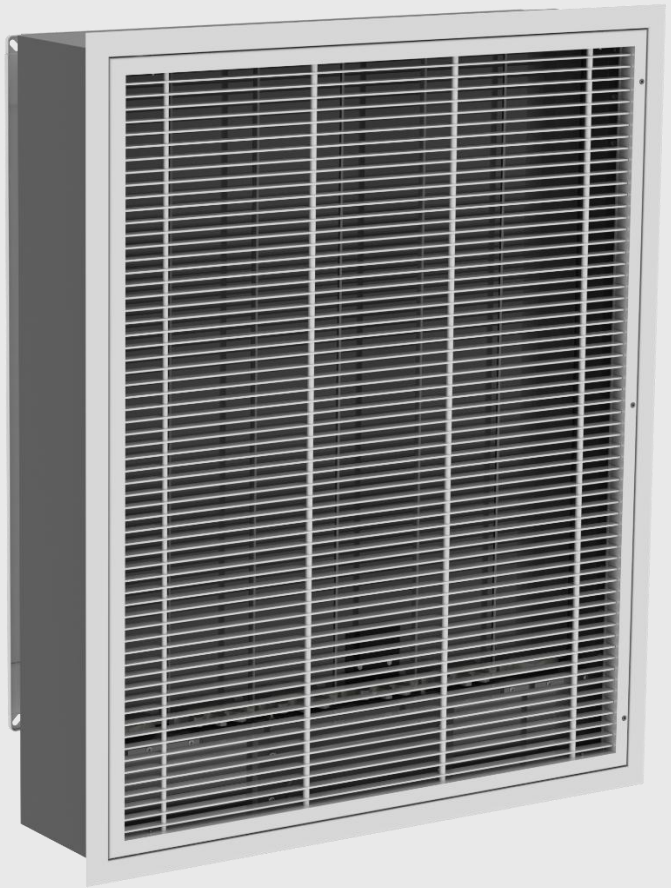
WKS-P

Rectangular smoke control damper

Installation manual



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Version 6.3

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1. INSTALLATION TECHNOLOGY

Before starting the installation of the dampers, it is necessary to check whether they have been damaged during transport or storage. Verify if the damper can be opened and closed smoothly (fully open and fully closed). For WKS-P type dampers, the partitions should be opened using the actuator key or by applying the appropriate power to the actuator. Opening and closing must be done smoothly (not abruptly). Do not pull the damper by the blades to open/close it, as this may cause permanent damage to the device, not covered by warranty. Before installation, verify the rectangular shape of the damper and the dimension of the gap between the extreme blades and the internal part of the casing. The gap should be even, and its dimension should not be less than 3 mm.

The damper is designed for quick, one-sided installation with a vertical axis of blade rotation in shaft walls (or other partitions) constructed using building technology. The actuator can be located at the bottom or the top of the damper. Due to the lack of additional sealing around the damper after installation, it is necessary to maintain smooth surfaces and dimensional tolerances of the mounting opening.

Before installing the damper, the method of electrical connection must be planned, considering the possibility of routing the electrical cables through the selected removable housing panel. At this stage, the locations of the junction boxes, the cable routing path, and the scope of any necessary wall chasing must be determined.

If the actuators cables are routed inside the wall, this section must be installed in a protective conduit, which will allow future replacement of the actuator or re-routing of the cables without damaging the wall structure.

It is also possible to make the electrical connections directly inside the damper, in the electrical junction box located in its housing (for dampers with C = 300, this junction box is not provided). In such a case, a protective conduit is not required; however, an appropriate cable reserve must be provided and concealed within the damper housing. Providing this reserve is essential to allow later removal of the housing panels without the risk of damaging the cables, the wall, or the damper. Regardless of the chosen method, the cables leading to the damper must be routed in such a way that they do not impede future service access to the actuator and allow for safe disassembly of the housing components.

After installation (during the continuation of further finishing works), the damper should be protected with foil or other covering material to prevent dirt and, consequently, damage to the damper components.

To maintain the declared fire resistance, insulation, and smoke-tightness of EIS120, dampers should be installed in walls classified as EIS120. The parameters of the wall (technology, thickness, fire resistance) should be maintained up to the perpendicular building partition or at least within a distance of 200mm around the damper.

The use of WKS-P dampers in walls with a different fire resistance is permissible, however, it should be noted that the fire resistance rating EI of the entire WKS-P damper assembly is determined by the lowest-rated component in that assembly.

On the service side of the damper, provision should be made for tilting the ALWT-P grille or for removing the MKW-S cover. After mounting the damper in the wall, it is recommended to seal the joint line between the mounting flange and the wall surface to prevent any drafts.

On the connection flange side (from the 'back'), the damper may remain unconnected to the ductwork (one side mounting in the shaft wall) or it should be connected to a ductwork with the expected fire resistance class. The ducts must be installed in a way that, in the event of a fire, they do not transfer loads to the smoke control damper. Extension of ducts in case of fire can be compensated for by brackets or elbows.

In the case of transfer application (without a ducts with possible access to the damper from both sides during normal operation), access to the interior of the damper should also be secured from the connection flange side using a built-in ventilation grille in such a way that a distance of at least 180mm is maintained from the surface of the damper blade in the closed position to the surface of the grille.

NOTE: The spacing between smoke control dampers and between smoke control dampers and perpendicular structural elements must be:

a. at least 200 mm between independently installed smoke control dampers,
b. at least 75 mm between the smoke control damper and perpendicular ceiling,
c. at least 15,5 mm between the smoke control damper and perpendicular wall.

2. INSTALLATION TECHNOLOGY – FLEXIBLE WALL

a. Build a wall with a rectangular opening using C-profiles or create an opening in the wall and place the missing C-profiles around the opening. The distance between vertical profiles should be at least C+100mm, and the distance between horizontal profiles should be at least D+255mm (where C and D are the nominal dimensions of the damper). When preparing the wall, consider the method of electrical connection.

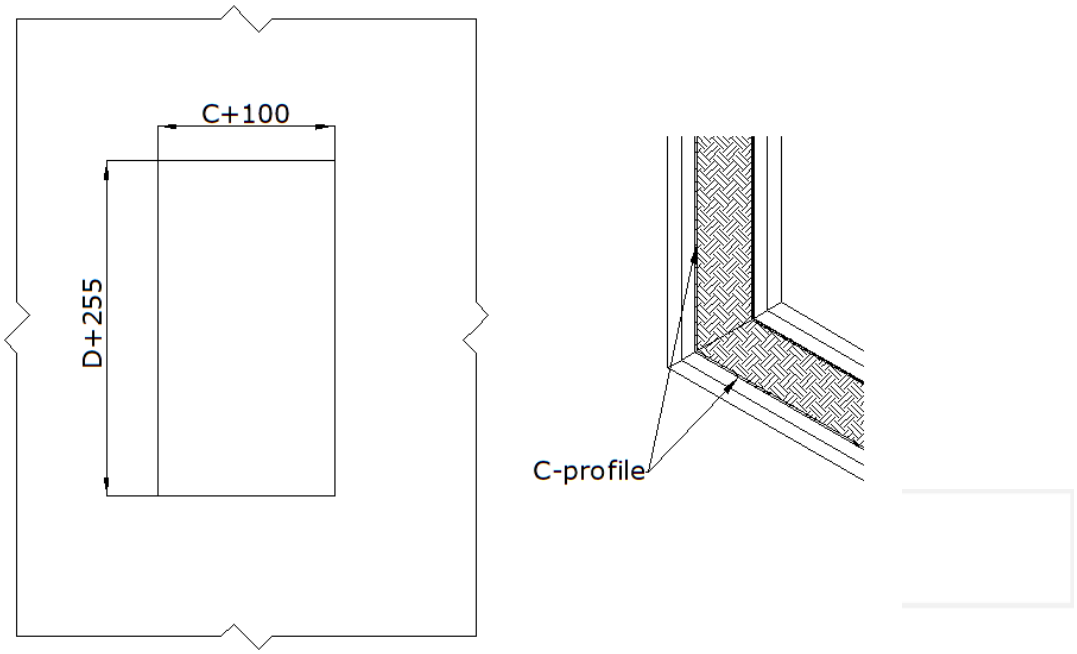

Figure 1. Dimensions of the preliminary opening in the flexible wall construction

b. Create a frame from strips of GKF board with a width equal to the thickness of the wall (for dampers with a width of C = 900 mm, the frame width must be at least 200 mm regardless of the wall thickness) around the opening, covering the structural profiles of the wall and aligning the strips with the wall surface from the mounting side. The number of layers and the thickness of the boards should be chosen to achieve the final dimensions of the opening shown below, but not less than one layer along the vertical profiles and not less than two layers along the horizontal profiles. Attach the strips to the profiles with screws. From the mounting side, the connection of the frame with the wall boards should be filled with finishing mortar over a width of 100mm around the mounting opening.

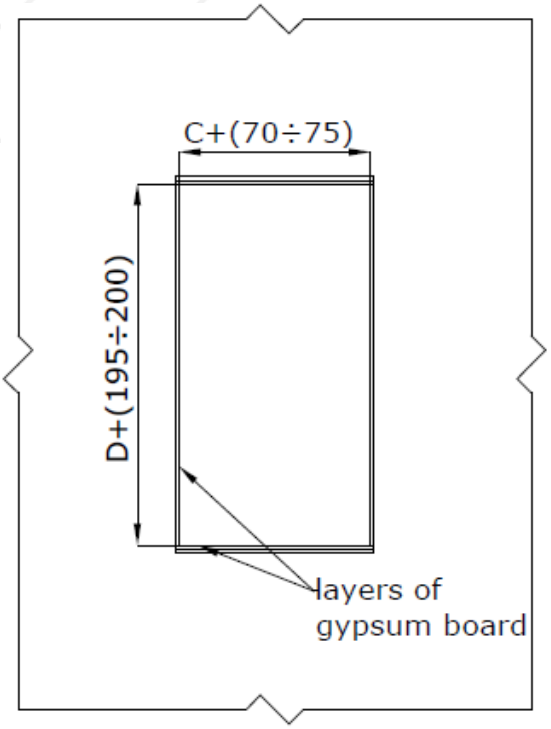

Figure 2. Dimensions of the final, finished opening in the flexible wall construction

c. The final finished opening ready for damper installation in the wall should have a width equal to C+70÷75mm and a height equal to D+195÷200mm. Smaller dimensions are not allowed. In the case of larger dimensions, adjust the number of boards or apply an additional layer of finishing mortar.

d. Slide the closed damper into the mounting opening, positioning it centrally so that the gap between the damper and the opening is symmetrical (not larger than 4mm on each side). Push the damper with the mounting frame against the wall surface. To facilitate centering the damper in the opening, you can place shims of appropriate thickness on the bottom edge of the opening, on which the damper will rest.

e. Screw the damper frame to the wall profiles through all Ø9.5mm holes located around the mounting frame using self-drilling screws Ø5.5mm with a length matched to the thickness of the frame with boards.

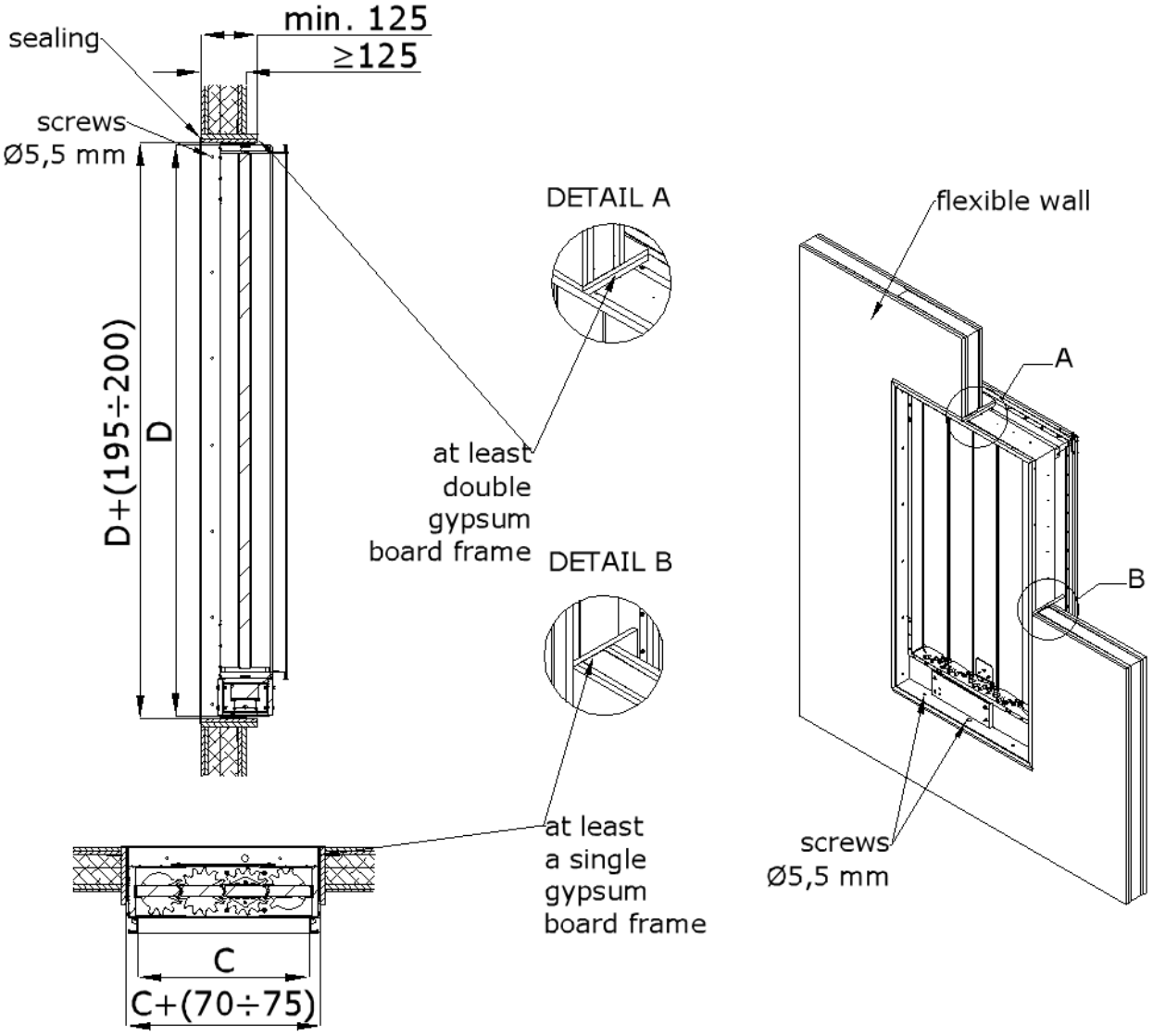

Figure 3. Method of installing WKS-P smoke control dampers in flexible wall constructions.

3. INSTALLATION TECHNOLOGY – RIGID WALL

3.1. INSTALLATION TECHNOLOGY FOR DAMPERS WITH WIDTH UP TO 750MM

a. Build a wall with a rectangular opening or create an opening in the wall. The final finished opening ready for damper installation in the wall should have a width equal to C+70÷75mm and a height equal to D+195÷200mm (where C and D are the nominal dimensions of the damper). Smaller dimensions are not acceptable. In the case of larger dimensions, the opening should be adjusted in one of the ways described below. When preparing the wall, consider the electrical connection method.

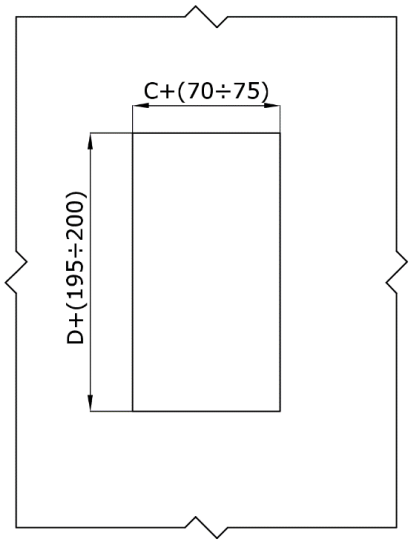

Figure 4. Dimensions of the final, finished opening in a rigid wall construction for dampers with width up to 750mm

b. Slide the closed damper into the mounting opening, position it centrally so that the gap between the damper and the opening is symmetrical (not greater than 4 mm on each side). Push the damper with the mounting frame towards the surface of the wall. To facilitate centering the damper in the opening, you can place shims of appropriate thickness on the bottom edge of the opening, on which the damper will rest.

c. Screw the damper frame to the wall through all Ø9.5mm holes located around the mounting frame using Ø6mm anchors suitable for the type of wall.

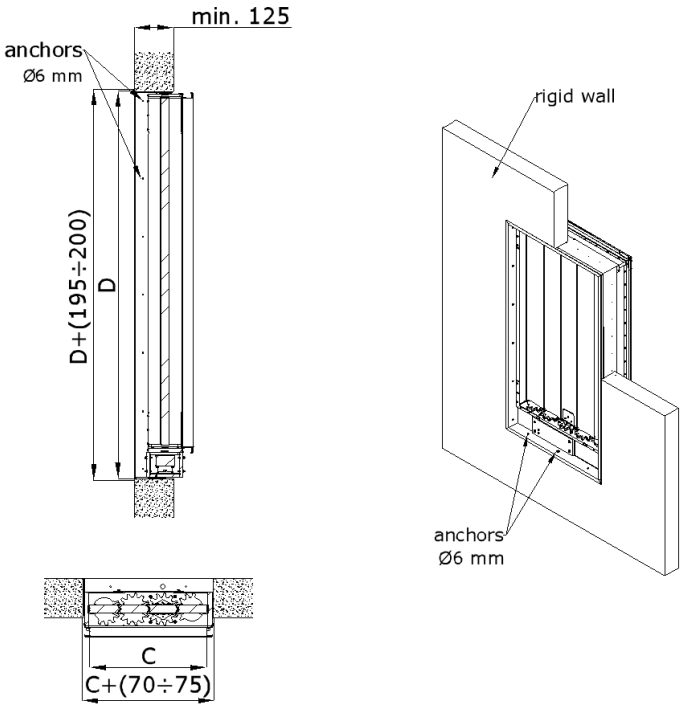

Figure 5. Method of installing WKS-P dampers with width up to 750mm in rigid wall constructions

3.2. INSTALLATION TECHNOLOGY FOR DAMPERS WITH WIDTH 900MM

a. Build a wall with a rectangular opening or create an opening in the wall. The width of the opening should be at least C+100mm, and the height of the opening should be at least D+255mm (where C and D are the nominal dimensions of the damper). When preparing the wall, consider the method of electrical connection.

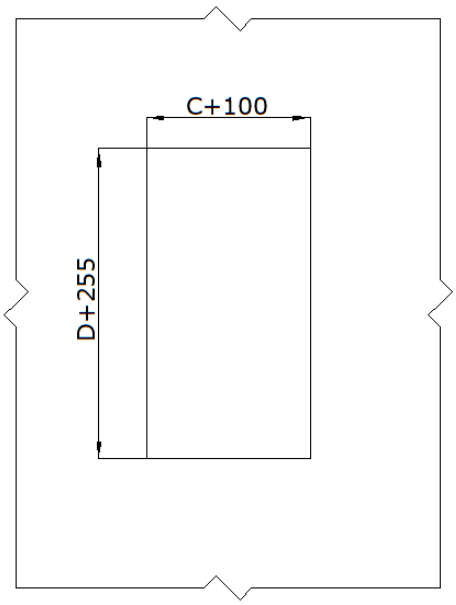

Figure 6. Dimensions of the preliminary opening in a rigid wall construction for dampers with width 900mm

b. Construct a frame from strips of GKF board with a width of 200mm around the opening, aligning the strips with the surface of the wall from the mounting side. The number of layers and the thickness of the boards should be chosen to achieve the final dimensions of the opening as shown below, but not less than one layer along the vertical profiles and not less than two layers along the horizontal profiles. Glue the strips to the wall. From the mounting side, the connection of the frame with the wall boards should be plastered with finishing mortar over a width of 100mm around the mounting opening.

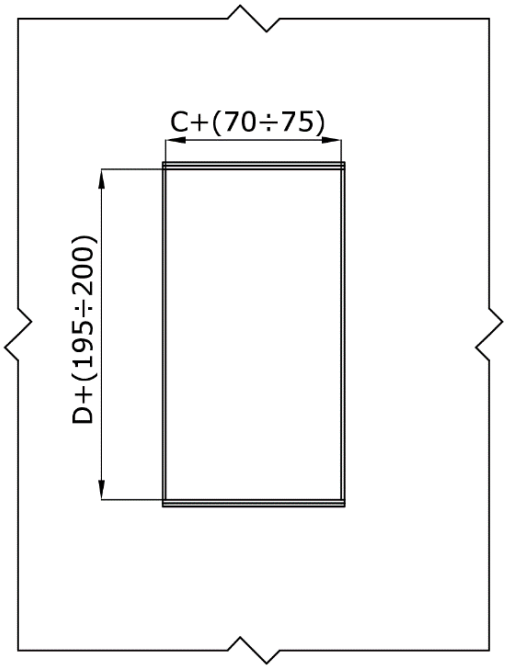

Figure 7. The dimensions of the final, finished opening in a rigid wall construction for dampers with width 900mm

c. The final finished opening ready for damper installation in the wall should have a width equal to C+70÷75mm and a height equal to D+195÷200mm. Smaller dimensions are not allowed. In the case of larger dimensions, adjust the number of boards or apply an additional layer of finishing mortar.

d. Slide the closed damper into the mounting opening, positioning it centrally so that the gap between the damper and the opening is symmetrical (not larger than 4mm on each side). Push the damper with the mounting frame against the wall surface. To facilitate centering the damper in the opening, you can place shims of appropriate thickness on the bottom edge of the opening, on which the damper will rest.

e. Screw the damper frame to the wall profiles through all Ø9.5mm holes located around the mounting frame using Ø6mm anchors with a length matched to the thickness of the frame with boards.

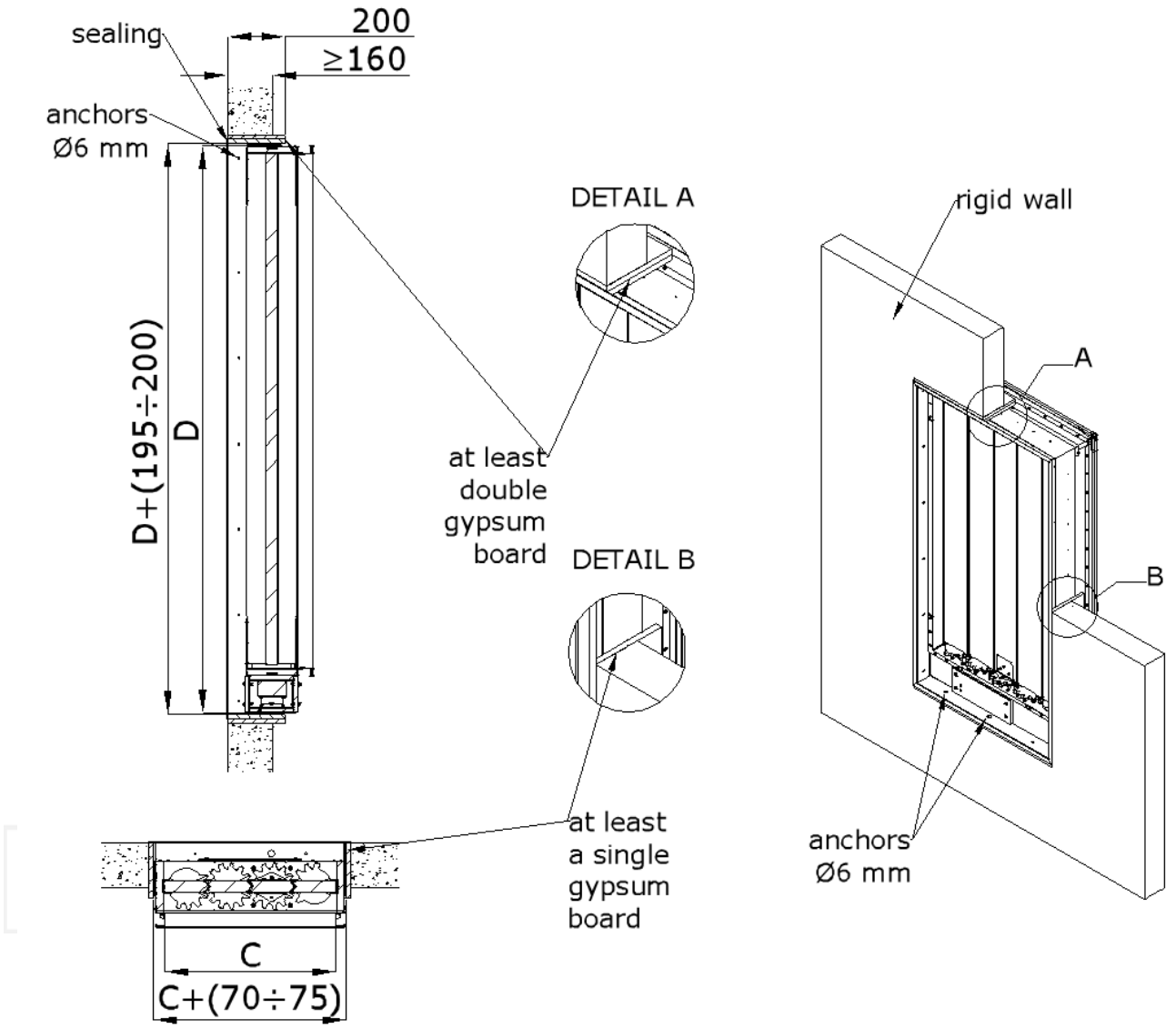

Figure 8. Method of installing WKS-P dampers in rigid wall constructions for dampers with width 900mm

3.3. METHODS OF FINISHING THE OPENING DEPENDINT ON THE DIMENSION

If it is necessary to install a damper in an opening larger than the permissible opening, it is recommended to finish the opening by reducing its clearance according to the following diagrams:

- mortar / plastering mortar / filler, if the layer does not exceed 25 mm;
- plasterboard / fireproof boards, if the layer does not exceed 50 mm;
- bricks / blocks with mortar / if the layer exceeds 50 mm.

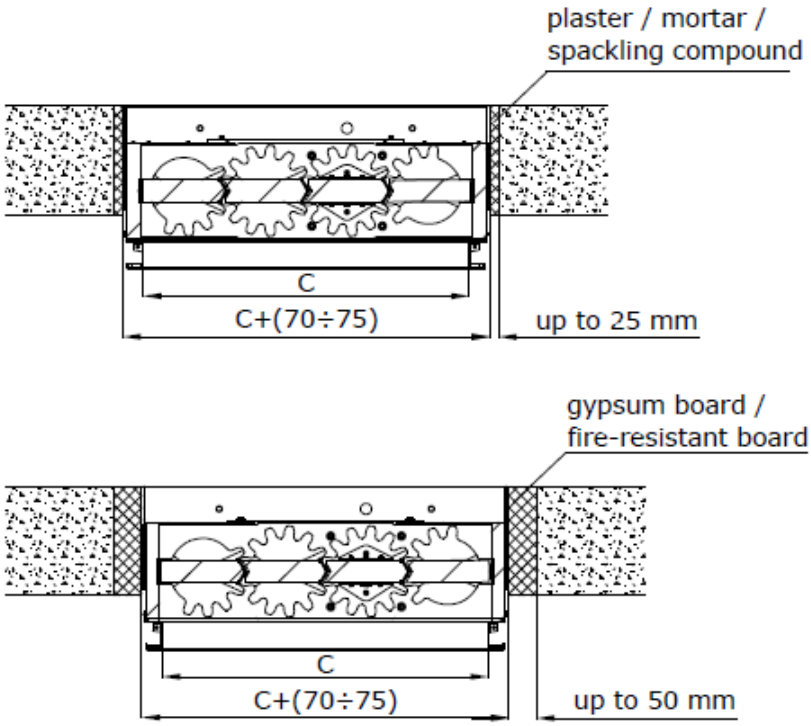

Figure 9. Possible examples of fitting the opening for a gap up to 50 mm

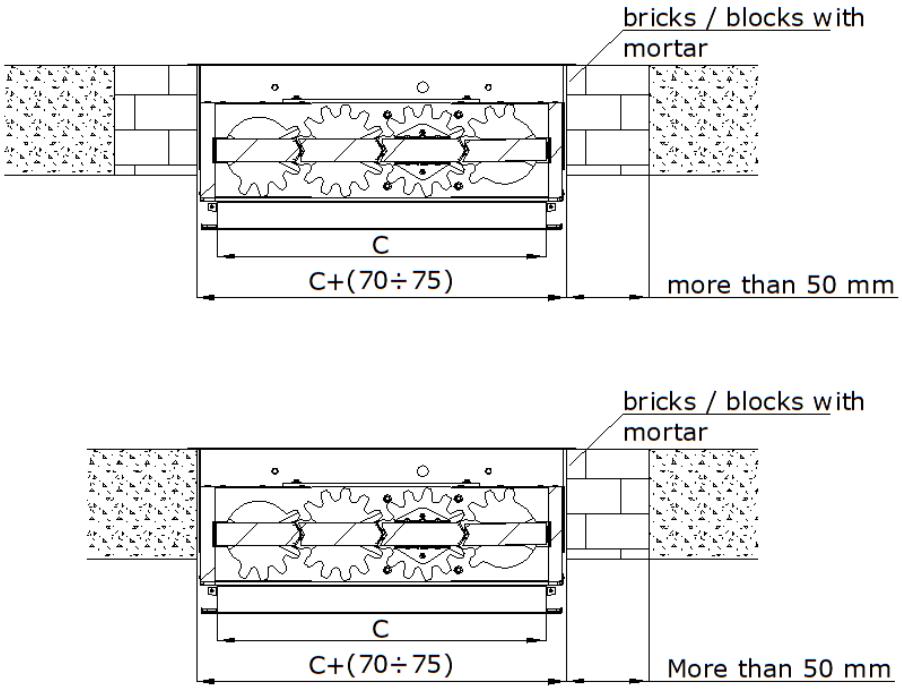

Figure 10. Possible examples of fitting the opening for a various gap width

4. INSTALLATION TECHNOLOGY 0 INSTALLATION IN NARROW SHAFTS

a. Create an opening in the shaft wall according to the above guidelines, based on the wall type and thickness, and the damper dimensions. The opening can be made across the entire width of the shaft, provided it is no less than C + 95mm.

b. Create a frame of 125mm (for dampers up to 750mm wide) or 200mm (for dampers 900mm wide) plasterboard strips around the opening, flush with the wall surface on the mounting side. The number and thickness of the boards should be selected to achieve the following dimensions of the final mounting opening, but no less than one layer along the vertical profiles and no less than two layers along the horizontal profiles. The strips should be adhered to the wall. On the installation side, the joint between the board frame and the wall should be filled with finishing mortar over a width of 100mm around the mounting hole.

c. The finished opening, ready for damper installation, must have a minimum width equal to C + 95 mm and a height equal to D + 245 mm (where C and D are the nominal damper dimensions). Smaller dimensions are not permitted. If the opening is larger, its size must be adjusted using one of the methods described above. When preparing the wall, the method of electrical connection must also be considered.

d. Insert the closed damper into the installation opening and position it centrally so that the gap between the damper and the opening is symmetrical (not greater than 4 mm on each side). Press the mounting frame of the damper against the wall surface. To facilitate centering the damper in the opening, spacers of appropriate thickness may be placed on the bottom edge of the opening to support the damper.

e. Screw the damper frame to the wall through all Ø9.5 mm holes located around the perimeter of the mounting frame, using Ø6 mm expansion anchors selected according to the wall type.

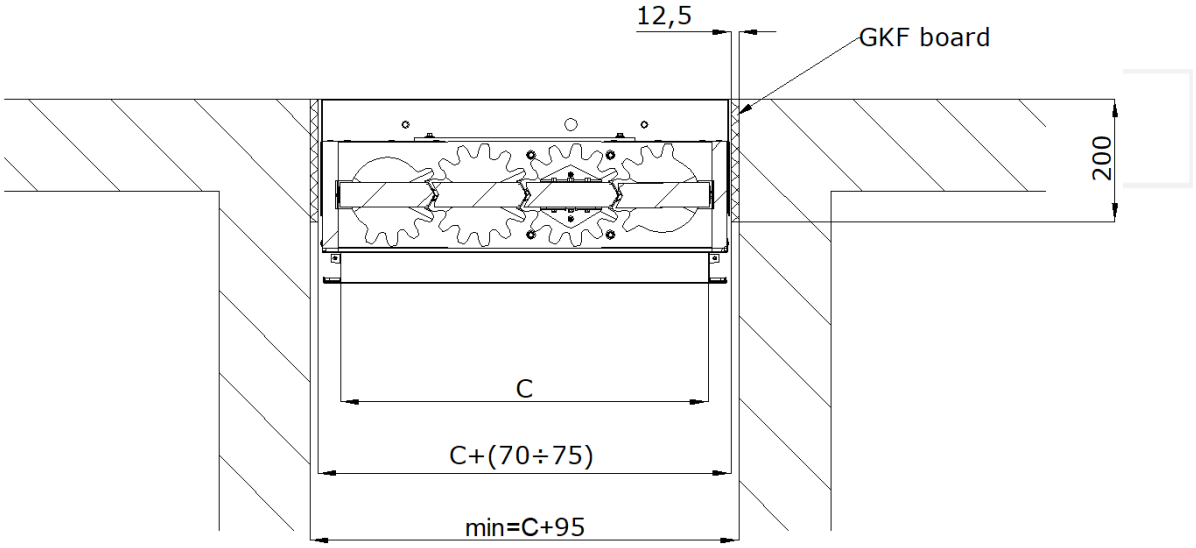

Figure 11. Installation in a narrow shaft.

f. In the case of installation in close proximity to a building partition, two layers of gypsum plasterboards must be applied on the side facing the partition.

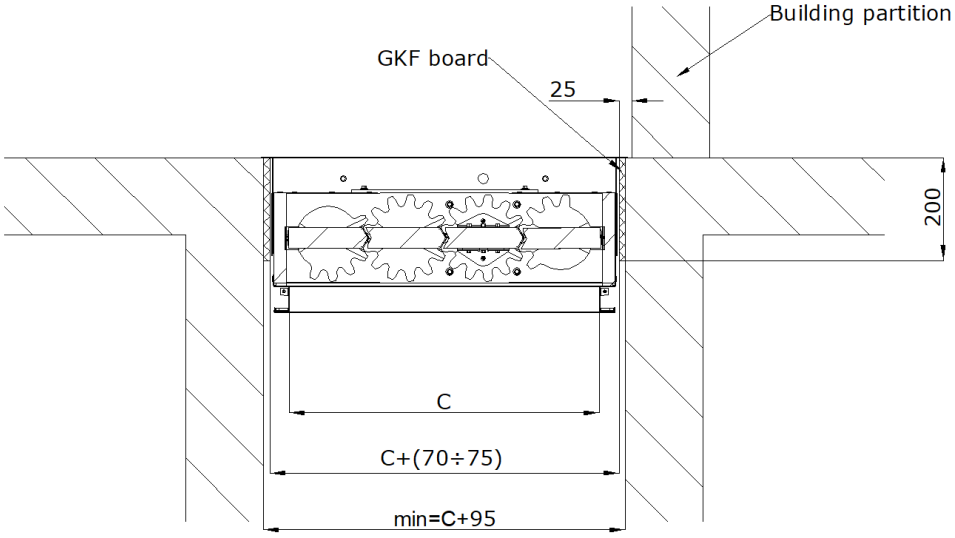

Figure 12. Installation in a narrow shaft adjacent to a building partition.

5. INSTALLATION TECHNOLOGY – MKW-S MESH COVER

a. Before installing the cover, you should adhere to a self-adhesive ventilation seal on the inner surface of the cover along the bend, around the entire perimeter.

b. Mount the cover to the wall using mounting dowels suitable for the type of wall, with the recommended dimensions of Ø5x40mm, through all the holes in the cover.

c. Position the cover so that it is mounted to the wall around the damper. In the case of a split cover (dimensions larger than 900x1000mm), push the cover halves together with the side with a single bend.

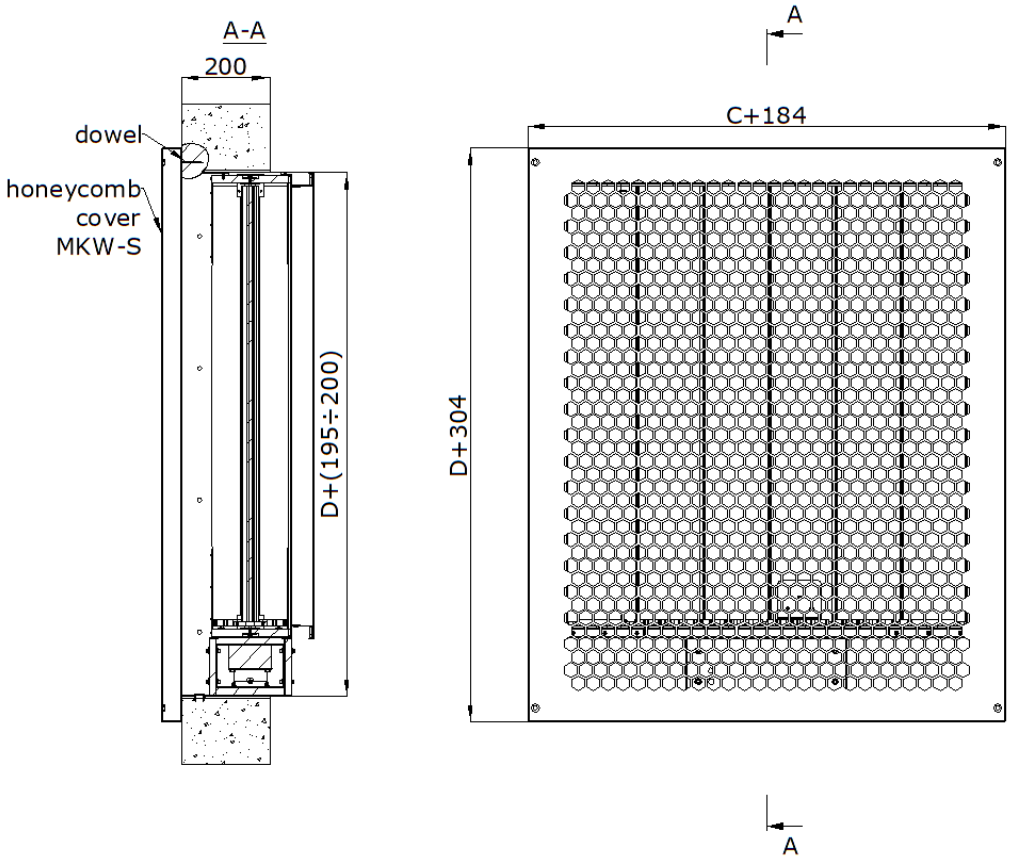

Figure 13. Installation method of the MKW-S cover.

6. INSTALLATION TECHNOLOGY – ALWT-P GRILLE

a. Slide the grille into the mounting frame of the damper. It can open to the left or to the right depending on the installation. Screw the grille frame to the damper frame using screws between the slats of the open grille around the entire perimeter.

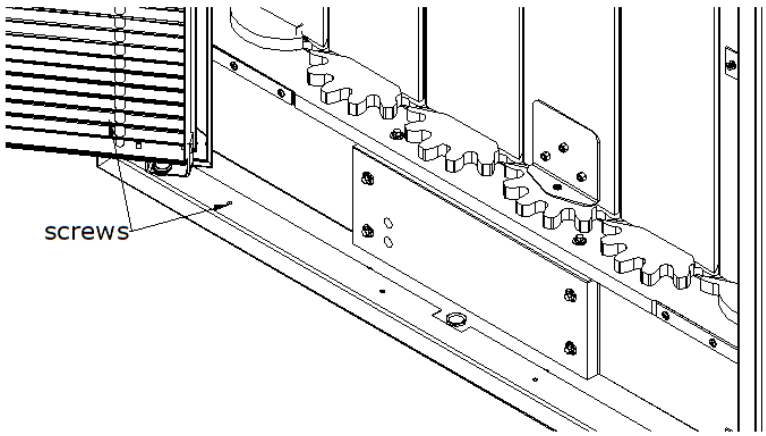

Figure 24. Screw locations.

b. Close the grille and screw in the securing screws;

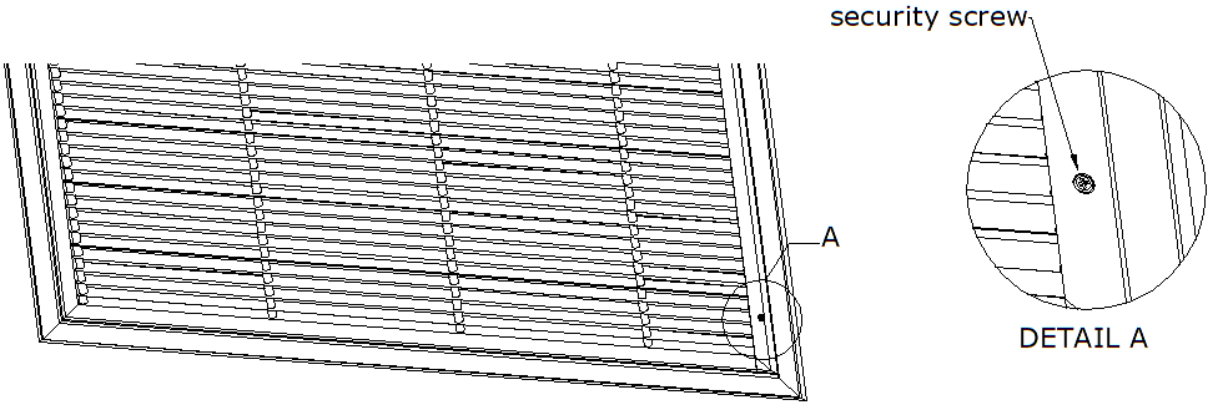

Figure 15. Location of securing screws.

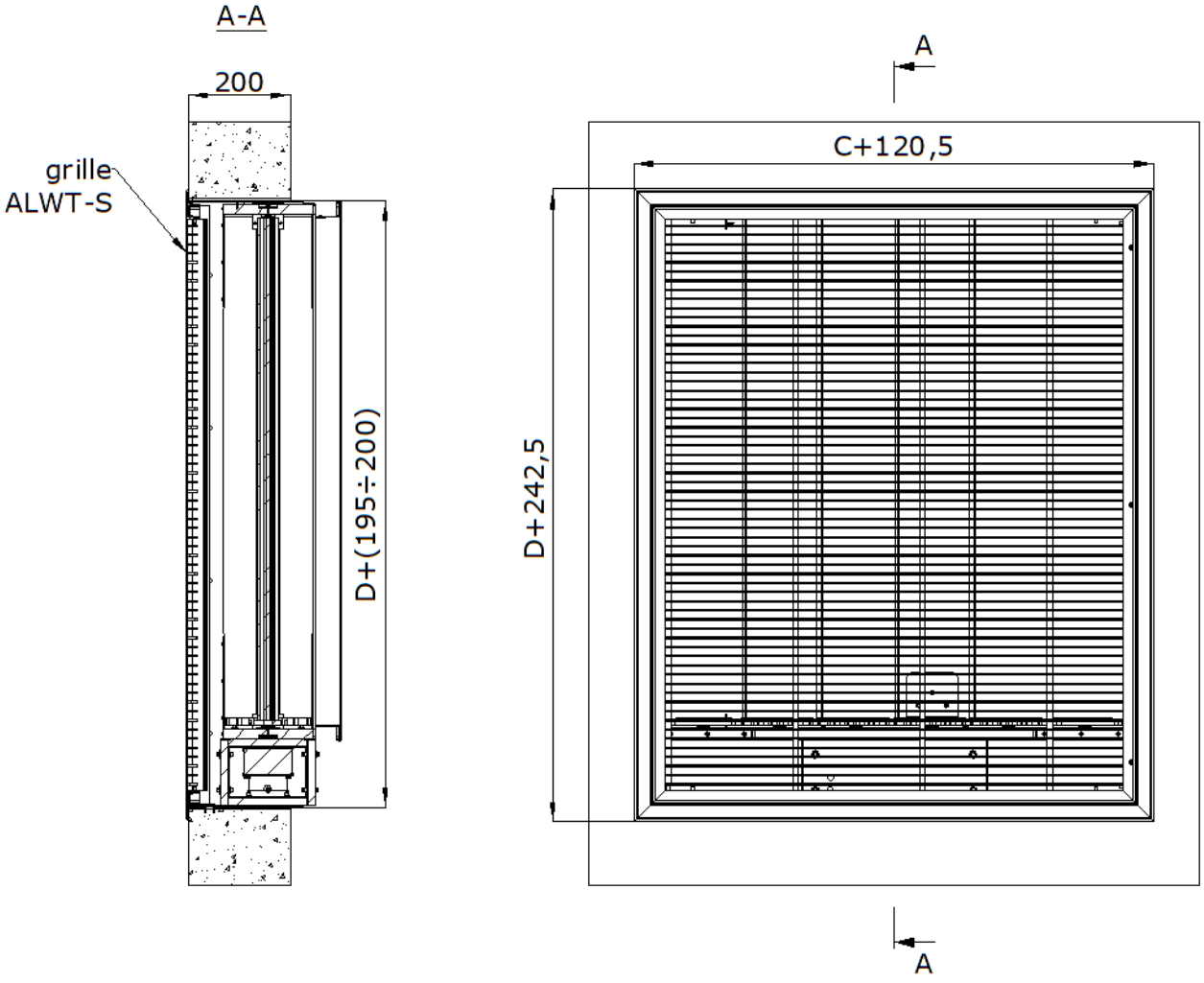

Figure 16. Installation method of the ALWT-P grille

7. INSTALLATION TECHNOLOGY – DUCTWORK CONNECTION

On the side of the connection collar (from the 'back'), the damper can remain unconnected to the ductwork (single-sided installation in the shaft wall) or it must be connected to the ductwork with the expected fire resistance class. The ducts must be installed in such a way that in the event of a fire, they do not transfer loads to the smoke control damper. The extension of ducts in case of fire should be compensated for by brackets or elbows.

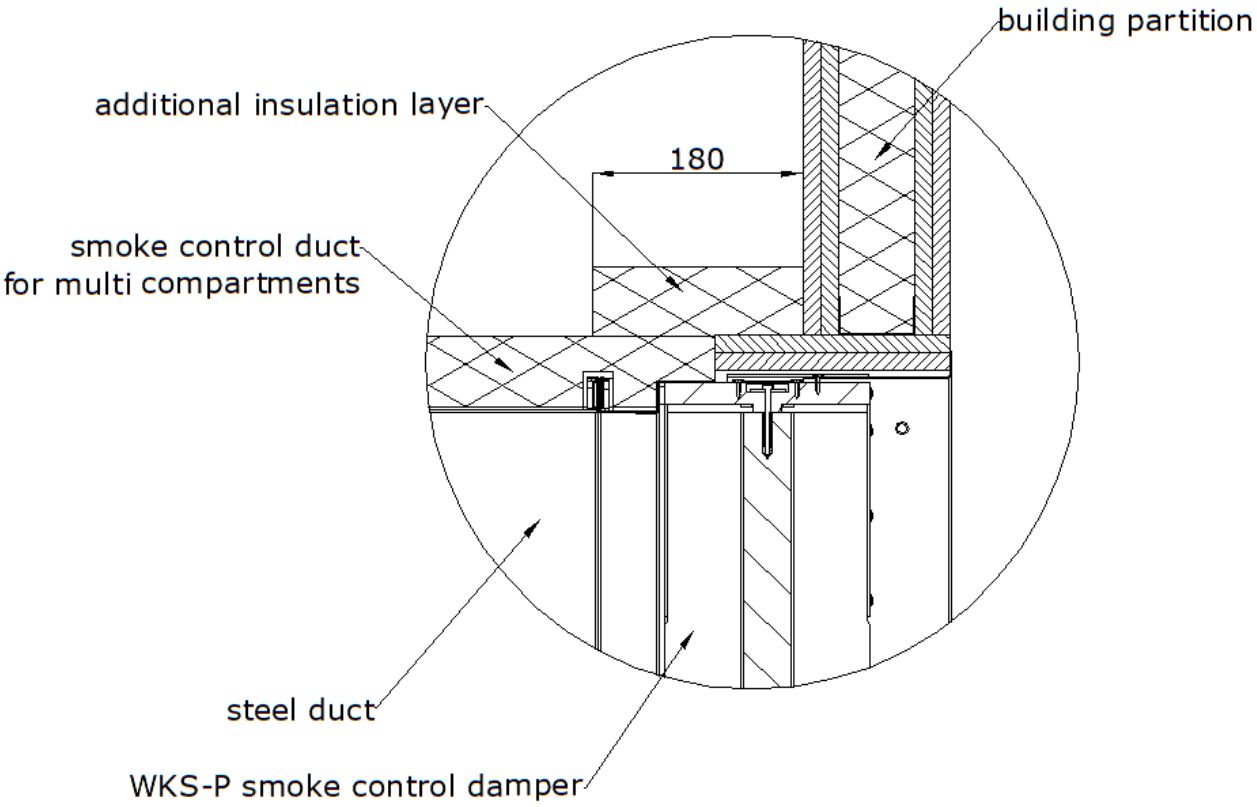

Figure 17. Example of connecting the WKS-P damper to smoke control duct for multi compartments