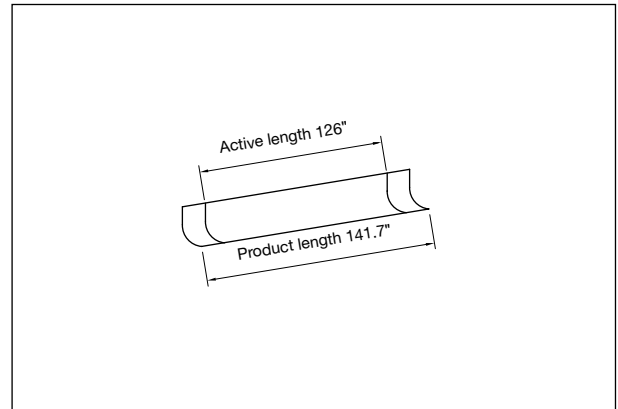


Figure 9. Maximum product length.

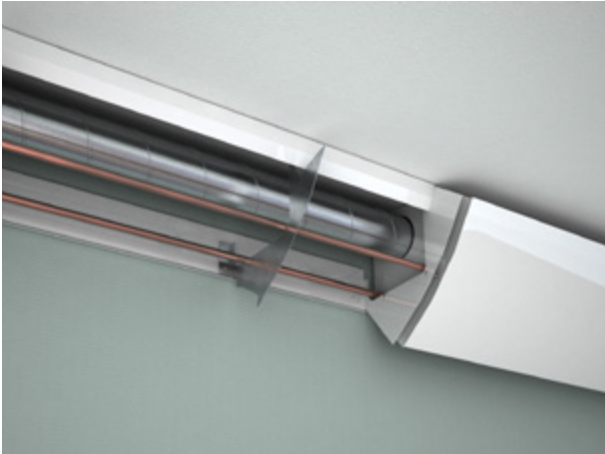
Chilled beams

Plafond

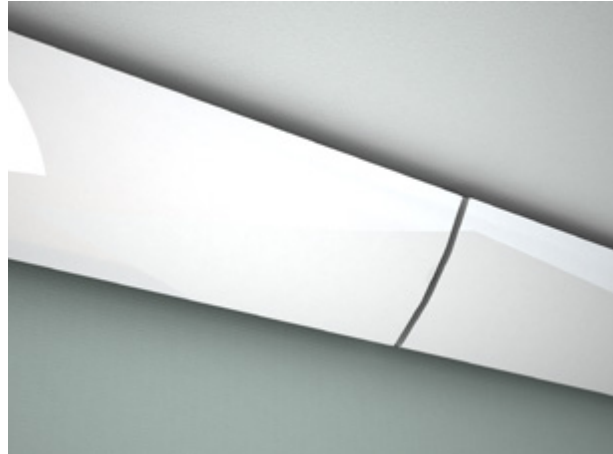
Installation of side covers

When installing Plafond with side covers, it can be difficult to place the beam and the side cover in a straight line, if the walls and ceiling are uneven. Therefore, a gap (0.8") is recommended between the beam and the side cover to indicate the different parts.

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Picture 7. Complete installation of Plafond B without side cover.



Picture 8. Complete installation of Plafond B with side cover.



Picture 9. Complete installation of Plafond C without side cover.



Picture 10. Complete installation of Plafond C with side cover.