

KTM-O

Fire Damper – round

Installation manual



SMAY™

Version 6.15

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1. INSTALLATION TECHNOLOGY

Before installing the fire dampers, make sure that there are no damage, during transport or storage, that could block the baffle.

Check that the baffle can be opened and closed (full opening and closing position). To open fire dampers KTM use the actuator key.

The opening and closing must proceed smoothly (not stepwise).

Do not pull by baffle to open or close fire damper, it may cause permanent damage, not covered by the warranty.

During KTM damper test, with size DN>125, while opening baffle, fold back the bumper (as shown on the fig. 5) so as to unlock the bolt caught on it, allowing free rotation of the baffle.

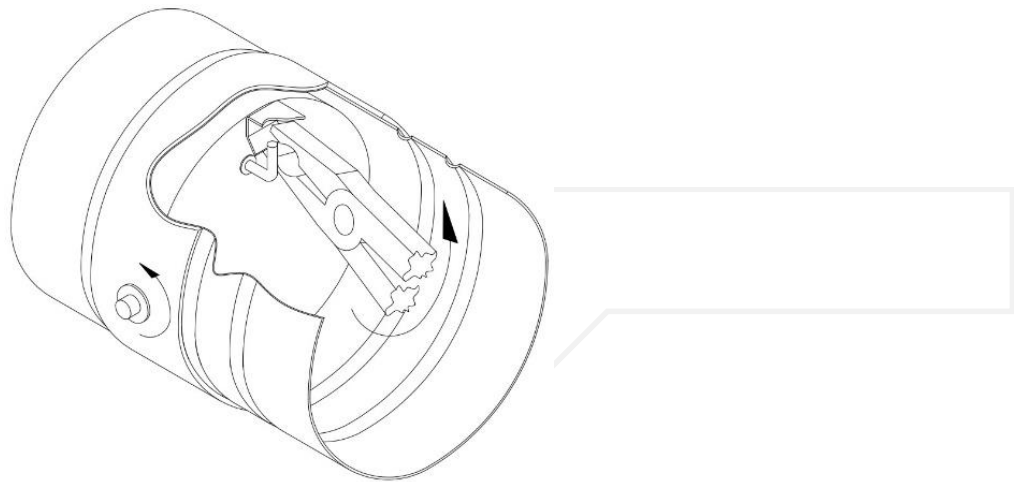


Figure 1. KTM baffle opening method

Before installing, secure the fire damper, by dust and dirt, using a foil or other screening material. It can prevent components of fire damper by damage.

Dampers to preserve of the declared resistance, insulation and smoke leakage EIS120, EIS90, EIS60, EIS30, should be installed on wall, which was classified as EIS120, EIS90, EIS60, EIS30.

It is allowed to install KTM dampers in wall with other fire-resistance, should be remembered that fire-resistance in this situation is resistance of lowest classified (in this regard) element in this system.

Ducts made of flammable and non-flammable materials can be connected to the damper. Ducts should be installed that they cannot load the damper during fire. Ducts lengthening during fire can be compensated by support and knee.

ATTENTION: Distance between fire dampers or fire damper and construction elements must be:

- a) min. 10 mm between fire damper, which are installed in different ventilating wires,
- b) min. 10 mm between fire damper and construction element (wall/ceiling).

During the installation of dampers, if the spacing between them is less than 200 mm and/or the distance from the adjacent building partition is less than 75 mm, it is necessary to use a one-sided flange made of 15 mm gypsum fiberboard (GKF) in accordance with the subsection 7.7.

This requirement does not apply to building partitions that have a thickness at least 15 mm greater than the required minimum wall thickness.

2. INSTALLATION TECHNOLOGY - CEILING

- a. Make an opening in the ceiling with the 40 [mm] (acceptable $40 \div 80$ [mm]) greater than the nominal dimensions of the fire damper: DN+40.
- a. Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the ceiling, and ensure a concentricity of fire damper and installation opening.
- b. After setting the fire damper as described, fill the gap between the fire damper and the ceiling with cement, cement-lime mortar or concrete.
- c. After the mortar has dried (about 48 hours), remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM damper thermal fuse as shown on the fig. 2).

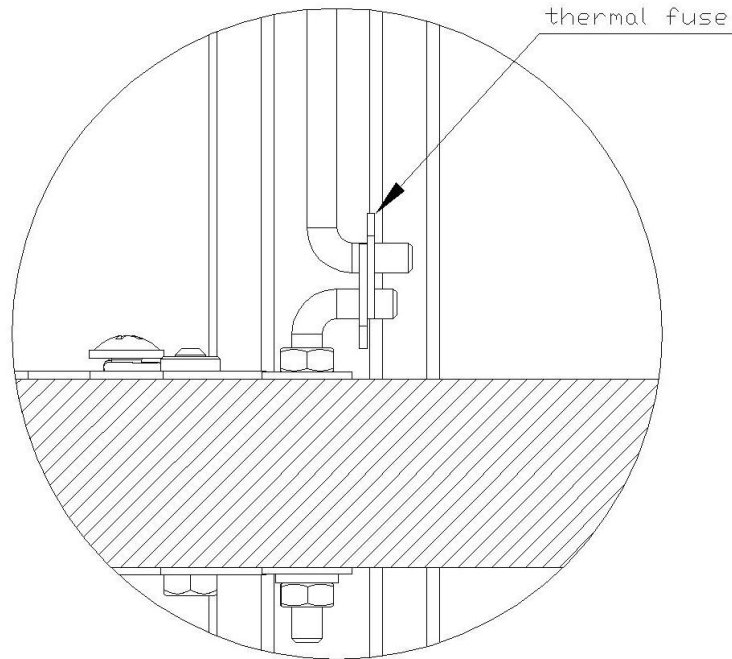


Figure 2. Thermal fuse installation method

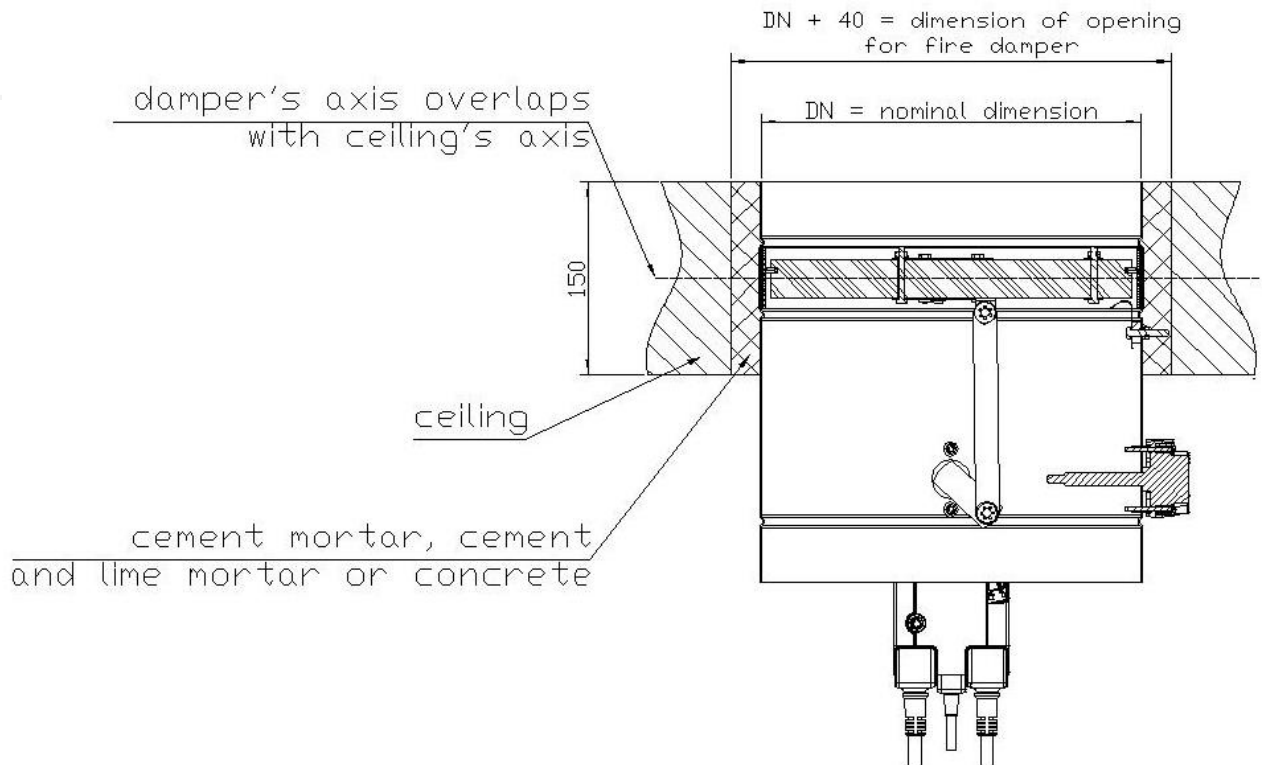


Figure 3. Installation of KTM fire dampers in ceiling

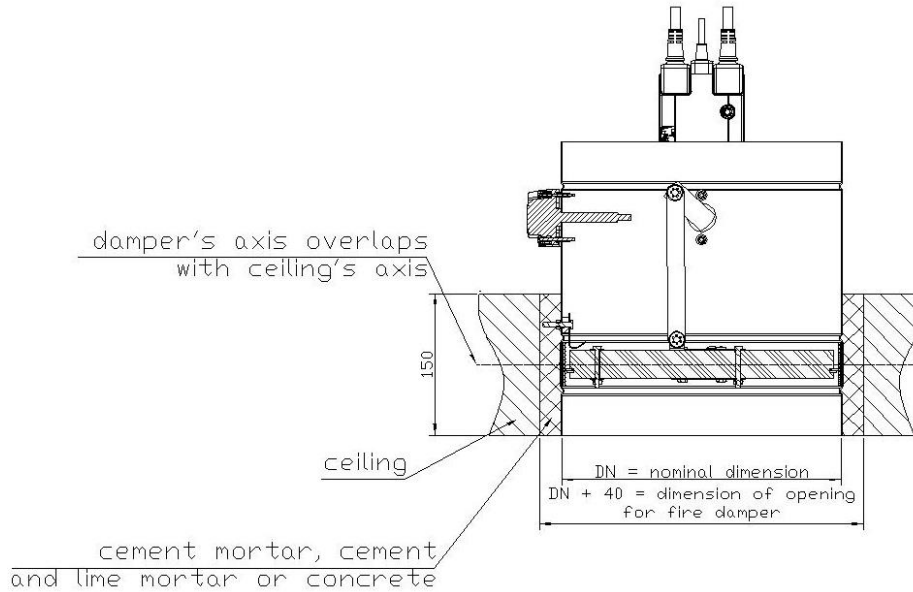


Figure 4. Installation of KTM fire dampers in ceiling

3. INSTALLATION TECHNOLOGY – RIGID WALL

a) INSTALLATION USING MORTAR

- Make an opening in the wall with the 40 [mm] (acceptable $40 \div 80$ [mm]) greater than the nominal dimensions of the fire damper: DN+40.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with cement, cement-lime mortar or concrete.
- After the mortar has dried (about 48 hours), remove the supports or suspensions, check the fire damper correct operation and leave it in open position (installing in KTM damper thermal fuse as shown on the fig. 2).

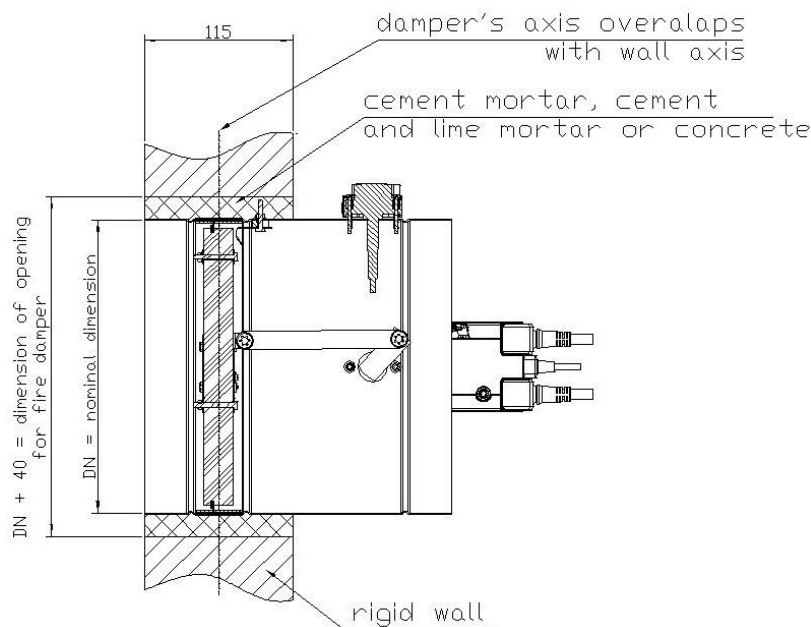


Figure 5. Installation of KTM fire dampers in rigid wall with 115 mm thickness

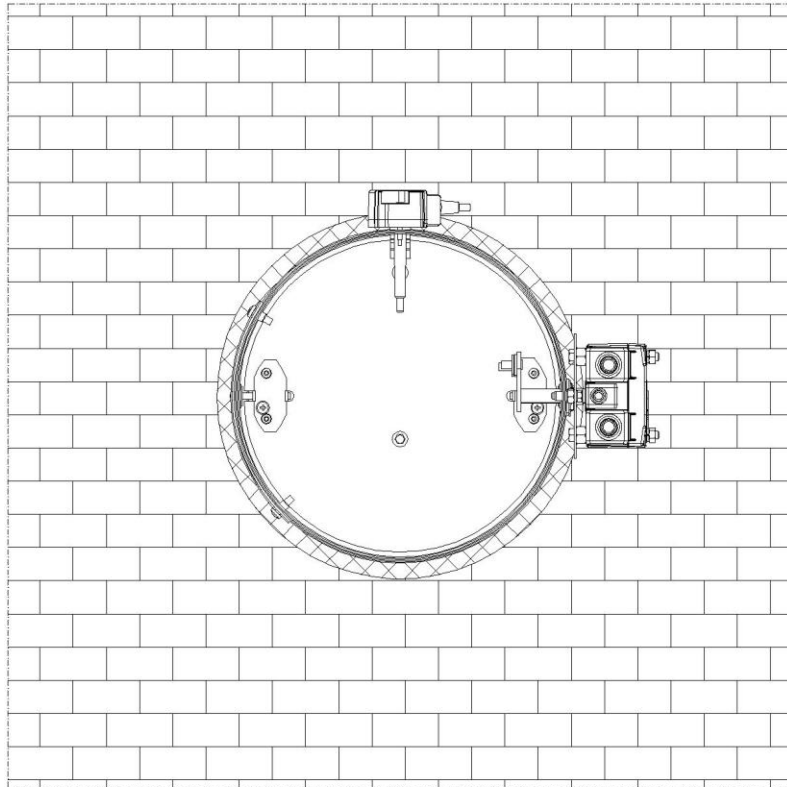


Figure 6. Installation of KTM fire dampers in rigid wall with horizontal rotation axis of baffle

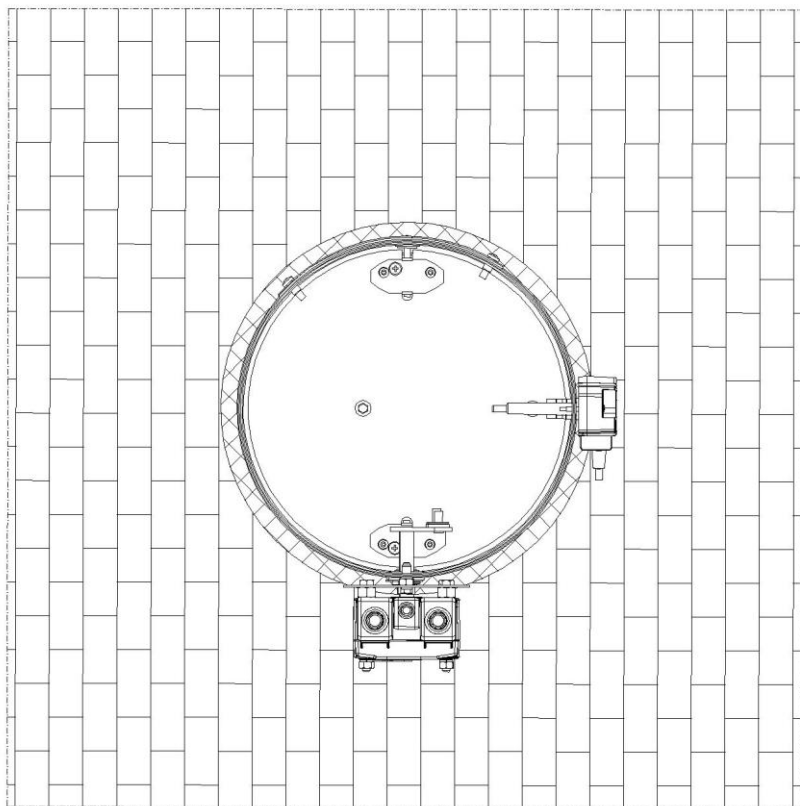


Figure 7. Installation of KTM fire dampers in rigid wall with vertical rotation axis of baffle

b) INSTALLATION USING MINERAL WOOL

- Make an opening in the wall with the 40 [mm] (acceptable 40 ÷ 80 [mm]) greater than the nominal dimensions of the fire damper: $B=DN+40$ and $H=DN+40$.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m³ or more.
- Seal the place of filling with mineral wool using the sealing compounds Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Mount collar, both side of wall, made of GKF boards, 12,5 mm thick and $DN+ 320$ mm wide, using screws (with a cut hole for the damper). For easy assembly, the collar can be made of two parts.
- After mounting the collar, remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM-O-S damper thermal fuse as shown on the fig. 2).

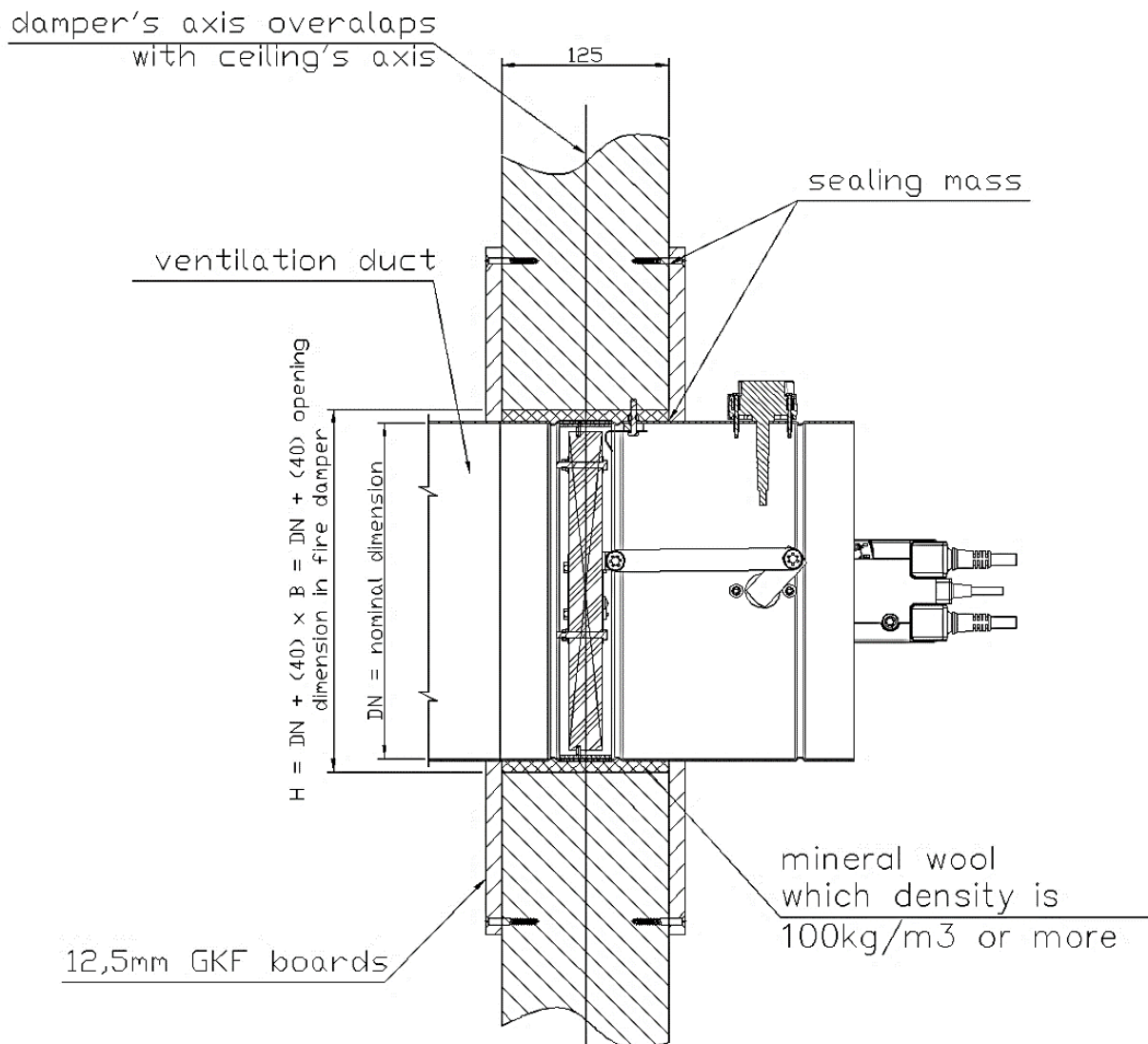


Figure 8. Installation of KTM-O fire dampers in rigid wall with vertical rotation axis of baffle

4. INSTALLATION TECHNOLOGY – FLEXIBLE WALL

- Make an opening in the wall with the 40 [mm] (acceptable 40 ÷ 80 [mm]) greater than the nominal dimensions of the fire damper: $B=DN+40$ and $H=DN+40$.
- Make a frame of two layers of GKF boards, 12,5 mm thick and the width relative to the width of opening, mounting by screws remembering to carefully seal the contact edges with a mastic: Hilti Firestop Coating CP 673, Promastop-Coating, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m³ or more.
- Seal the place of filling with mineral wool using the sealing compounds Hilti Firestop Coating CP 673, Promastop-Coating, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Mount collar, both side of wall, made of GKF boards, 12,5 mm thick and DN+ 320 mm wide, using screws (with a cut hole for the damper). For easy assembly, the collar can be made of two parts.
- After mounting the collar, remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM damper thermal fuse as shown on the fig. 12).

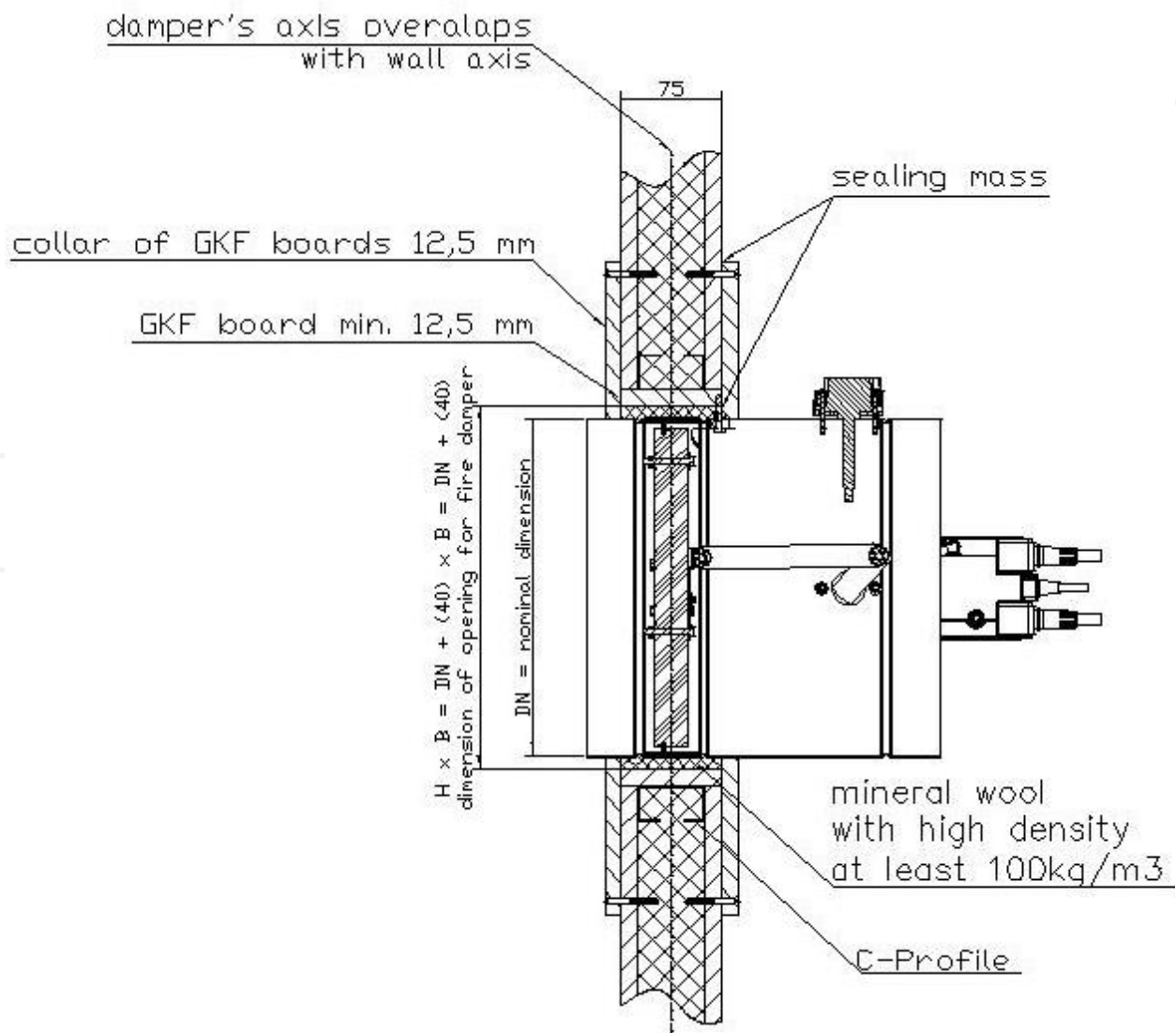


Figure 9. Installation method of fire dampers KTM in flexible wall with 75 mm thickness

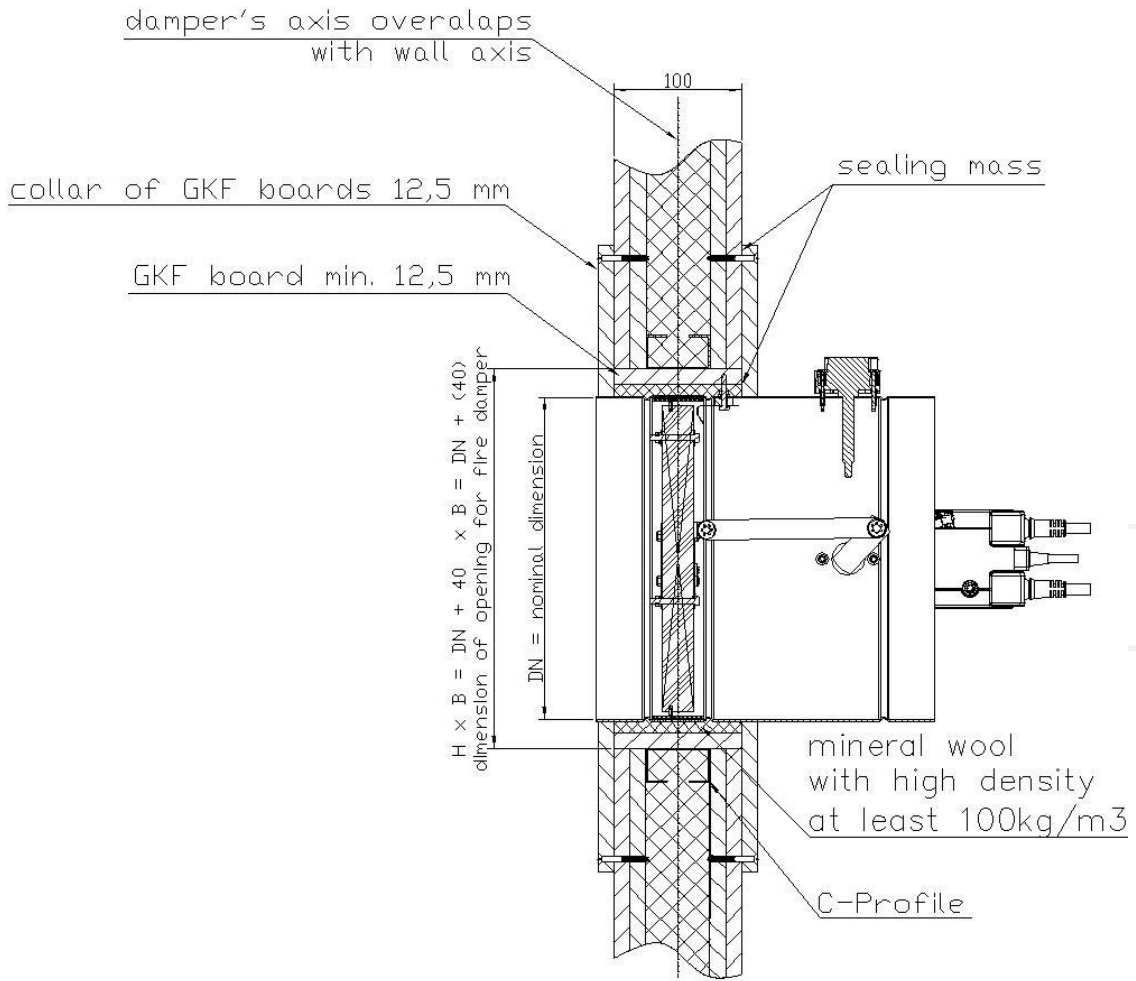


Figure 10. Installation method of fire dampers KTM in flexible wall with 100 mm thickness

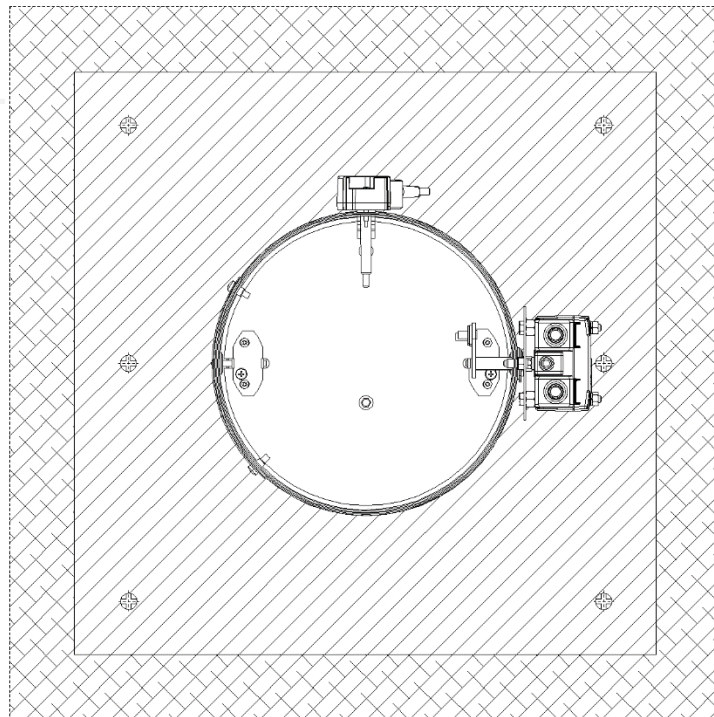


Figure 11. Installation method of fire dampers KTM in flexible wall with horizontal rotation axis of baffle

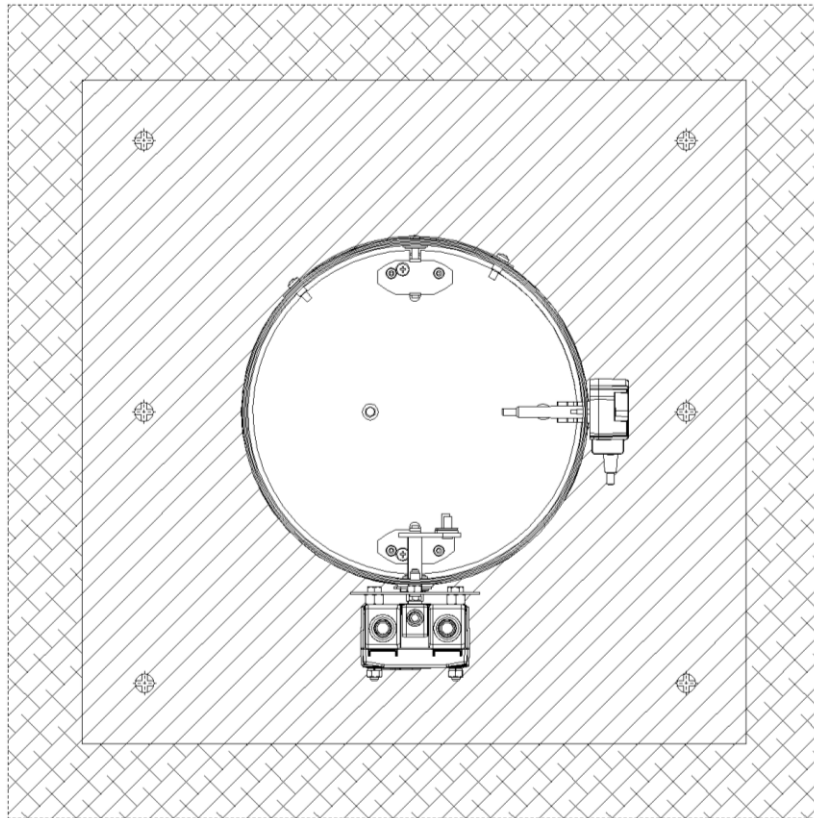


Figure 12. Installation method of fire dampers KTM in flexible wall with vertical rotation axis of baffle

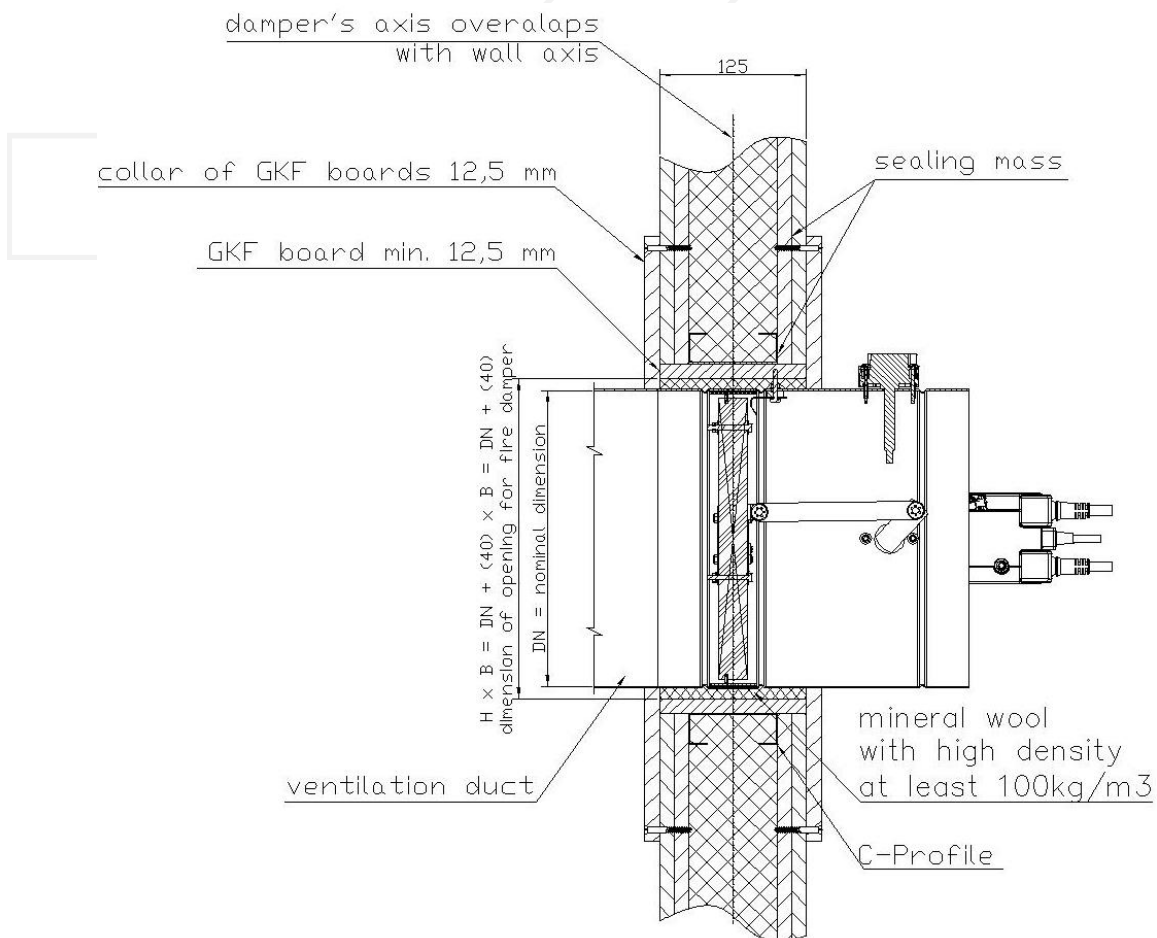


Figure 13. Installation method of fire dampers KTM in flexible wall with 125 mm thickness

5. INSTALLATION TECHNOLOGY – FLEXIBLE WALL WITH ONE-SIDED ACCESS

- Make an opening in the wall with the 40 [mm] (acceptable $40 \div 80$ [mm]) greater than the nominal dimensions of the fire damper: $B=DN+40$ and $H=DN+40$. The opening of the external GKF board on the side without access should have a dimension equal to the nominal dimension DN of the damper.
- Make a frame of two layers of GKF boards, 12,5 mm thick and the width relative to the width of opening, mounting by screws remembering to carefully seal the contact edges with a mastic: Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall (Fig. 18), and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m³ or more.
- Seal the place of filling with mineral wool using the sealing compounds Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Mount collar, both side of wall, made of GKF boards, 12,5 mm thick and $DN+ 320$ mm wide, using screws (with a cut hole for the damper). For easy assembly, the collar can be made of two parts.
- After mounting the collar, remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM-O damper thermal fuse as shown on the fig. 6).

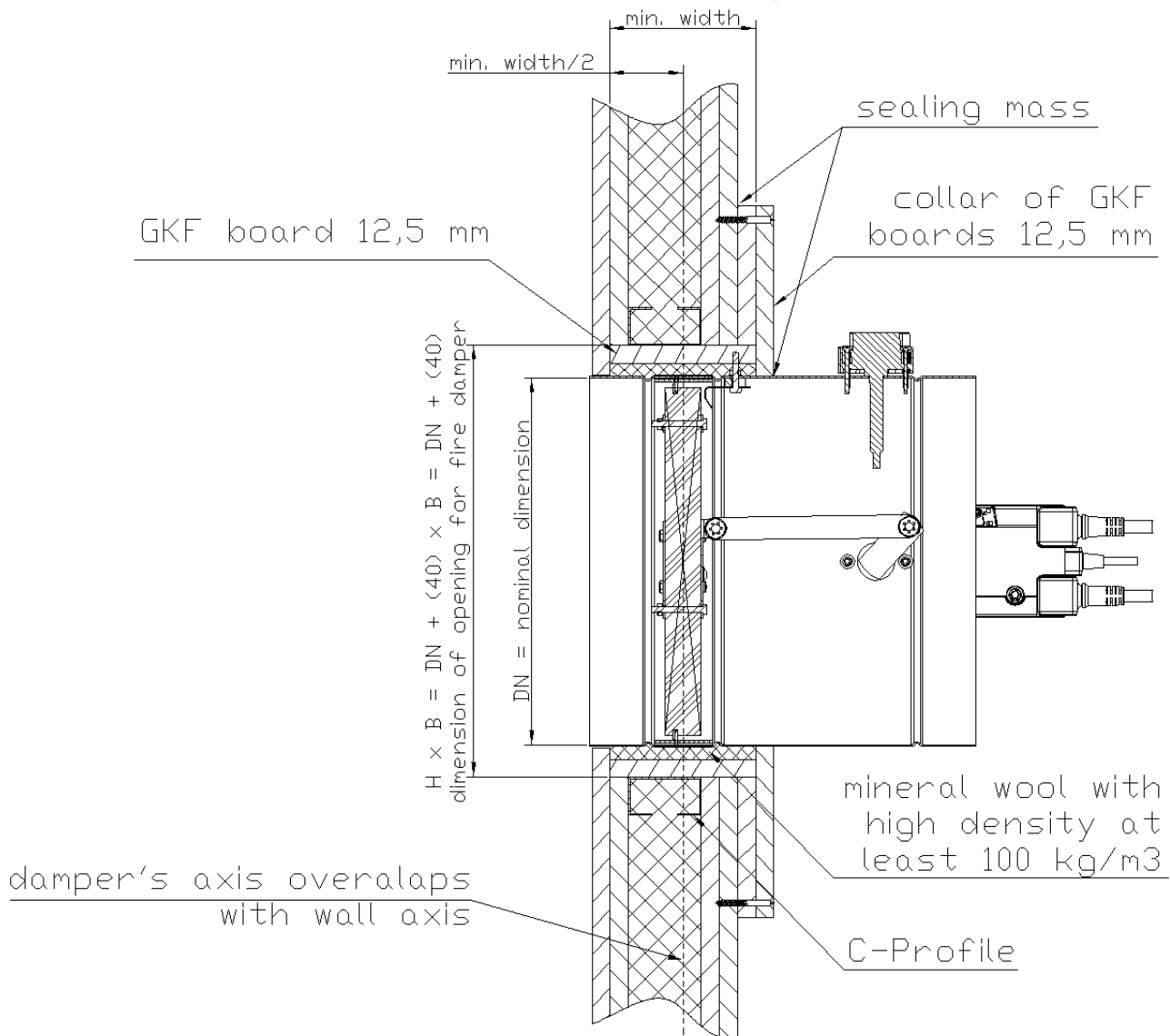


Figure 14. Installation method of fire dampers KTM-O in flexible walls structures one-sided access

6. INSTALLATION TECHNOLOGY – WALL AND CEILING STRUCTURES OF GREAT THICKNESS

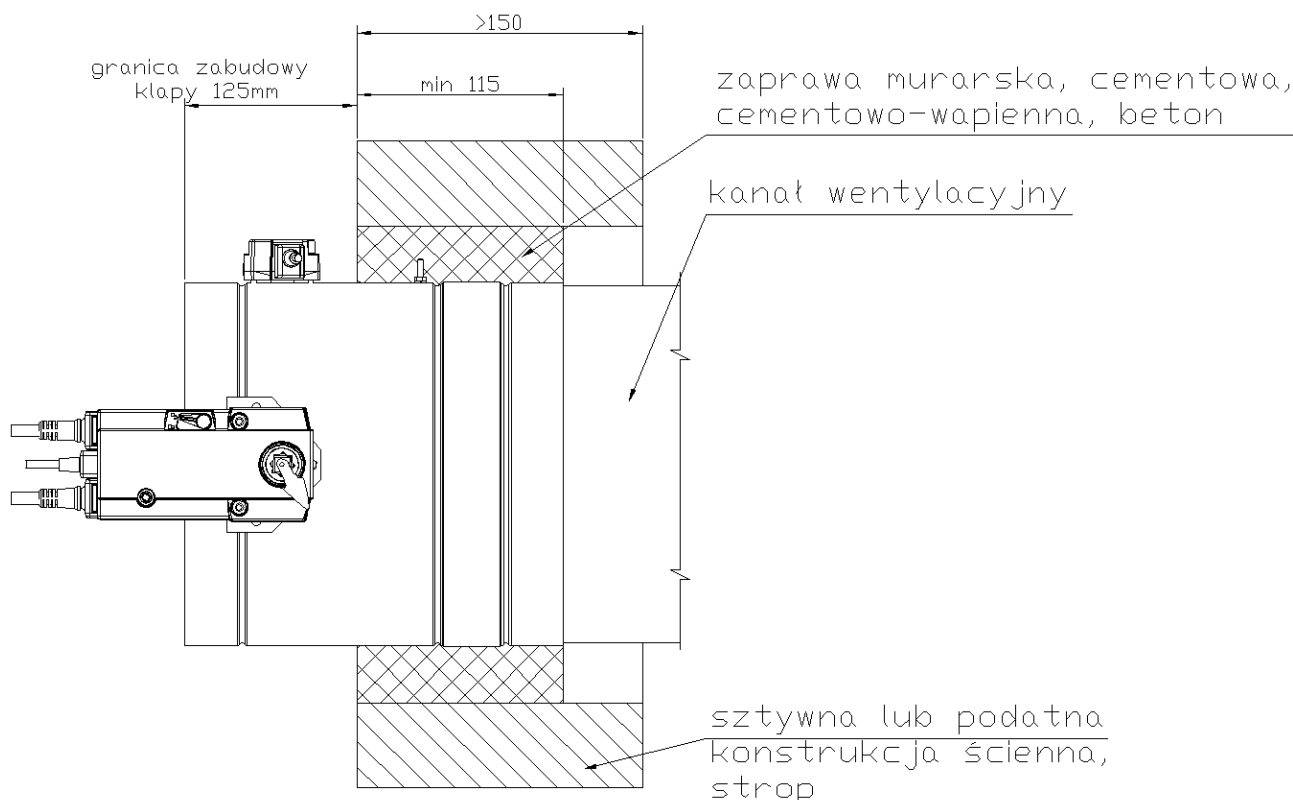


Figure 15. Installation method of fire dampers KTM in structures thicker than 150 mm

In rigid and flexible wall construction and in ceiling with thickness less or equal to 150 mm, KTM fire dampers are mounted in such a way that the damper baffle axis coincides with the axis of the wall or ceiling.

Whereas in case of walls and ceilings with thickness higher than 150 mm: the KTM fire dampers are mounted in such a way, that the damper installation limit i.e. 125 mm, is maintained (as in figure 17).

7. INSTALLATION TECHNOLOGY – MONTAGE AWAY FROM RIGID WALL

- Make an opening in the wall with the dimensions 100 [mm] greater than the nominal dimensions of the fire damper DN+100.
- Push the ventilation duct into the installation opening and support or suspend it so that the channel and opening alignment are maintained.
- Install the closed damper to the ventilation duct, additionally support or suspend it.
- On the mineral wool coverage section, apply 1mm PROMASTOP CC (made by PROMAT) layer.
- The PROMASTOP CC layer has to be applied on fire barrier in the place where the wool was sealed on both sides, with a size about DN + 300.
- Wrap the ventilation duct and the damper at the appropriate length of mineral wool with high density at least 100 kg/m³.
- When the mineral wool is mounted, check correct functionality of the damper, then leave it in the open position.

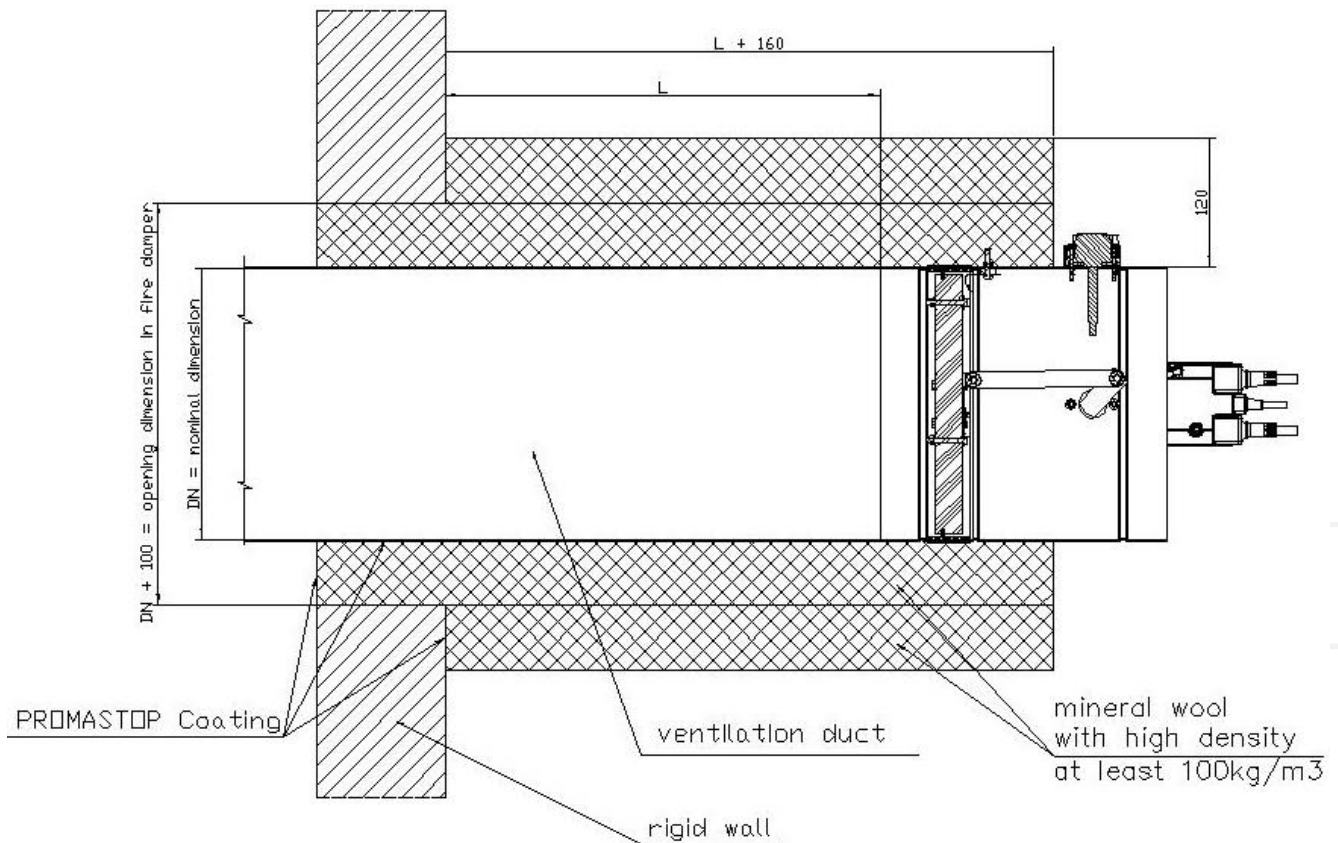


Figure 16. Installation method of KTM fire dampers away from wall construction.

8. INSTALLATION TECHNOLOGY – INSTALLATION WITH MINIMUM DISTANCES

A. RIGID WALL – INSTALLATION USING MORTAR

- Make an opening in the wall with the 40 [mm] (acceptable 40 ÷ 80 [mm]) greater than the nominal dimensions of the fire damper: $B=DN+40$ and $H=DN+40$, alternatively round holes with diameter $DN+40$.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m³ or more.
- Install using screws, on the actuator side a collar made of GKF boards 15 mm thick with the resulting dimensions (Fig. 18, 20, 22, 24) depending on the number of fire dampers and the distance from the ceiling and/or wall (with the opening for the fire dampers. For simple assembly, the frame can be made of two parts.
- After mounting the collar, remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM-O damper thermal fuse as shown on the fig. 2).
- After the mortar has dried, apply a 1 mm thick layer of Promastop coating fireproofing compound to the other side of the building partition.

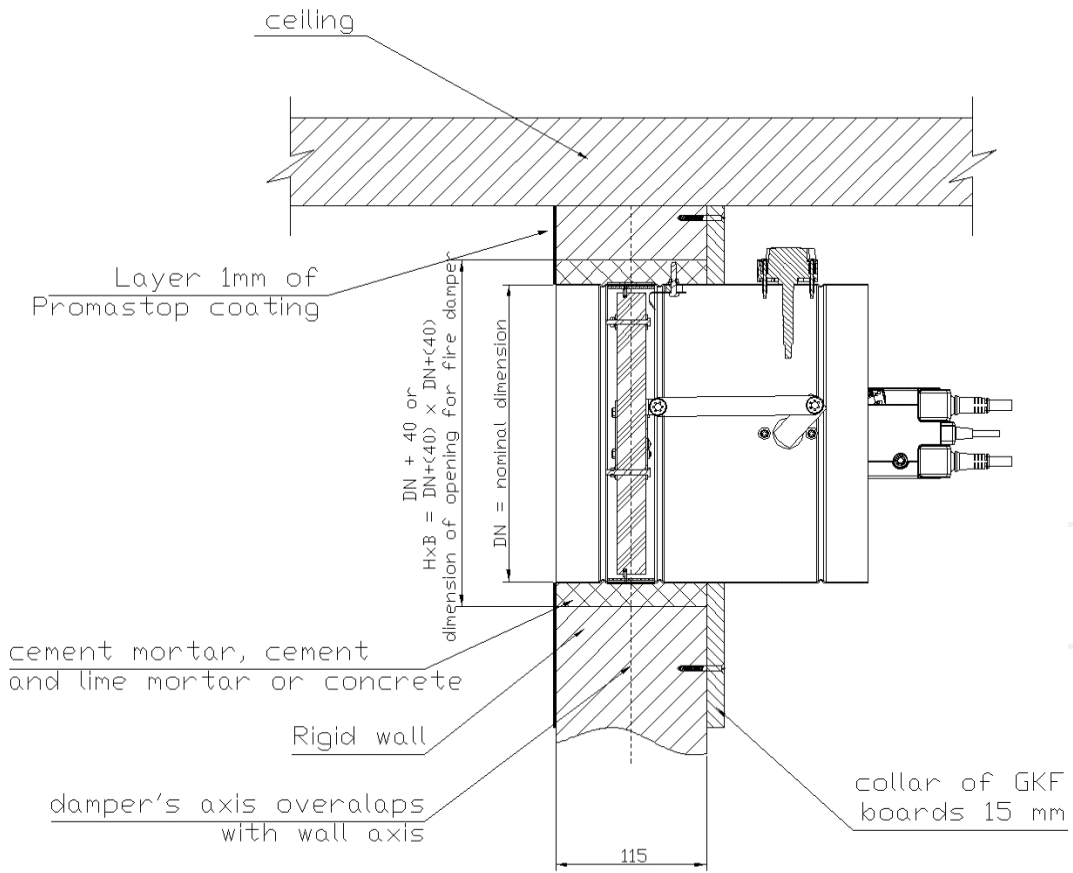


Figure 17. Installation method of KTM-O with minimum distances from adjacent fire dampers and from the ceiling.

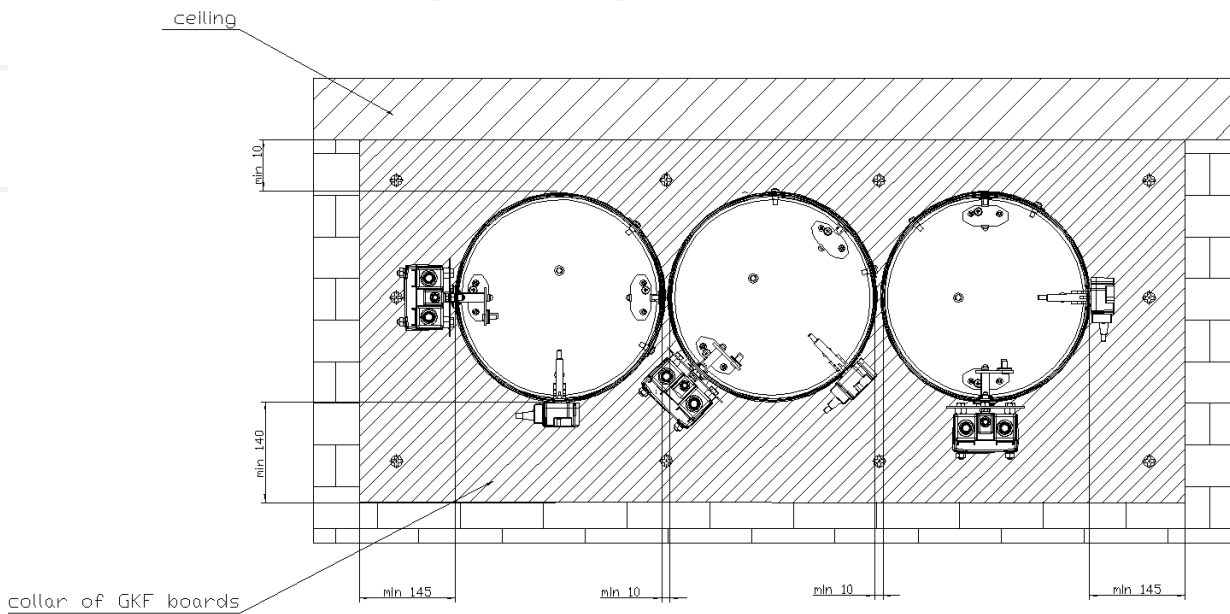


Figure 18. Installation method of KTM-O with minimum distances from adjacent fire dampers and from the ceiling.

B. RIGID WALL – INSTALLATION USING MORTAR

- Make an opening in the wall with the 40 [mm] (acceptable $40 \div 80$ [mm]) greater than the nominal dimensions of the fire damper: $B=DN+40$ and $H=DN+40$, alternatively round holes with diameter $DN+40$.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m³ or more.
- Seal the place of filling with mineral wool using the sealing compounds Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Mount collar, both side of wall, made of GKF boards, 12,5 mm thick and $DN+320$ mm wide, using screws (with a cut hole for the damper). For easy assembly, the collar can be made of two parts.
- Install using screws, on the actuator side a collar made of GKF boards 15 mm thick with the resulting dimensions (Fig. 18, 20, 22, 24) depending on the number of fire dampers and the distance from the ceiling and/or wall (with the opening for the fire dampers. For simple assembly, the frame can be made of two parts.
- After mounting the collar, remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM-O damper thermal fuse as shown on the fig. 2).
- After the mortar has dried, apply a 1 mm thick layer of Promastop coating fireproofing compound to the other side of the building partition.

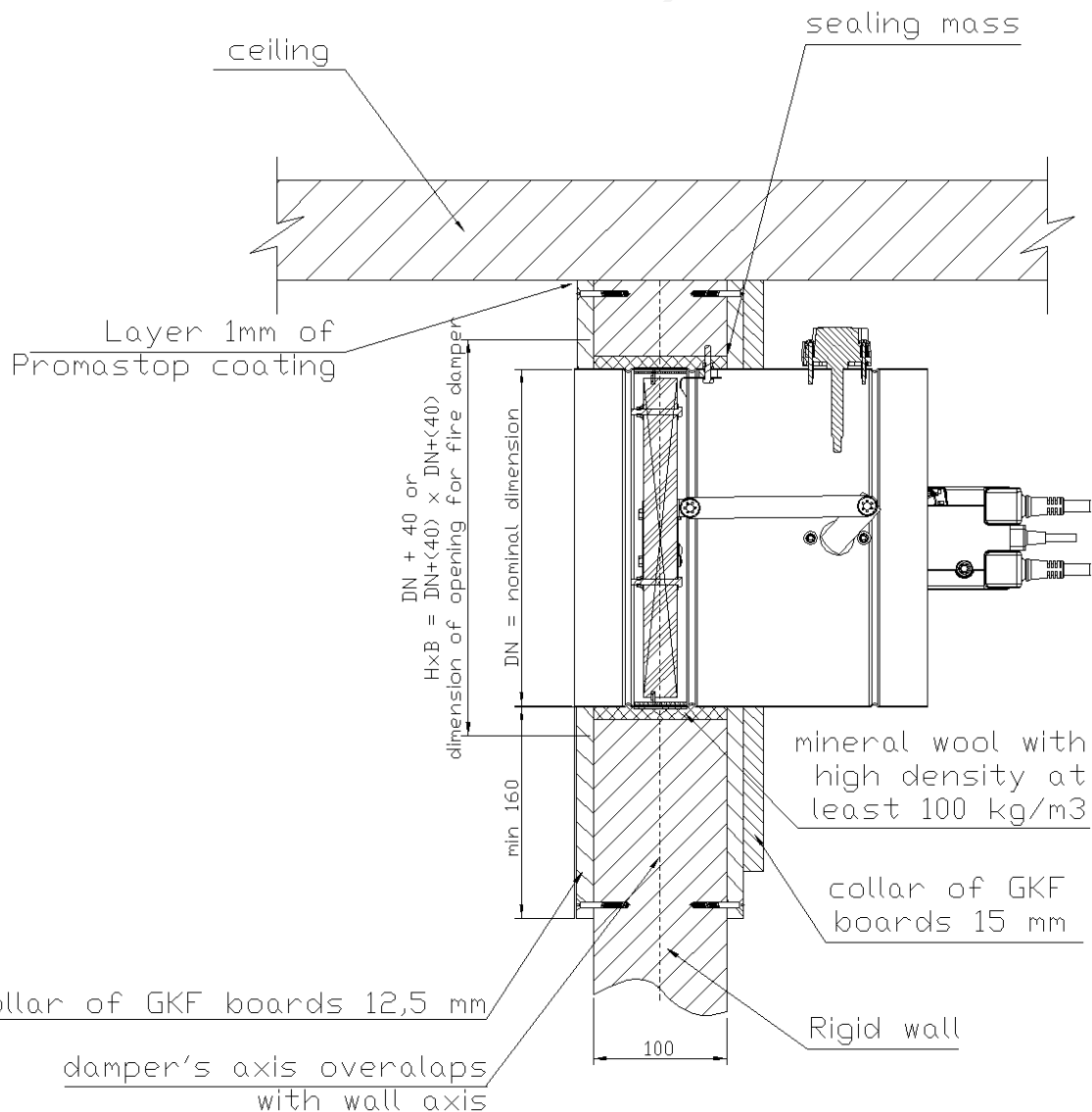


Figure 19. Installation method of KTM-O with minimum distances from adjacent building partition.

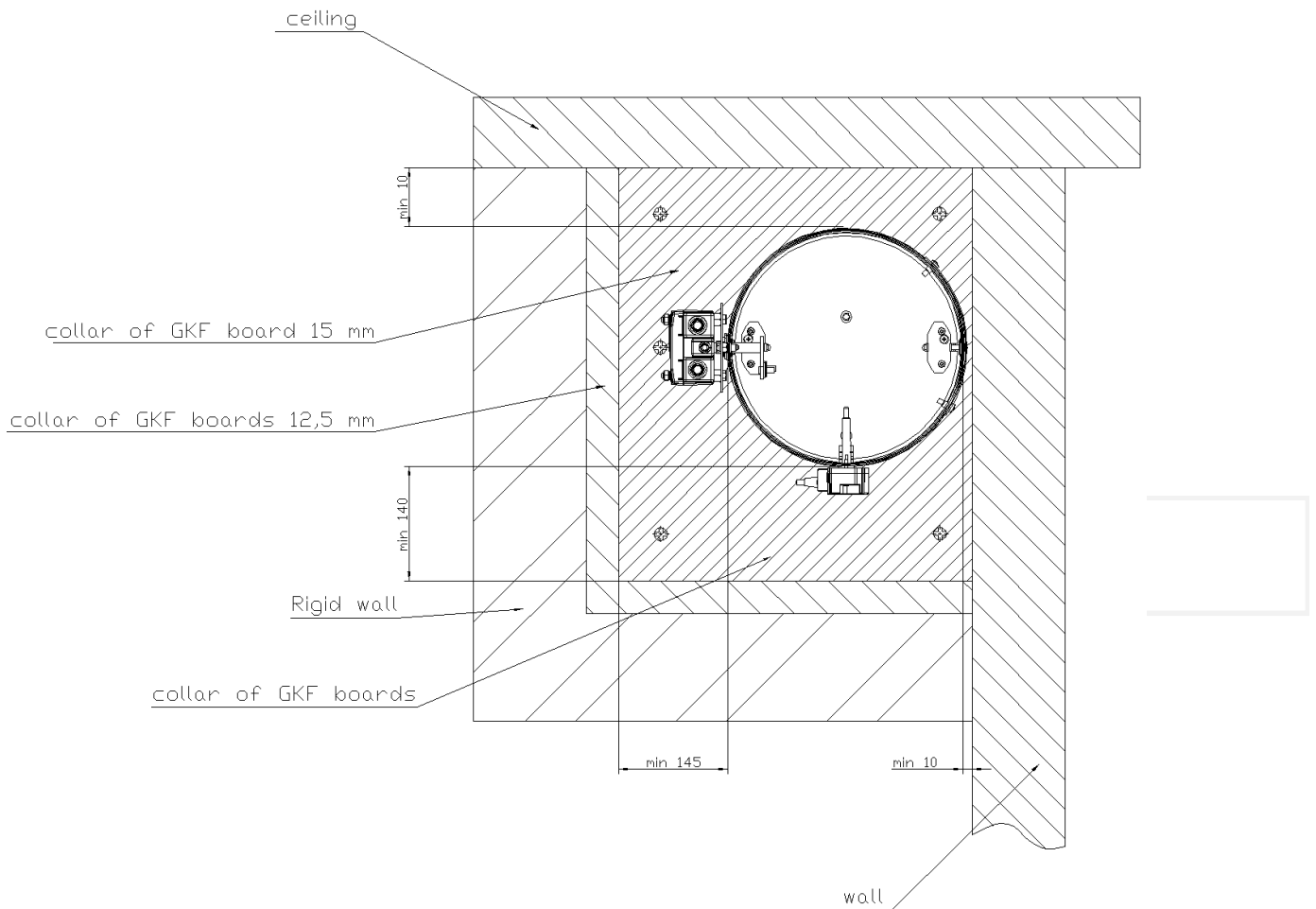


Figure 20. Installation method of KTM-O with minimum distances from adjacent building partition.

C. FLEXIBLE WALL

- Make an opening in the wall with the 40 [mm] (acceptable $40 \div 80$ [mm]) greater than the nominal dimensions of the fire damper: $B=DN+40$ and $H=DN+40$, alternatively round holes with diameter $DN+40$.
- Make a frame of two layers of GKF boards, 12,5 mm thick and the width relative to the width of opening, mounting by screws remembering to carefully seal the contact edges with a mastic: Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
- After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m³ or more.
- Seal the place of filling with mineral wool using the sealing compounds Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
- Mount collar, both side of wall, made of GKF boards, 12,5 mm thick and $DN+ 320$ mm wide, using screws (with a cut hole for the damper). For easy assembly, the collar can be made of two parts.
- Install using screws, on the actuator side a collar made of GKF boards 15 mm thick with the resulting dimensions (Fig. 18, 20, 22, 24) depending on the number of fire dampers and the distance from the ceiling and/or wall (with the opening for the fire dampers. For simple assembly, the frame can be made of two parts.
- After mounting the collar, remove the supports or suspension, check the fire damper correct operation and leave it in open position (installing in KTM-O damper thermal fuse as shown on the fig. 2).
- After the mortar has dried, apply a 1 mm thick layer of Promastop coating fireproofing compound to the other side of the building partition.

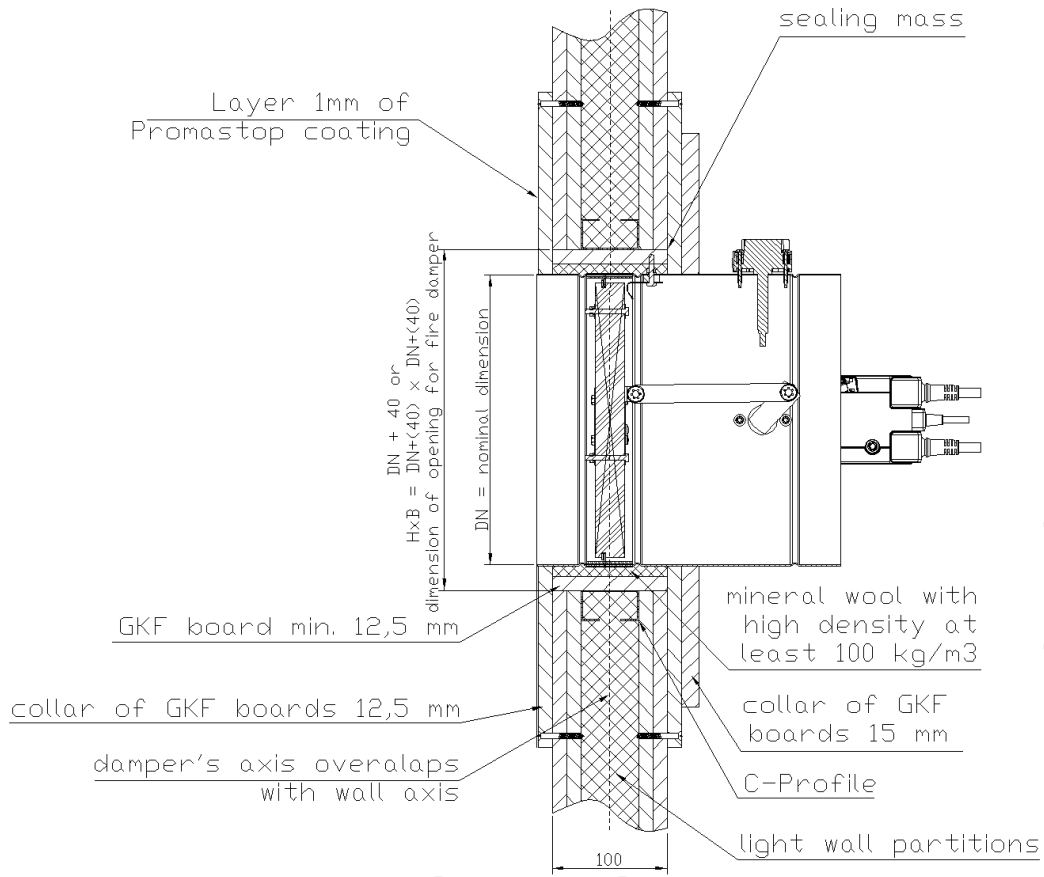


Figure 21. Installation method of KTM-O with minimum distances from wall.

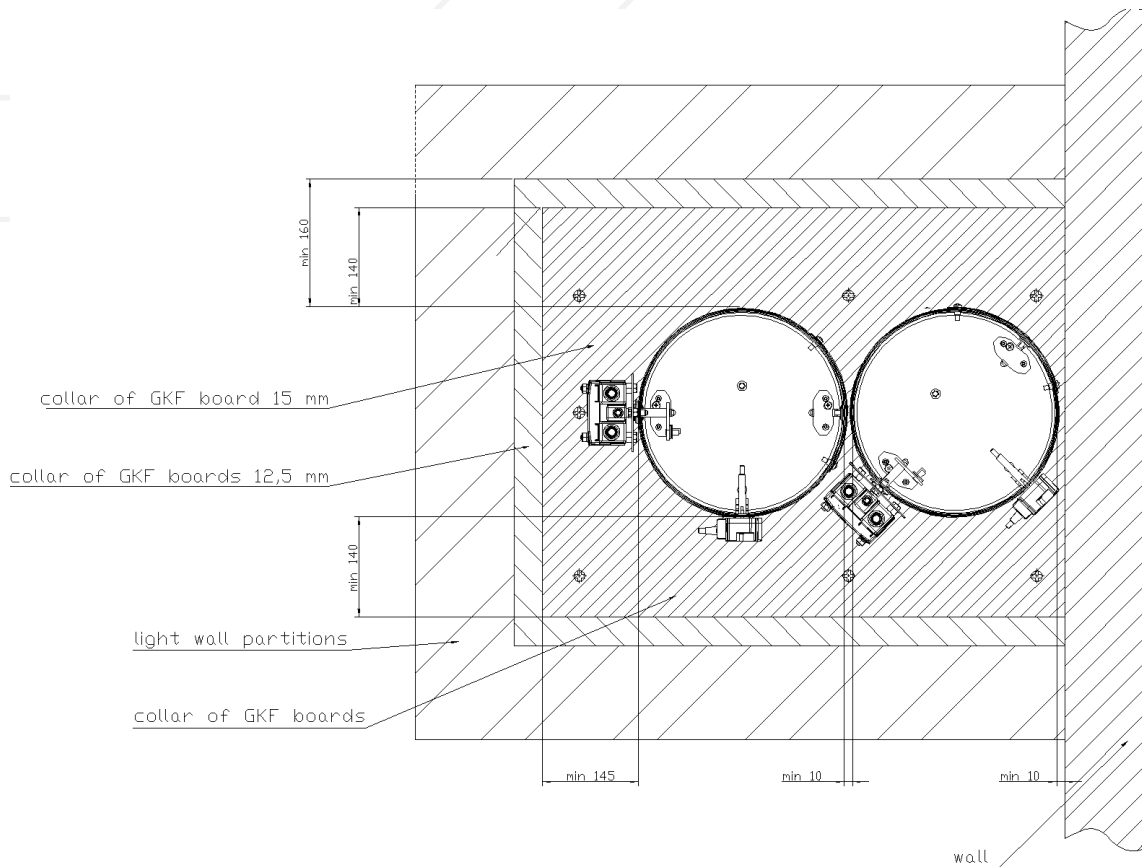


Figure 22. Installation method of KTM-O with minimum distances from wall.

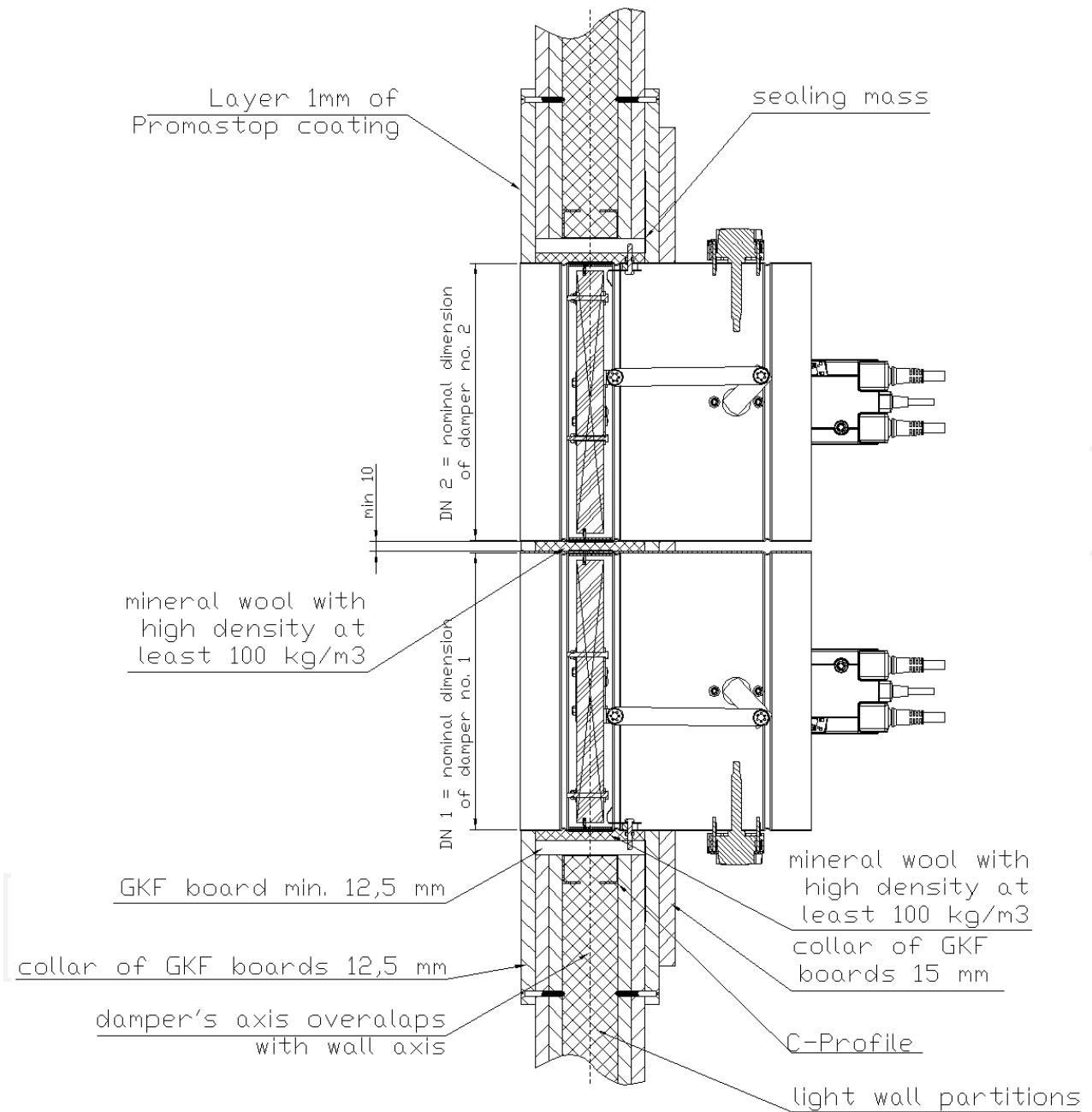


Figure 23. Installation method of KTM-O with minimum distances from adjacent fire dampers.

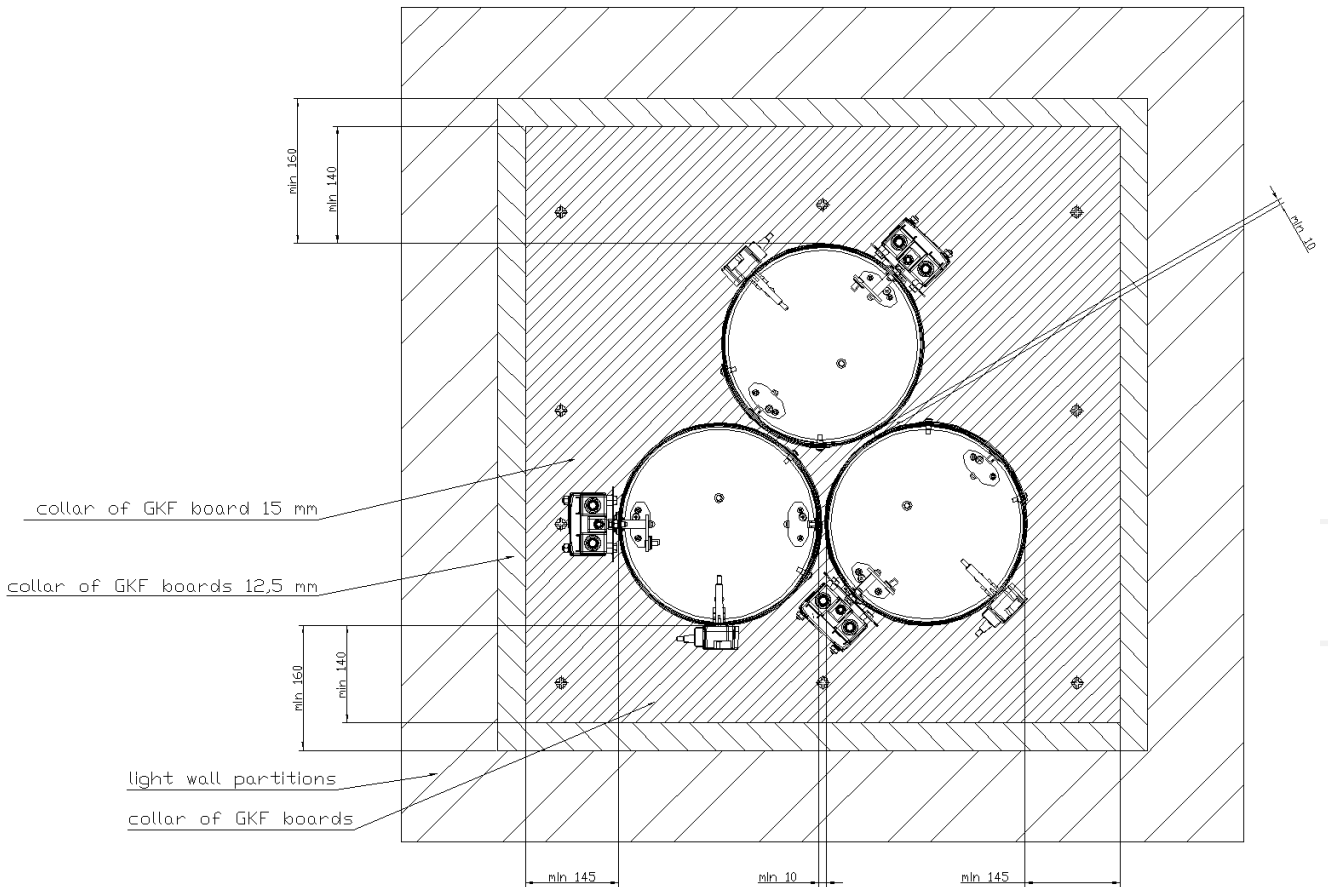


Figure 24. Installation method of KTM-O with minimum distances from adjacent fire dampers.

The examples provided in subsection 7.7 are applicable to both rigid and flexible walls. When considering individual solutions, attention should be paid to the construction method specific to each wall. A common element for every standard thickness construction is an additional flange made of 15 mm thick GKF board.

9. CONNECTION DIAGRAM OF LIMIT SWITCHES IN THE KTM DAMPER

Microswitches D2SW-3L2M (OMRON) are used in KTM fire dampers as limit switches to signal the baffle position. By the microswitch it is possible to connect two circuits, normally closed and normally open (closing only at the moment of contact with baffle),

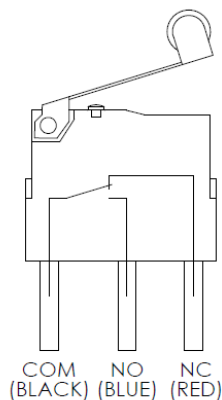


Figure 25. Connection diagram of D2SW-3L2M limit switches