

INSTALLATION GUIDE OF PLASTER-IN DIFFUSERS

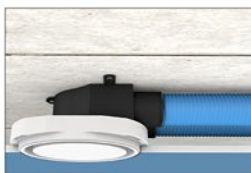
INSTALLATION METHODS AND CONNECTION INSTRUCTIONS FOR AIRMANN SPOT DIFFUSERS

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MOUNTING METHOD SELECTION

1. Diffuser with ceiling
space-saving box



2. Connection to
plenum box



3. Connection to
flexible duct pipe



4. Plasterboards are
already secured



Maximum ceiling height
required



-

-

-

Metal duct pipe system

-

-



-

Plenum boxes are
installed

-



-



Plasterboards are
already secured

-

-



1. INSTALLATION GUIDE

INSTALLATION OF DIFFUSER WITH INTEGRATED CEILING SPACE-SAVING BOX

1.1 MINIMUM SPACE

When saving space, consider the height of the ceiling. To install a diffuser with a box in a double plaster ceiling, you will need only 10.3 cm of space between the lower plane of the frame profiles and the ceiling covering. In a single plaster ceiling, this space will be 11.5 cm.

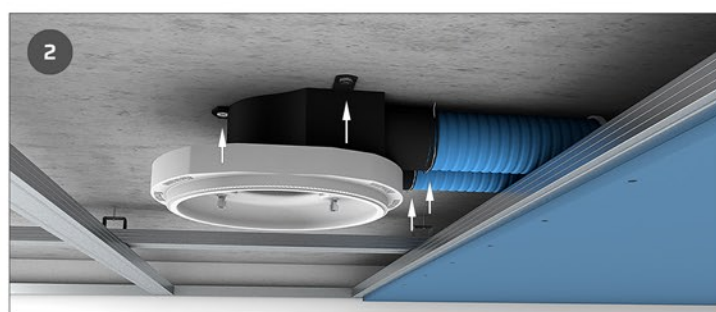
In both cases, it is enough to lower the ceiling only 12.8 cm from the overlay to the visible surface of the ceiling.



1.2 CONNECTION AND FIXING DUCT

Connect the flexible ducts to the diffuser box and fix them using metal clips. If only one duct is connected, seal the remaining connection branch in the diffuser box using a ventilation cap.

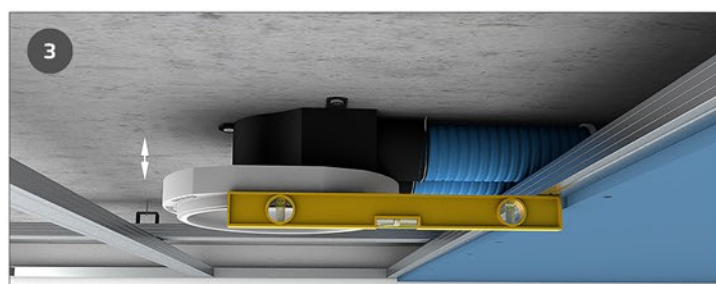
Using the threaded rods into the ceiling overlay, fasten the diffuser box on its brackets.



1.3 HEIGHT ADJUSTMENT

Make sure the diffuser's mounting brackets (with manufacturer's logos) are in the same level with ceiling profiles.

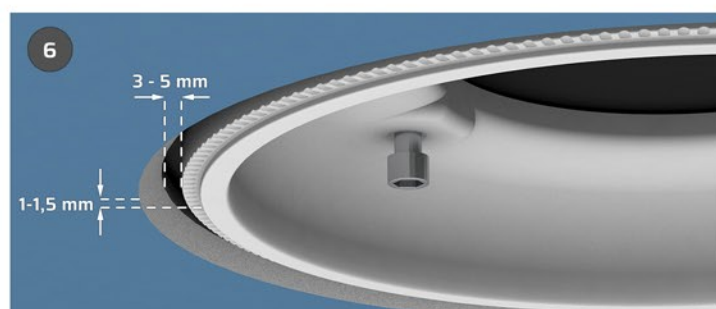
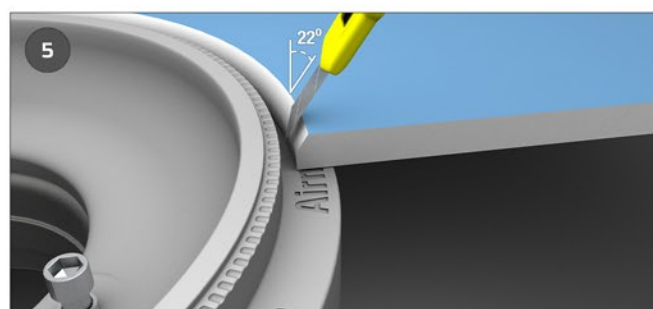
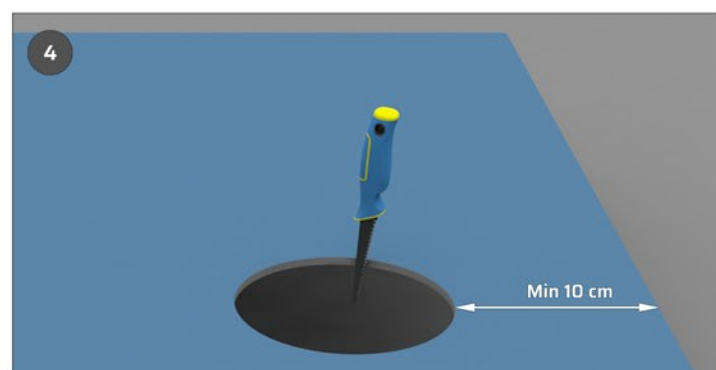
Important: After installing the diffuser at the correct level, check that it is firmly in place. Do not leave an unsecured diffuser hanging - it could fall and injure workers or damage property!



1.4 PREPARATION OF PLASTERBOARD PANEL

Create an opening in the plasterboard to accommodate the diffuser (excluding the mounting brackets) at the desired location. Ensure that the perimeter of the opening is cut at a 22 degree angle, with even cuts on the outer side of the plasterboard. Remove any plaster residue and dust generated from the cutting process.

Important: ensure that the opening is correctly cut and has a diameter that is 6 - 10 mm larger than the outer circumference of the diffuser. A recommended gap of 3 - 5 mm should exist between the diffuser and plasterboard. Additionally, the distance between the edge of the opening and the edge of the plasterboard panel should be at least 10 cm.



1.5 DIFFUSER INSTALLATION

Prior to securing the plasterboard, apply a thin layer of adhesive to the volumetric imprints on the diffuser's mounting brackets (marked with the manufacturer's logos). This should be done no more than 10 minutes before fixing the plasterboard.

After attaching the plasterboard to the profiles, the excess adhesive will be absorbed into the volumetric imprints, providing an increased surface area for improved adhesion of the diffuser to the plasterboard.

1.6 FLEXIBLE PROTECTIVE MEMBRANE

The hardened glue-sealant will form an additional elastic membrane that absorbs vibrations and noise transmission to the ceiling from the duct system.

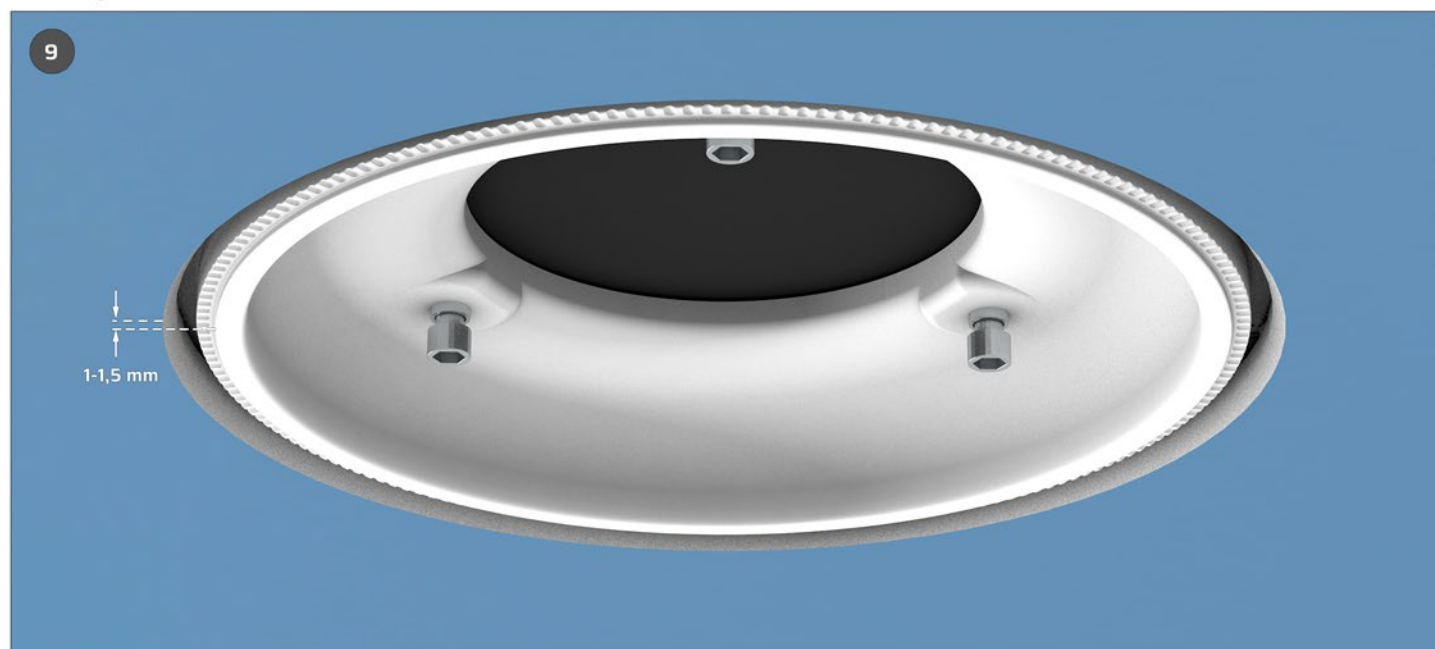
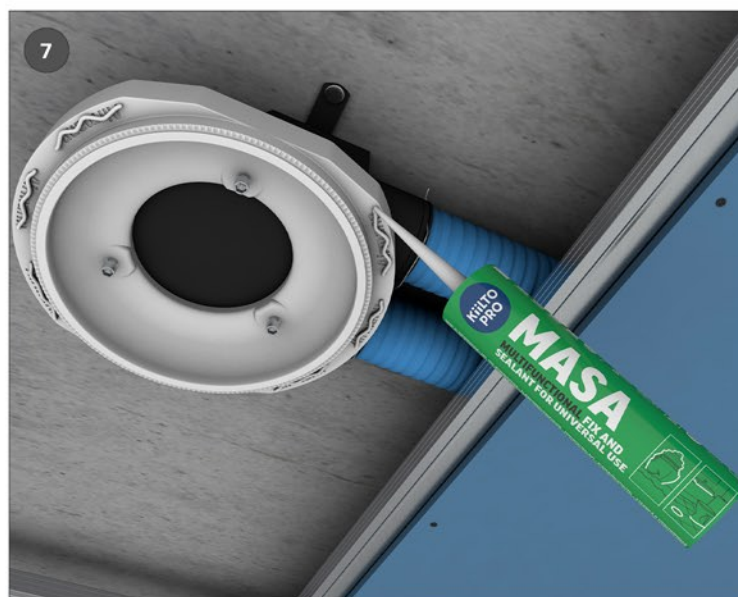
Important: avoid using screws to secure the brackets, as this may cause damage to the diffuser housing. For optimal results, use Kiilto MASA glue-sealant, which provides elasticity up to 400%. If a stronger and faster initial bond is desired, use Kiilto PREMIUM adhesive-sealant.

1.7 FIXING PLASTERBOARD

After securing the gypsum board(s) to the frame profiles with self-tapping screws, verify the level of the diffuser in relation to the ceiling surface. The exterior (visible) surface of the diffuser should extend 1-1.5 mm uniformly around its circumference to accommodate joint compound and reinforcing tape or mesh.

If the diffuser is not level, it can be adjusted from the inside by gently tilting it to the right direction and pressing any excess adhesive into the volumetric imprints on the diffuser mounting brackets.

Installation is complete. The diffuser is ready for finishing.



2. INSTALLATION GUIDE

DIFFUSER INSTALLATION USING PLENUM BOX CONNECTION

2.1 SPACE REQUIRED FOR INSTALLATION

Verify that the ceiling height is appropriate and that sufficient space is available for installing the diffuser between the plaster ceiling and the overlay.

A single plasterboard ceiling requires at least 7 cm from the bottom of the frame profiles to the body of the plenum box. When installing the diffuser in a double plasterboard ceiling, this distance must be at least 6 cm. Dimension (A).

2.2 PREPARATION OF THE CEILING FRAME

Verify that the nearest ceiling frame profiles do not obstruct the diffuser installation.

A minimum horizontal distance of 8 cm between the outlet of the diffuser plenum box and the ceiling frame profiles is required when installing diffusers with connection flanges of 125 mm and 160 mm. For diffusers with a 100 mm connection flange, this distance must be at least 9.5 cm (Dimension B).

2.3 SHORTENING OF CONNECTION OUTLET

Measure the necessary distance from the bottom plane of the frame profiles and adjust the height of the diffuser connection box outlet as indicated in the instructions.

In single plasterboard ceilings, the diffuser plenum box outlet should be positioned 4.5-5.0 cm from the bottom plane of the frame profiles. In double plasterboard ceilings, this distance should be reduced to 3.3-3.8 cm (Dimension C). The cutting plane is indicated by a dotted line in Figure 3.

2.4 DIFFUSER ATTACHEMENT

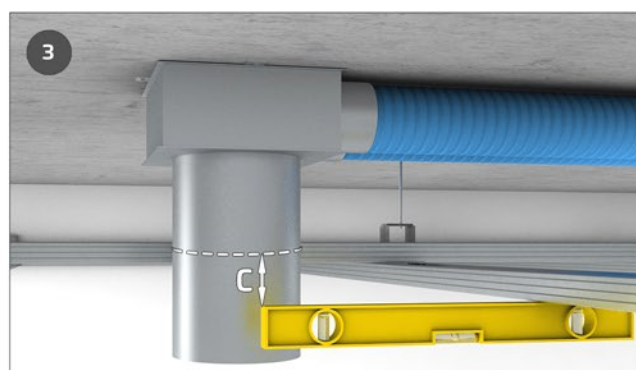
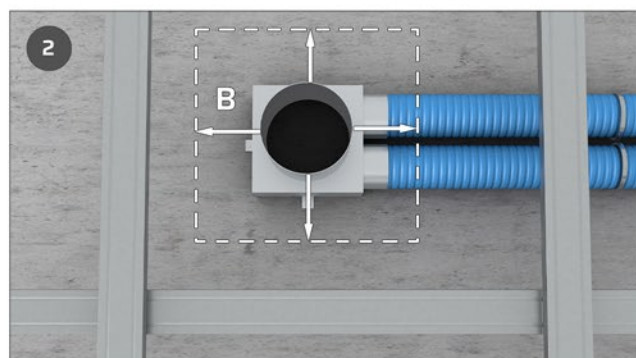
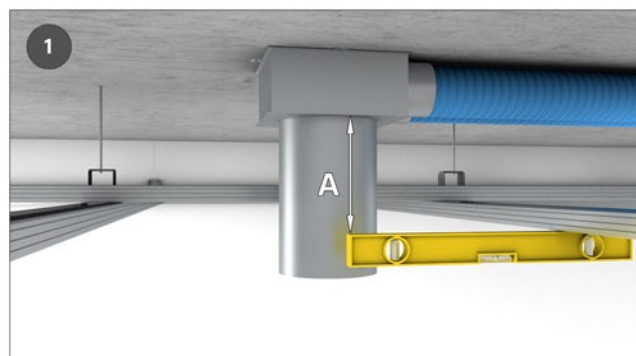
Attach the diffuser to the duct system by inserting the flange of the diffuser into the outlet of the plenum box.

Important: note that the diameter of the plenum box outlet must correspond to the diameter of the flange on the diffuser being installed. The standard diameters are 100, 125, and 160 mm. A proper connection is achieved when the flange on the diffuser fits securely into the outlet.

2.5 DIFFUSER HEIGHT ADJUSTMENT

Set the height of the diffuser so that the mounting brackets (marked with the manufacturer's logos) are at the same level as the bottom plane of the ceiling frame.

Important: verify that the diffuser is firmly secured in place after adjusting its height. An unsecured diffuser presents a hazard as it may fall and cause injury to workers or damage property. To ensure stability, utilize mounting or reinforced tape for additional support, if necessary.



2. INSTALLATION GUIDE

DIFFUSER INSTALLATION USING PLENUM BOX CONNECTION

2.6 PREPARATION OF PLASTERBOARD PANEL

Cut an opening in the plasterboard to accommodate the diffuser (excluding the mounting brackets) at the desired location. Ensure that the perimeter of the opening is cut at a 22 degree angle, with even cuts on the outer side of the plasterboard. Remove any plaster residue and dust generated from the cutting process.

Important: ensure that the opening is correctly cut and has a diameter that is 6 - 10 mm larger than the outer circumference of the diffuser. A recommended gap of 3 - 5 mm should exist between the diffuser and plasterboard. Additionally, the distance between the edge of the opening and the edge of the plasterboard panel should be at least 10 cm.

2.7 DIFFUSER MOUNTING

Prior to securing the plasterboard, apply a thin layer of adhesive to the volumetric imprints on the diffuser's mounting brackets (marked with the manufacturer's logos). This should be done no more than 10 minutes before fixing the plasterboard.

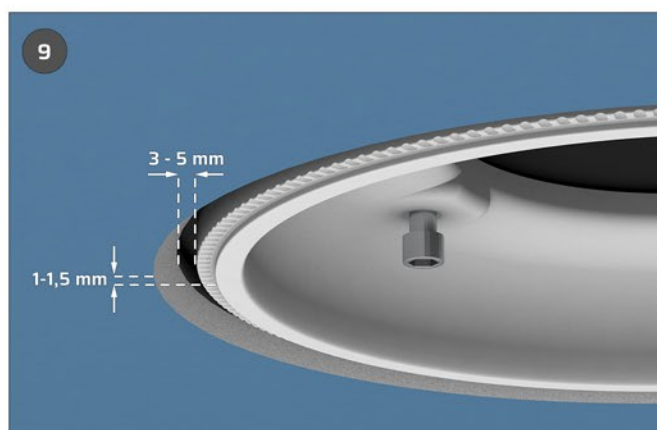
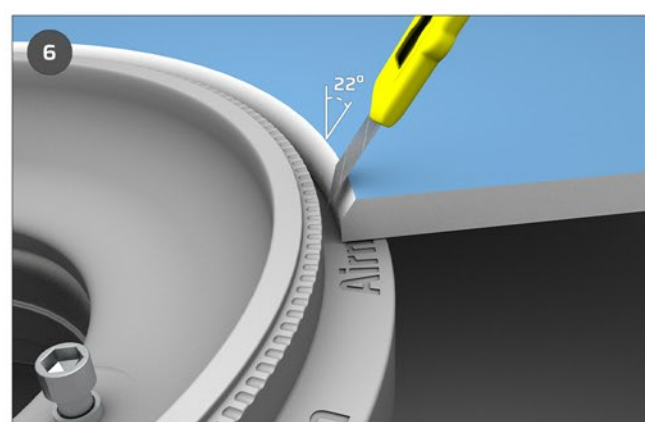
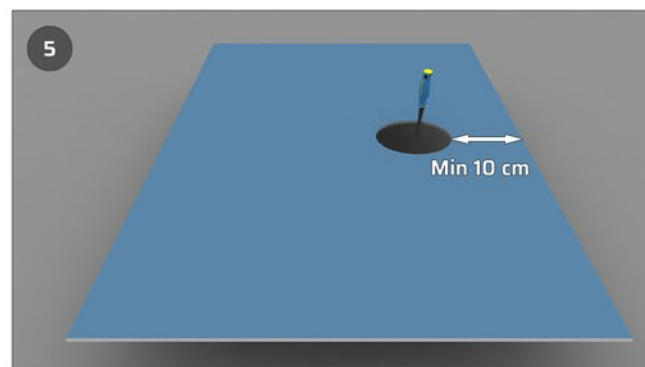
After attaching the plasterboard to the profiles, the excess adhesive will be absorbed into the volumetric imprints, providing an increased surface area for improved adhesion of the diffuser to the plasterboard. The hardened glue-sealant will form an additional elastic membrane that absorbs vibrations and noise transmission to the ceiling from the duct system.

Important: avoid using screws to secure the brackets, as this may cause damage to the diffuser housing. For optimal results, use Kiilto MASA glue-sealant, which provides elasticity up to 400%. If a stronger and faster initial bond is desired, use Kiilto PREMIUM adhesive-sealant.

2.8 FIXING PLASTERBOARD

After securing the gypsum board(s) to the frame profiles with self-tapping screws, verify the level of the diffuser in relation to the ceiling surface. The exterior (visible) surface of the diffuser should extend 1-1.5 mm uniformly around its circumference to accommodate joint compound and reinforcing tape or mesh.

If the diffuser is misaligned, it can be adjusted from the inside by gently tilting it to the right direction and pressing any excess adhesive into the volumetric imprints on the diffuser mounting brackets.



3. INSTALLATION GUIDE

DIFFUSER INSTALLATION USING FLEXIBLE DUCT PIPE

3.1 PREPARATION OF THE CEILING FRAME

Verify that the proximity of the ceiling frame profiles does not hinder the installation of the diffuser.

Note: if it is necessary to remove obstructing profiles to install the diffuser, consult with the professionals who installed the ceiling to ensure that the ceiling structure is not compromised.

3.1 PREPARATION OF PLASTERBOARD PANEL

Cut an opening in the plasterboard to accommodate the diffuser (excluding the mounting brackets) at the desired location. Ensure that the perimeter of the opening is cut at a 22 degree angle, with even cuts on the outer side of the plasterboard. Remove any plaster residue and dust generated from the cutting process.

Important: ensure that the opening is correctly cut and has a diameter that is 6 - 10 mm larger than the outer circumference of the diffuser. A recommended gap of 3 - 5 mm should exist between the diffuser and plasterboard. Additionally, the distance between the edge of the opening and the edge of the plasterboard panel should be at least 10 cm.

3.3 DIFFUSER ATTACHMENT

After carefully pulling out the flexible duct pipe through the cut-out hole, put it on the flange of the diffuser body with a rubber gasket and fix the metal clamp.

Important: ensure that the diameter of the flexible duct pipe matches the diameter of the diffuser flange being installed (standard diameters are 100, 125, and 160 mm). After connecting the duct pipe, secure the diffuser to prevent it from falling and potentially causing injury or property damage.

3.4 DIFFUSER MOUNTING

Apply a thin layer of adhesive to the manufacturer's logo imprints on the mounting brackets of the diffuser. Tilt at the right angle and gently insert the diffuser housing through the hole in the ceiling, positioning the mounting brackets on the plasterboard.

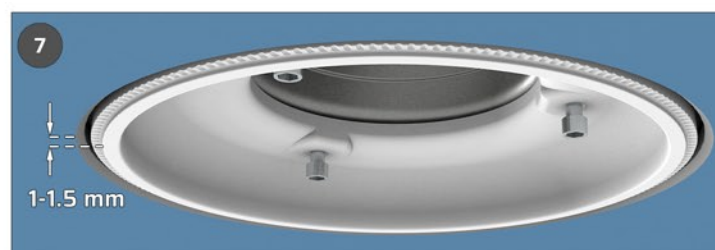
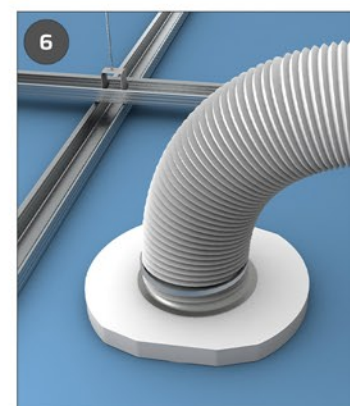
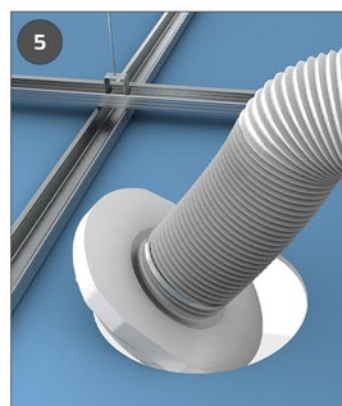
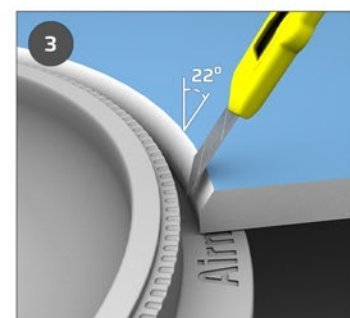
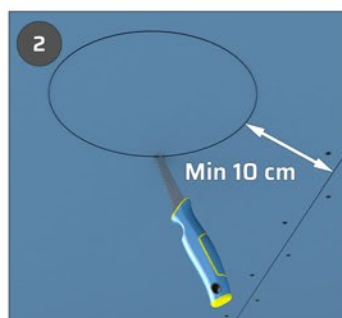
The excess adhesive will be absorbed into the volumetric imprints, providing an increased surface area for improved adhesion of the diffuser to the plasterboard. The hardened glue-sealant will form an additional elastic membrane that absorbs vibrations and noise transmission to the ceiling from the duct system.

Important: avoid using screws to secure the brackets, as this may cause damage to the diffuser housing. For optimal results, use Kiilto MASA glue-sealant, which provides elasticity up to 400%. If a stronger and faster initial bond is desired, use Kiilto PREMIUM adhesive-sealant.

3.5 DIFFUSER ALIGNMENT

Verify the level of the diffuser in relation to the ceiling surface. The exterior (visible) surface of the diffuser should extend 1-1.5 mm uniformly around its circumference to accommodate joint compound and reinforcing tape or mesh.

If the diffuser is misaligned, it can be adjusted from the inside by gently tilting it to the right direction and pressing any excess adhesive into the volumetric imprints on the diffuser mounting brackets.



4. INSTALLATION GUIDE

DIFFUSER INSTALLATION WHEN PLASTERBOARDS ARE ALREADY SECURED

4.1 SPACE REQUIRED FOR INSTALLATION

Ensure you will have enough space to install the diffuser. Normally, a distance of at least 8.5 - 9 cm is required from the visible surface of the plaster ceiling to the lower edge of the plenum box body (or duct pipe).

4.2 CEILING PREPARATION

Determine the location of the ceiling frame profiles. Cut a square or rectangular hole in the ceiling along the path of the identified profiles. This way you can use the existing profiles to secure the new plasterboard in place and only two additional ceiling profiles will be necessary for installation.

4.3 PREPARATION OF THE CEILING FRAME

Confirm the clearances between the outlet of the diffuser connection box and the nearest ceiling frame profiles, ensuring a minimum horizontal distance of 8 cm for diffusers with 125 mm and 160 mm connection flanges or 9.5 cm for a diffuser with 100 mm connection flange. Reference figure (3), where the dotted line represents the required installation clearance.

Caution: in case of required profile removal, seek consultation with the ceiling installation professionals to avoid potential damage to the ceiling structure.

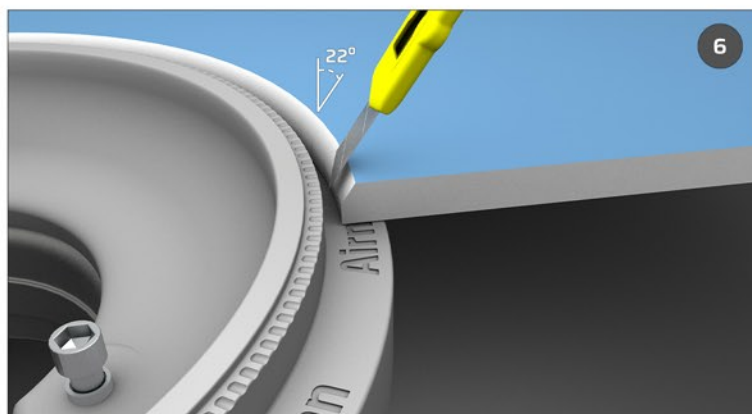
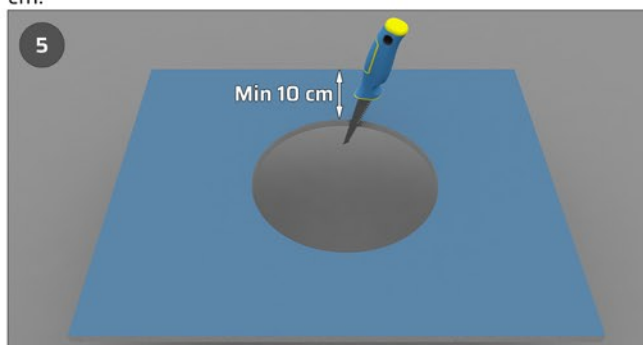
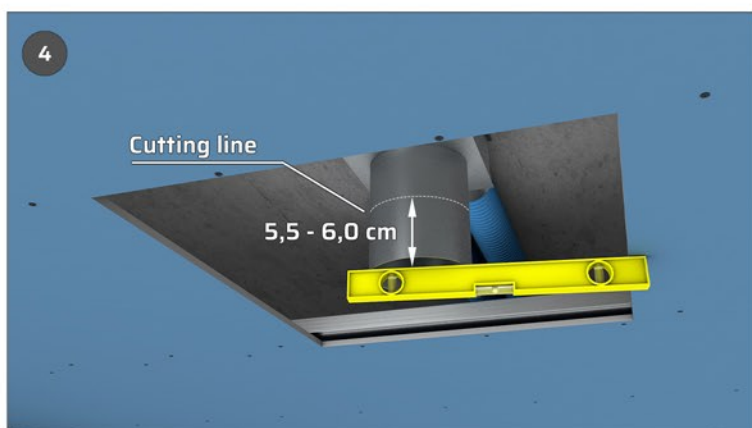
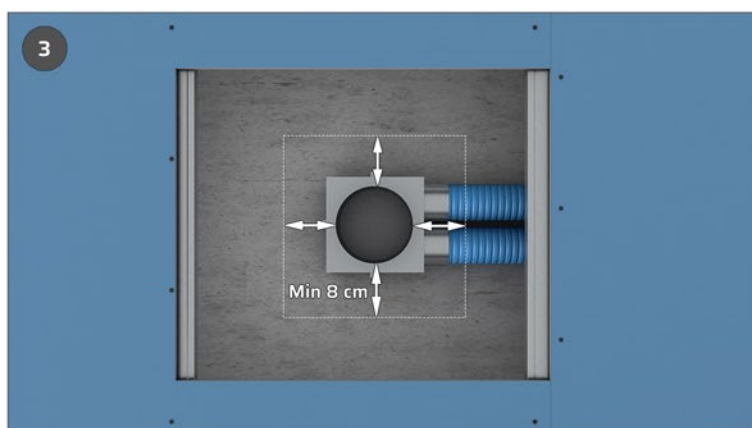
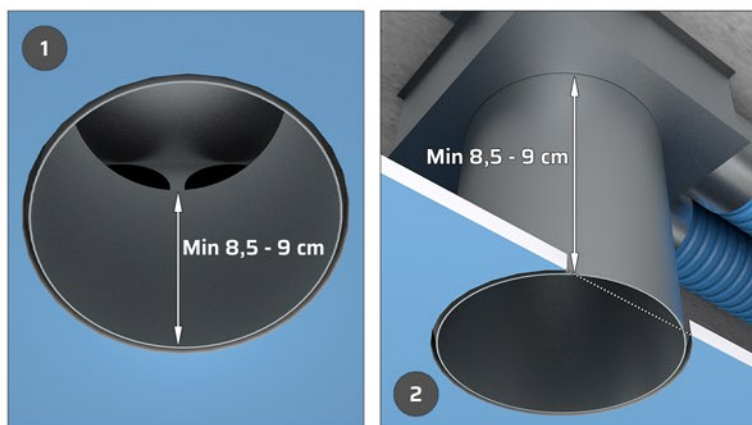
4.4 SHORTENING CONNECTION OUTLET

Measure the required distance and mark the cutting line of the diffuser plenum box or duct pipe outlet. Trim the outlet to the specified length, ensuring it falls within the recommended range. The outlet of the diffuser connection box or duct should be cut in the same manner for both single and double layer plasterboard ceilings: 5.5 to 6.0 cm from the bottom plane of the plaster ceiling. Figure (4).

4.5 PREPARATION OF PLASTERBOARD PANEL

Cut an opening in the plasterboard to accommodate the diffuser (excluding the mounting brackets) at the desired location. Ensure that the perimeter of the opening is cut at a 22 degree angle, with even cuts on the outer side of the plasterboard. Remove any plaster residue and dust generated from the cutting process.

Important: ensure that the opening is correctly cut and has a diameter that is 6 - 10 mm larger than the outer circumference of the diffuser. A recommended gap of 3 - 5 mm should exist between the diffuser and plasterboard. Additionally, the distance between the edge of the opening and the edge of the plasterboard panel should be at least 10 cm.



4. INSTALLATION GUIDE

DIFFUSER INSTALLATION WHEN PLASTERBOARDS ARE ALREADY SECURED

4.6 DIFFUSER ATTACHMENT

Attach the diffuser to the duct system by inserting the flange of the diffuser into the outlet of the plenum box.

Important: note that the diameter of the plenum box outlet must correspond to the diameter of the flange on the diffuser being installed. The standard diameters are 100, 125, and 160 mm. A proper connection is achieved when the flange on the diffuser fits securely into the outlet.

4.7 DIFFUSER HEIGHT ADJUSTMENT

Set the height of the diffuser so that the mounting brackets (marked with the manufacturer's logos) are at the same level as the bottom plane of the ceiling frame.

Important: verify that the diffuser is firmly secured in place after adjusting its height. An unsecured diffuser presents a hazard as it may fall and cause injury to workers or damage property. To ensure stability, utilize mounting or reinforced tape for additional support, if necessary.

4.8 FLEXIBLE PROTECTIVE MEMBRANE

Prior to securing the plasterboard, apply a thin layer of adhesive to the volumetric imprints on the diffuser's mounting brackets (marked with the manufacturer's logos). This should be done no more than 10 minutes before fixing the plasterboard.

After attaching the plasterboard to the profiles, the excess adhesive will be absorbed into the volumetric imprints, providing an increased surface area for improved adhesion of the diffuser to the plasterboard.

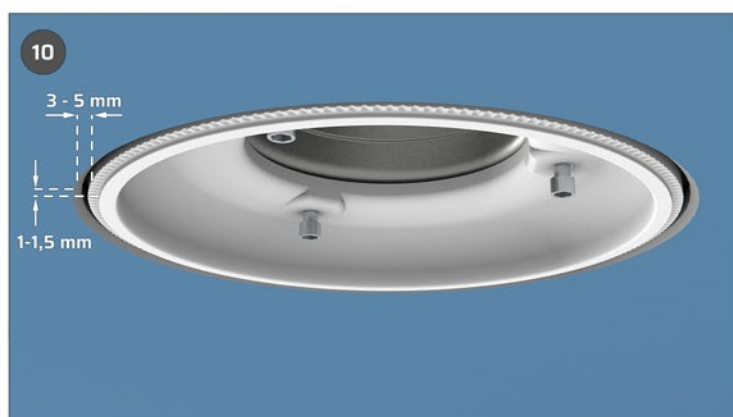
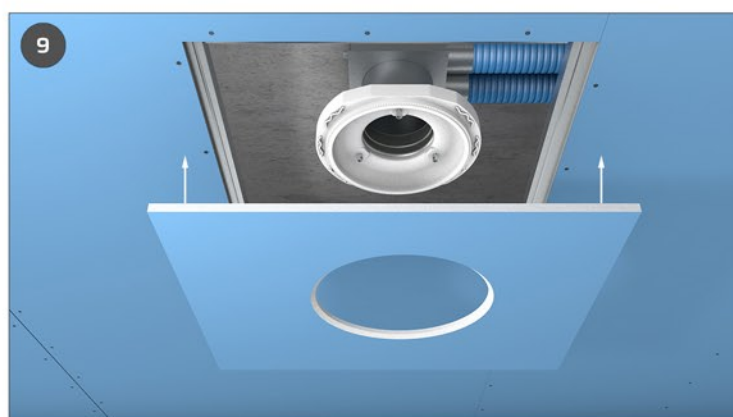
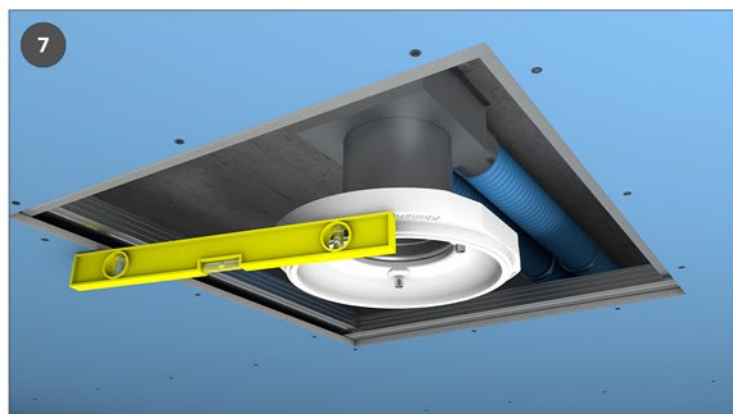
The hardened glue-sealant will form an additional elastic membrane that absorbs vibrations and noise transmission to the ceiling from the duct system.

Important: avoid using screws to secure the brackets, as this may cause damage to the diffuser housing. For optimal results, use Kiilto MASA glue-sealant, which provides elasticity up to 400%. If a stronger and faster initial bond is desired, use Kiilto PREMIUM adhesive-sealant.

4.9 FIXING PLASTERBOARD

After securing the gypsum board(s) to the frame profiles with self-tapping screws, verify the level of the diffuser in relation to the ceiling surface. The exterior (visible) surface of the diffuser should extend 1-1.5 mm uniformly around its circumference to accommodate joint compound and reinforcing tape or mesh.

If the diffuser is not level, it can be adjusted from the inside by gently tilting it to the right direction and pressing any excess adhesive into the volumetric imprints on the diffuser mounting brackets.



5. FINISHING GUIDE

PLASTERING, REINFORCING AND PAINTING THE DIFFUSER

5.1 PREPARATION FOR FINISHING

Seal the connection branch of the diffuser with an appropriately sized blind cap to prevent the infiltration of dust during the finishing process.

Prior to initiation of work, it is important to eliminate materials that impair adhesion (such as dust, grease, dirt, etc.) from the diffuser body, the surrounding area and the surface of the plasterboard with a minimum radius of 50 cm around the installed diffuser.

Enhance the bonding strength of filler and paint by applying a deep primer suitable for gypsum surfaces to the surface of the gypsum board, the notches and the diffuser body. Ensure that the primer is fully dried prior to proceeding.

5.2 ARMORING

Apply the putty in a limited sweeping motion along the space between the diffuser and the plasterboard to completely cover the perimeter and crown of the diffuser. The crown is the protrusion of the top edge of the diffuser to accommodate the reinforcing bar. Scrape off excess putty to form an even band of putty 10 cm wide and at least 1 mm thick on the ceiling surface.

Allow the primary (reinforcing) putty to fully dry and then apply reinforcing tape (paper tape is recommended) to cover the entire perimeter of the diffuser and extend at least 4 cm past the edges of the plasterboard around the body of the diffuser. The tape should also fully cover the crown of the diffuser.

5.3 PUTTING AND SCRUBBING

Apply putty in accordance with the desired quality level (Q1 to Q4) and allow to dry. Subsequently, utilize hand or mechanical tools and fine-grained abrasives to produce a smooth finish on the surfaces.

Note: The interior of the diffuser housing and exterior of cover cap do not require putty application, only a deep primer is sufficient. Do not apply primer to any magnetic or metallic components.

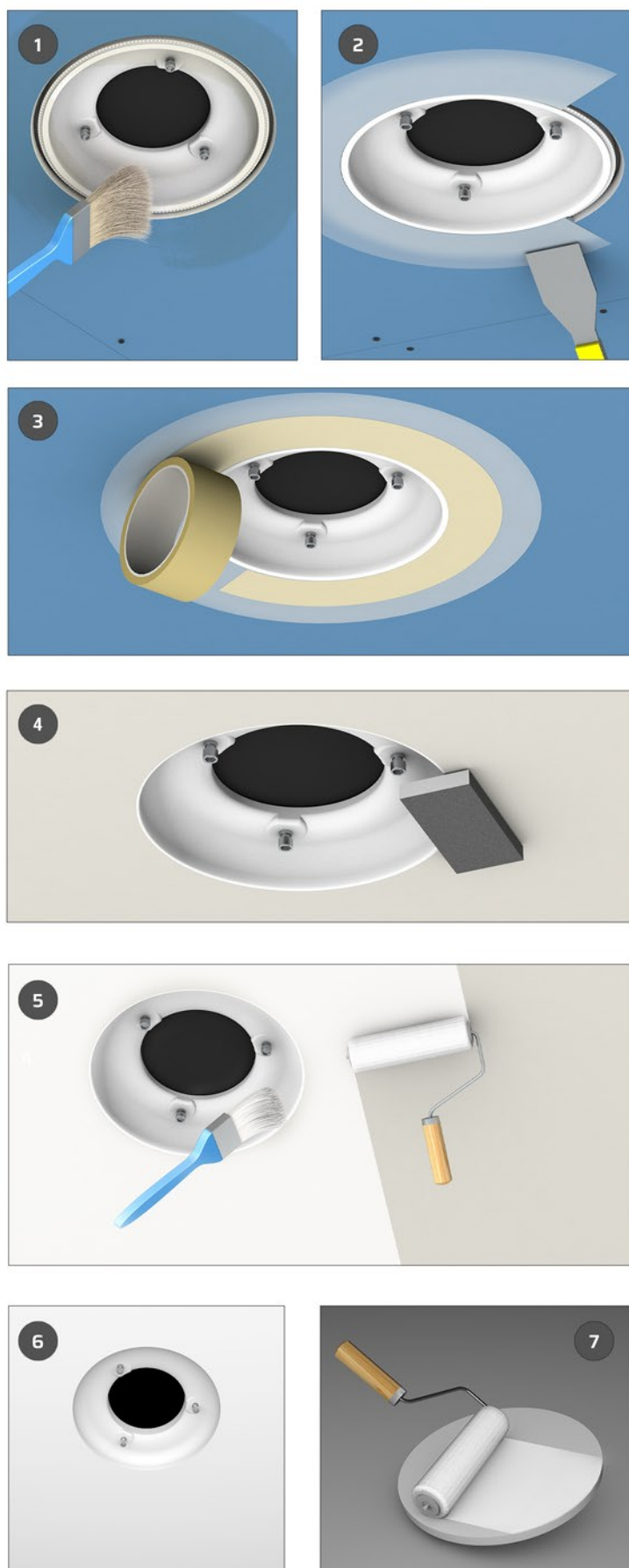
5.4 PAINTING

Ensure that the surface of the ceiling has been thoroughly cleaned and is primed with a deep primer prior to painting.

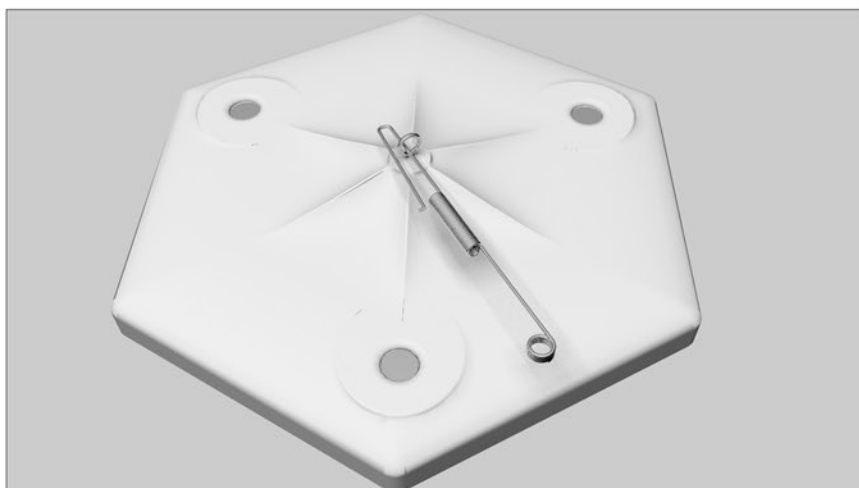
Apply ceiling paint to the entire visible surface of the ceiling, the inner portion of the diffuser housing, and the bottom (visible) surface and edges of the cover cap. Refrain from painting any magnets or metal parts of the diffuser.

Note: Carefully avoid paint from entering the screw sleeve of the cover brackets within the diffuser housing during the painting process. In environments with elevated levels of humidity, utilize a moisture-resistant primer and paints specifically designed for such conditions.

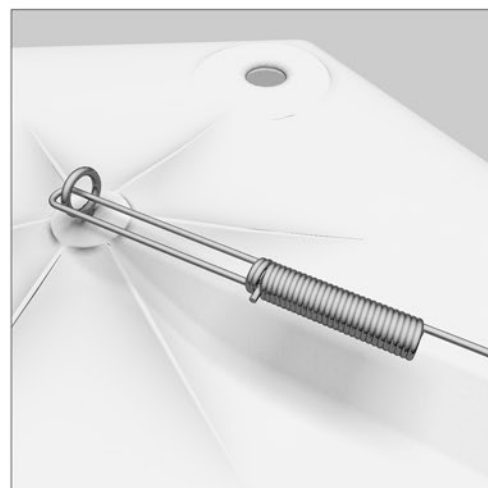
Once the paint has dried completely, the cover cap can be securely attached to the diffuser body (check page 10).



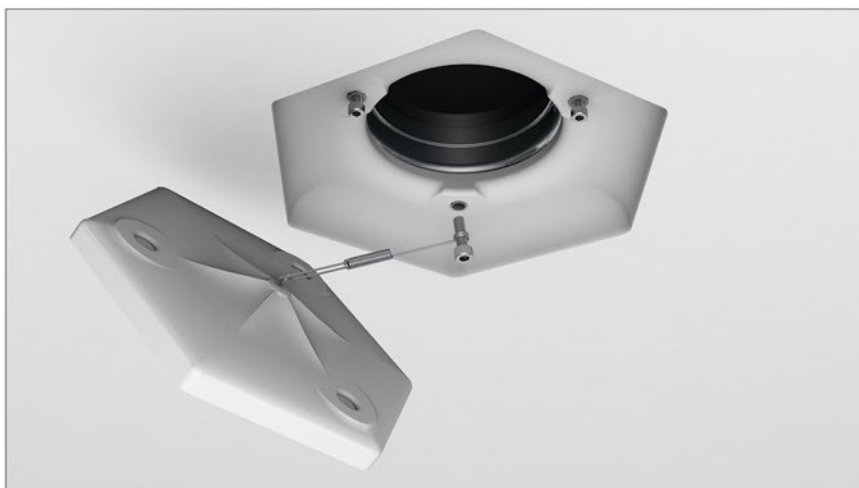
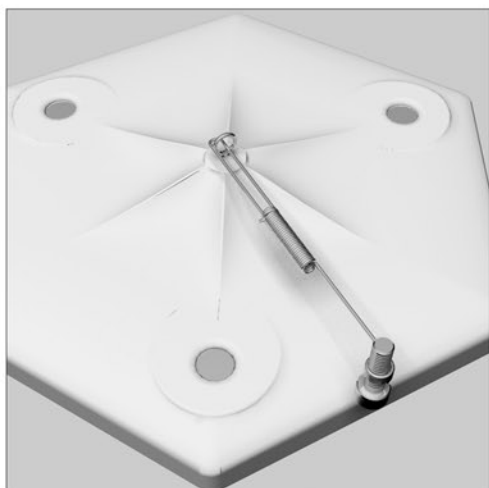
6. COVER CAP AND SAFETY LOCK ATTACHMENT GUIDE



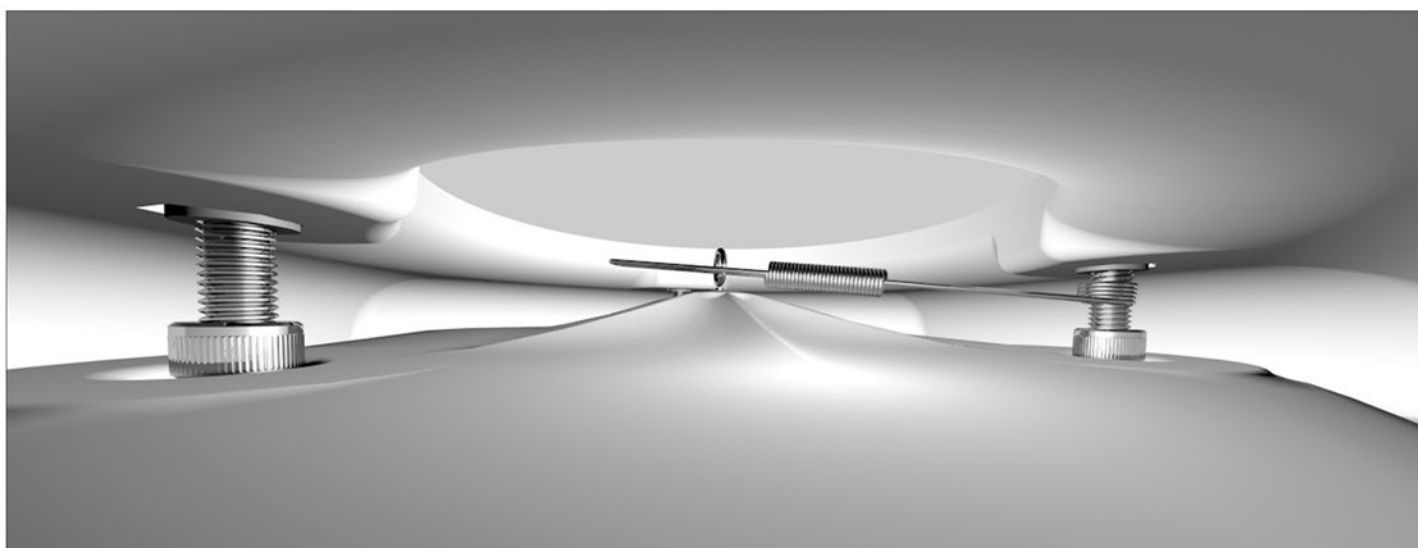
6.1 Hook the safety lock into the loop on the diffuser cover cap.



6.2 Fix the lock-karabiner of the safety lock between the coils.



6.3 Fasten the other end of the safety lock with an M6 screw to the thread on the housing of the diffuser. Use the screws to adjust the level and tilt of the cover cap. A correctly installed cover cap should be flush with the visible surface of the ceiling.



6.4 The safety lock remains hidden thanks to the sliding rail. **Important:** Ensure that the safety lock is correctly installed, screws are tight, and the magnets on the cover cap are clean before installing the cover cap.

7. TIPS AND RECOMMENDATIONS

Recommended cutting hole dimensions

CIRCLE-100, CIRCLE-125 - d256-260 mm

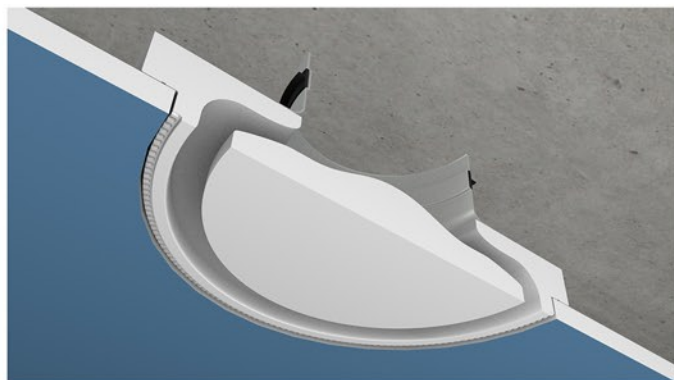
CIRCLE-160 - d291-295 mm

SQUARE-100, SQUARE-125 - 256x256 to 260x260 mm

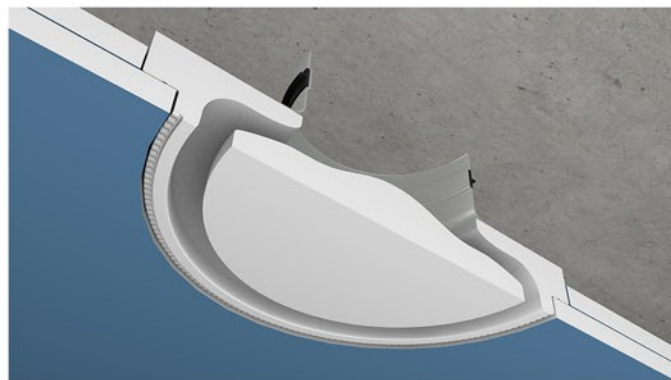
The shape of the Airmann diffusers body is designed for convenient installation into 1 or 2 layers of plasterboard ceilings and walls.

The Airmann spot diffusers do not require additional bracket adjustment in relation to the ceiling, when determining the position of the diffuser. The depth of the diffuser mounting brackets is factory calibrated to match standard plasterboard thicknesses (12,5 mm) and have a reserve for glue-sealant and putty layers.

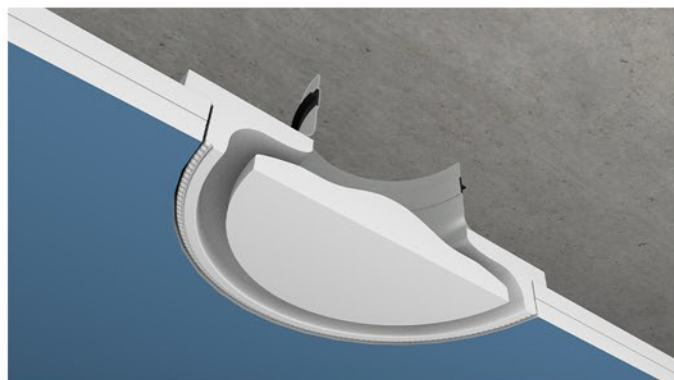
The illustrations show the possibilities for mounting and adapting diffusers in different layers of plasterboard:



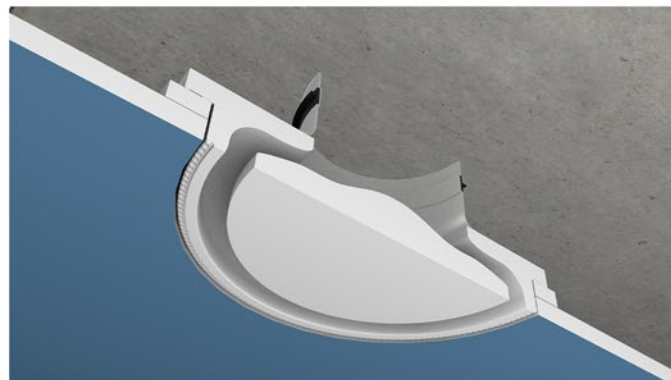
7.1 Installation of the single layer diffuser into one layer of ceiling/wall plasterboard.



7.2 Adaptation of the single layer diffuser into the double layer of ceiling/wall plasterboard. The full perimeter gap (including mounting brackets) is cut out in the upper layer.



7.3 Installation of the double layer diffuser into the double layer of ceiling/wall plasterboard.



7.4 Adaptation of the double layer diffuser into the single layer of ceiling/wall plasterboard. Additional plasterboard strips are mounted under the diffuser bracket - a second layer is formed.

Kiilto MASA
Highly elastic



Kiilto PREMIUM
Strong initial bonding



ATTENTION! Do not use screws for mounting - you may damage the diffuser body! The recommended result will be achieved using "Kiilto MASA" glue-sealant (elasticity up to 400%).

In case of stronger initial bonding requirement, use "Kiilto PREMIUM" glue-sealant (elasticity up to 350%).

- **Safe** (suitable for use in food industry facilities)
- **Odorless** (emission class M1, solvent-free, no isocyanates in the composition)
- **Thermal resistance** (from -40 to +100°C)
- **Highly elastic** (elasticity up to 400%)
- **Suitable for aggressive environments** (resistant to salty water and mild chemicals)
- **Atmospheric resistance** (good resistance to UV radiation)
- **For outdoor and indoor use** (intended for construction, shipbuilding and transport industries)

