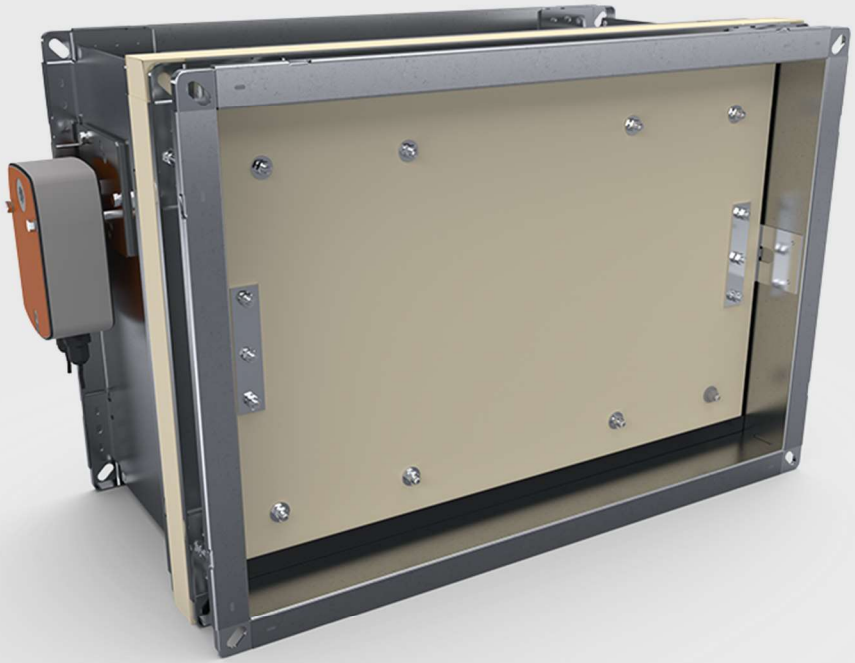
KWP-P-E

Fire Damper - rectangular

Installation manual



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Version 6.15

SMAY reserves the right to make changes to this document.

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INSTALLATION TECHNOLOGY

Before installing fire dampers, check whether the damper has been damaged during transport or storage.
Place the damper straight on a flat surface and check that the damper opens and closes properly throughout its full range of motion. Opening and full closing must be smooth, and the movement of rotating elements must not be hindered. If the damper partition is blocked, further installation is not allowed. In the case of dampers with an actuator, open the damper with the key attached to the actuator. Do not pull the damper by its partition to open/close, this may cause permanent damage to the device which is not covered by the warranty.

The damper must be protected with covering material before montage, so it will be protected from soiling, and consequently damaging the elements of the damper.
ATTENTION: Distance between fire dampers or fire damper and construction elements must be compatible with standard 1366-2:

a. Minimal 200 mm between fire damper, which are installed in different ventilating wires,
b. Minimal 75 mm between fire damper and construction element (wall/ceiling).

Before installing fire dampers please read assembly technology recommended by the manufacturer. The way of installing recommended by one manufacturer may not be the same for other dampers. Recommended material and dimensions of the openings follow from experience from conducted research. Moreover, in rectangular dampers, it is necessary to use assembly wedges and a spacer to protect the body against compression during assembly.
Squeezing the housing can change the dimensions of slot between baffle and housing, correct dimensions of this slot is needed to keep correct way of opening and closing the damper. Correct preparation of the damper for installation is presented on the figure 1 and figure 2.

Figure 1. Correct preparation of the damper for installation *(using spreader securing the housing)*

Figure 2. Correct preparation of the damper for installation (using mounting wedge)

ATTENTION:

a. The damper must be installed in such way, that the axis of baffle must be in horizontal or vertical position,
b. Damper can not be used as formwork for the wall,
c. Ventilation ducts should be installed that they cannot put any load on the damper, their suspension must ensure their full load capacity,
d. The suspensions of the ventilation ducts connected to the dampers batteries must be made in accordance with the instruction of the manufacturer of ventilation ducts,
e. In place of Z1 and Z2 suspensions, which are installed for the time of assembly of the damper and in place of mortar binding, it is possible to use mounting brackets, paying attention to the immobilization of the damper.

1. INSTALLATION TECHNOLOGY – RIGID WALL

a. Make an opening in the wall with the 100 [mm] (acceptable 80 ÷ 120 [mm]) greater than the nominal dimensions of the fire damper = B+100 and H+100.
b. Put the closed fire damper into the installation opening on the depth marked by undercuts on the damper body (dimension 60 mm), from one side fix it with suspension Z1, and from other side fix it to the ventilation duct on Z2 suspension.
c. After setting the fire damper as described, fill the gap between the fire damper and the wall with cement, cement-lime mortar, concrete.
d. After 48 hours from the installation, the suspensions and supports used during installation of the fire damper, may be removed.

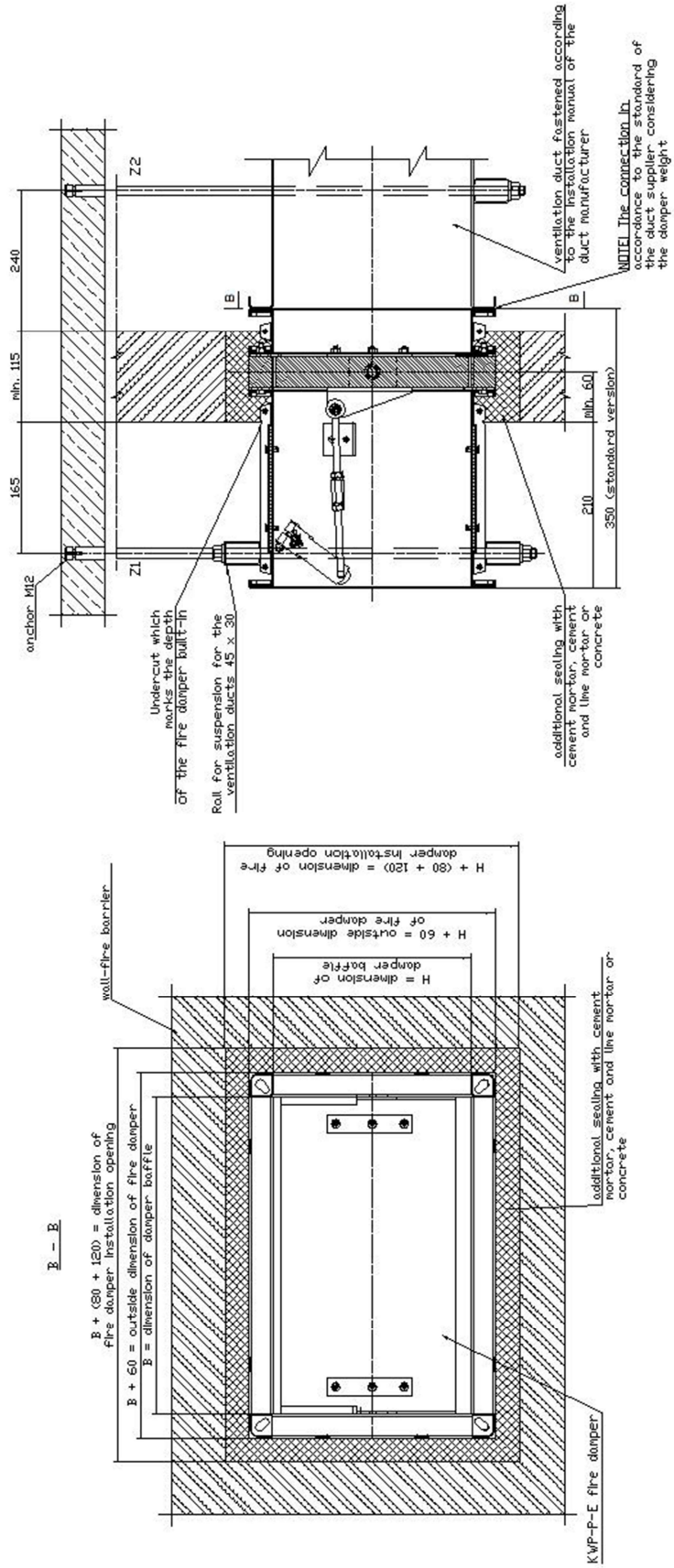
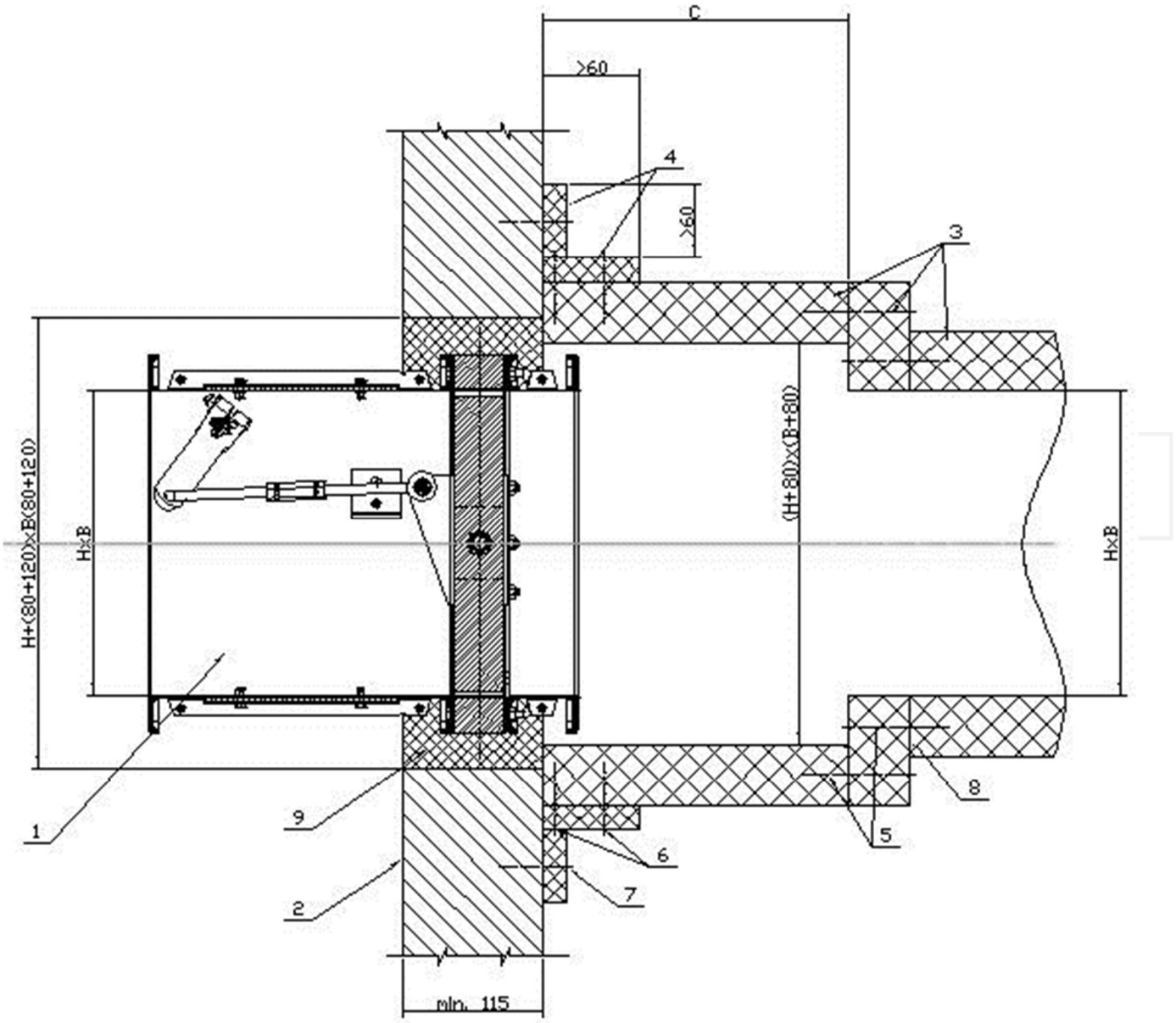
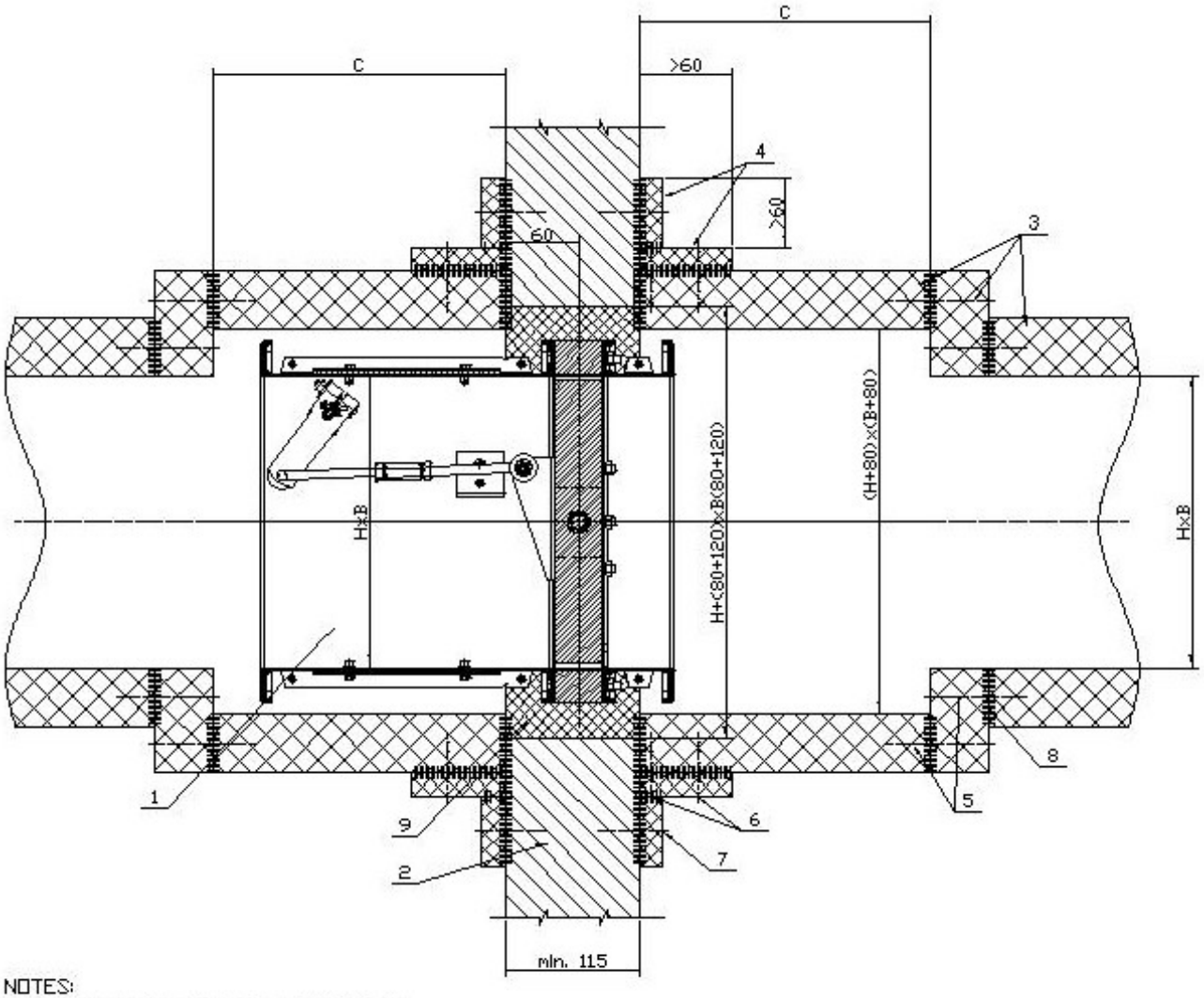


Figure 3.Installation method of fire dampers KWP-O in rigid wall



NOTES:
1. Smoke control damper KWP-P-E,
2. Wall, fire compartment,
3. PORMATECT L500 50mm,
4. PROMATECT -H 20mm,
5. Countersunk screw. UNIX 6x90; a=200,
6. Countersunk screw. UNIX 4x35; a=200,
7. Mounting anchor FPX M81; a=200,
8. PROMAT K-84 glue,
9. Cement mortar, cement and lime mortar or concrete
C=H/2-50mm,

Figure 4. Installation method of the damper in rigid wall with one-sidedly connected self-supporting smoke extract duct.



NOTES:
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6. Countersunk screw, UNIX 4x35; a=200,
7. Mounting anchor FPX M81; a=200,
8. PROMAT K-84 glue,
9. Cement mortar, cement and lime mortar or concrete

C=H/2-50mm

Figure 5. Installation method of the damper in rigid wall with one-sidedly connected self-supporting smoke extract duct connected on both sides.

2. INSTALLATION TECHNOLOGY - CEILING

PROMAT self-supporting duct:

a. Make an opening in the ceiling with the 100 [mm] (acceptable 80 ÷ 120 [mm]) greater than the nominal dimensions of the fire damper = B+100 and H+100. In case of other dimensions than B+100 x H+100, adjust dimensions of mounting brackets.

b. Put the closed fire damper into the wall on the depth marked by undercuts on the damper body (dimension 60mm)

c. After setting the fire damper as described, with use mounting brackets, fill the gap between the fire damper and the wall with cement, cement-lime mortar, concrete or with use mineral wool with density greater than 100kg/m^3 (item 1).

d. Mount the mounting brackets properly:

   a. Side length up to 500 mm – 1 pcs.

   b. Side length from 500 to 800 mm – 2 pcs.

PROMAT self-supporting duct:

e. Make the duct with 50 mm thick PROMATECT-L500 panels (item 3).

f. Make a band around the duct with 50 mm thick, 60 mm width PROMATECT-L500 panels (item 4).

g. Make a band around the duct (under ceiling) with 20 mm thick, 200 mm width PROMATECT-H (item 5). *This band is required only when mineral wool was used to seal the damper in point 3.

h. Make a connection between the duct and ceiling likewise the duct with the band using glue K84.

i. Connect the sides of the channel and sides the band with use screws 4.2x90 - 4.8x120.

j. Housing montage with actuator similarly as in the picture. Only the length of the mounting brackets will change. Mount the mounting brackets to the ceiling using raw bolts.

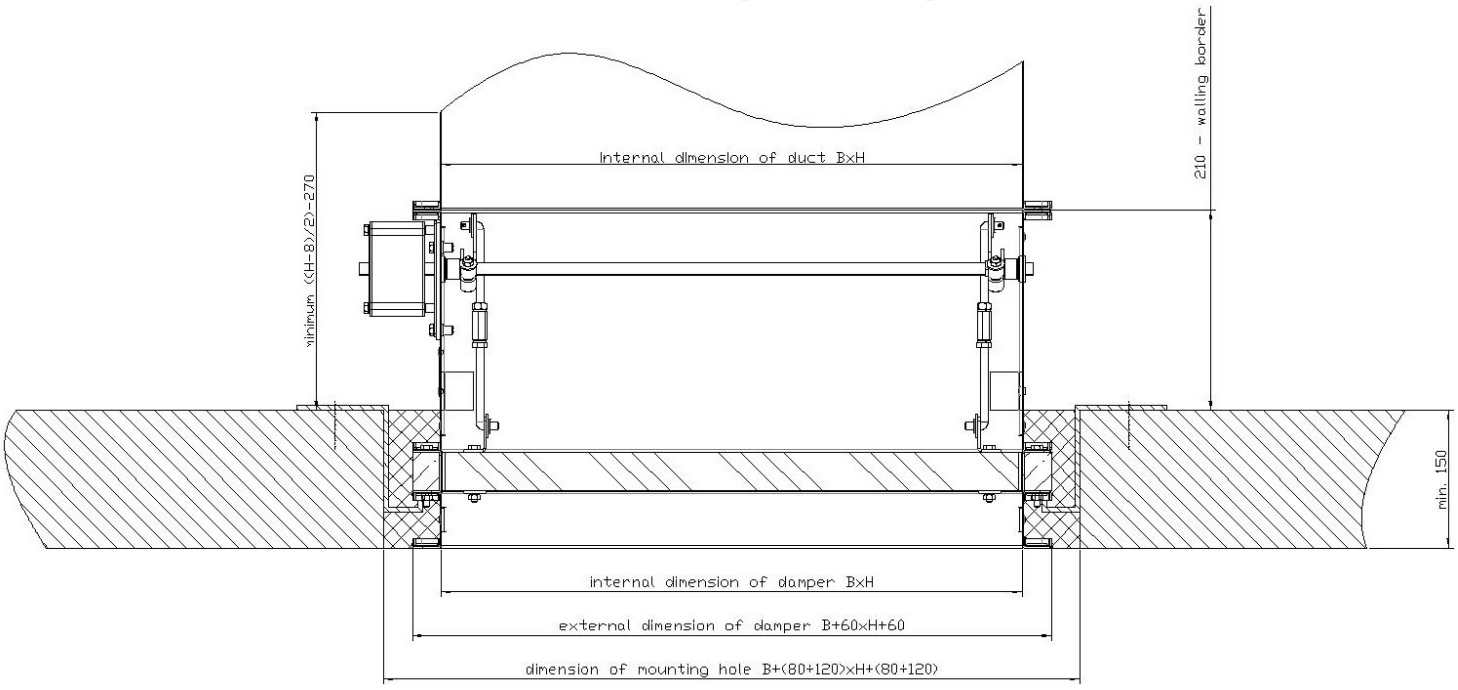

Figure 6. Installation method of fire dampers KWP-O in ceiling with a fire ventilation duct with sealing of cement mortar

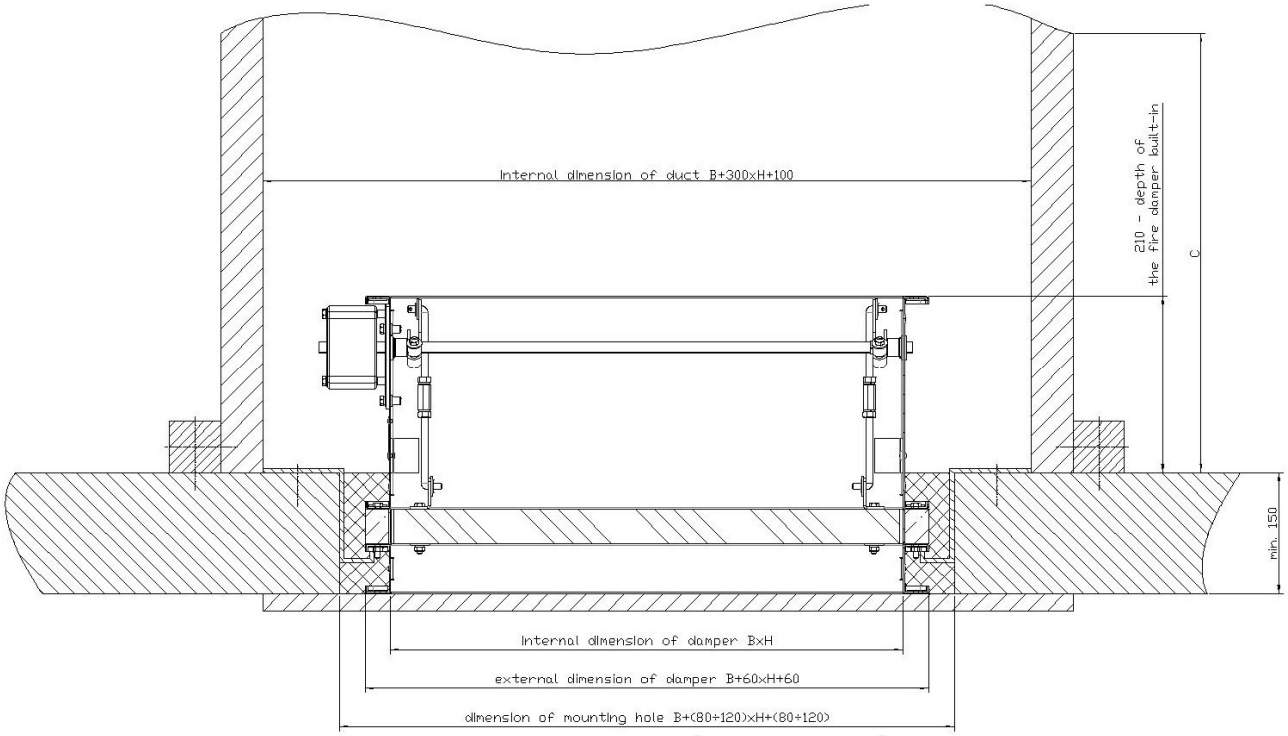

Figure 7. Installation method of fire dampers KWP-P in ceiling with a duct made of PROMAT boards with sealing of mineral wool

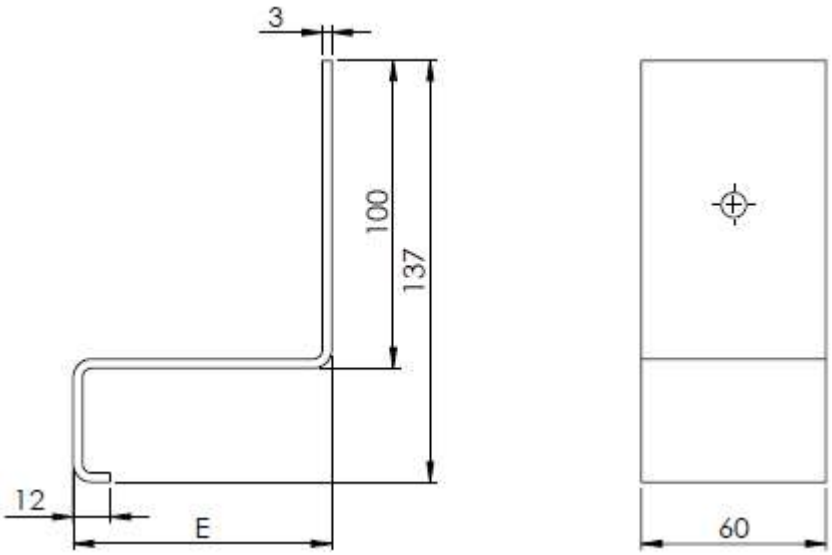

Figure 8.Proposed dimensions of mounting brackets for installation in a ceiling

	Actuator under ceiling	Actuator above ceiling
E [mm]	=Thickness of ceiling - 28	=96

For ceiling with thickness greater than 150 [mm]: connect the damper to the duct before the damper isolation with cement mortar (the damper frame will be bricked up along with a part of the duct).

3. INSTALLATION TECHNOLOGY - DUCT

a. Make an opening in the PROMAT duct with the dimensions allowing for installing connection duct into them. (item 7),

b. Connection duct which have been connect with a damper, connect with the duct with using screws and PROMAT L500 AND PROMATECT-H, and insulate according to Fig. 7.

The damper must be insulated at least to the minimum depth marked with cutouts on the housing.

c. Suspend the housing taking into account its weight and ceiling load-bearing capacity

d. Duct with a minimal length of C connect to the damper with a duct manufacturer's standard.

e. Entire construction: duct, fasteners and insulation made in accordance with the European Technical Approval ETA-06/0218 and PROMAT guidelines

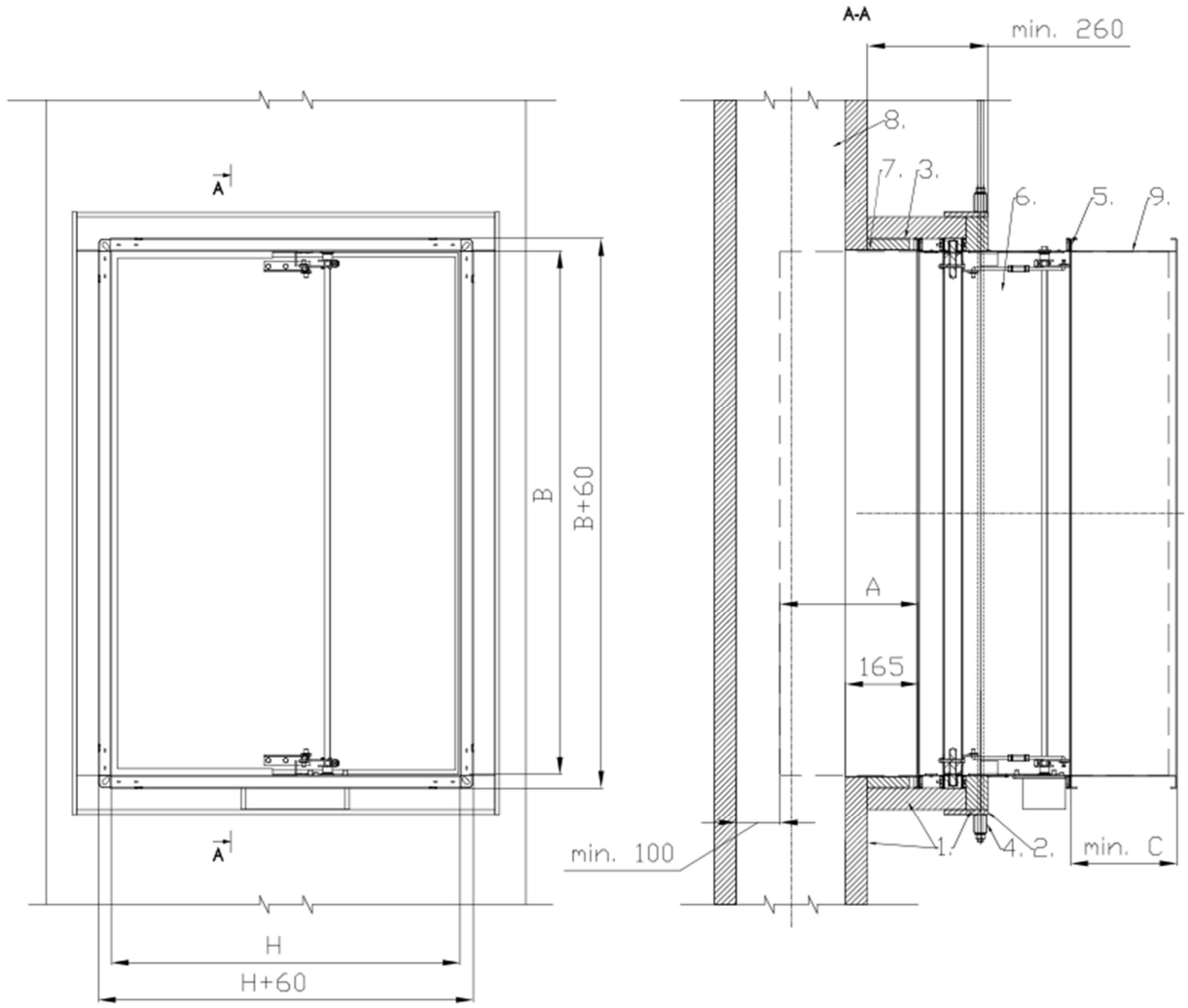

Figure 9.Installation method of dampers on the tee

1. Promatect L-500 board with thickness of 50mm,
2. Insulation of PROMATECT-H board with minimal thickness of 10mm,
3. Insulation of PROMATECT-H board with thickness of 25mm,
4. The support rail must take into account the magnitude of the load
5. Connection in accordance with the standard of the supplier of the ventilation duct, taking into account the weight of the damper,
6. KWP-P-E damper,
7. Connection stub DX51D-Z275 thickness of 1,5mm with dimensions B+5, H+5 [mm] and of length L (in the example 165 [mm]),
8. Length of connection stub should be select in way that distance between bottom of duct and open baffle totals minimal 100 [mm],
9. Multi-zone cable of the class EIS120,
10. Multi-zone / single-zone / ventilation duct or, if the damper completes the installation, a connector with a steel mesh 19x19x1,4mm.
    C- length of connector with a steel mesh,
    when H/2-270<100mm then C≥100mm,
    when H/2-270>100mm then C≥H/2-270+50

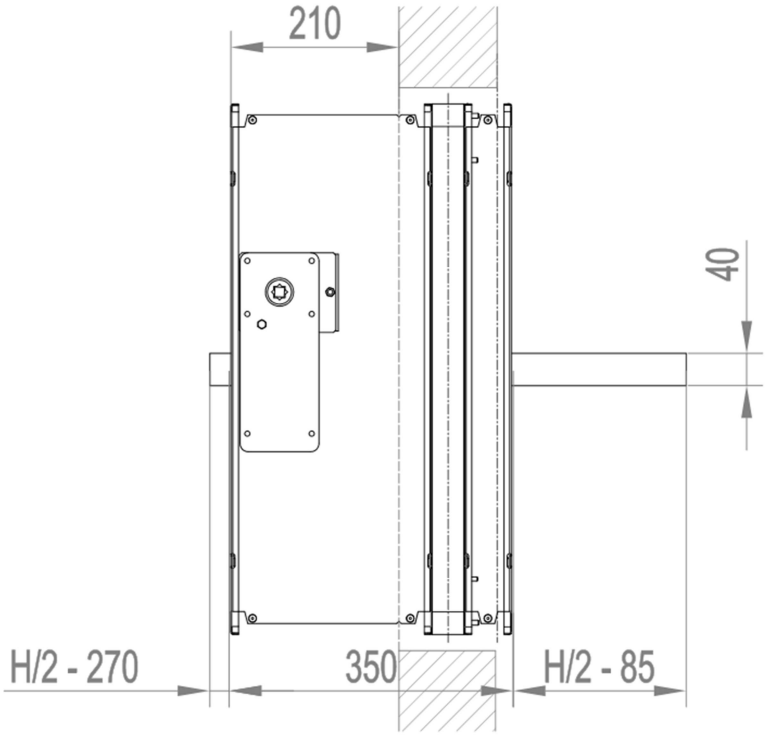

Figure 10. Dimensions of the building partition depending on the high of a damper

4. INSTALLATION TECHNOLOGY FOR FIRE DAMPERS IN BATTERIES

The assembly of fire dampers in batteries is possible only after previous delivery of the information (at the stage of ordering) about which fire dampers and in which arrangement (horizontal or vertical) would be installed in a wall, in order to prepare suitable opening for self-tapping screws in the fire damper body.

There are two possibilities of realizing the order of fire damper batteries: basic and complete. First one covers the set of fire dampers, assembly strips and complete set of self-tapping screws. The purchase of other materials needed such as: intumescent gasket (PROMASEAL-PL), mineral wool for thermal insulation (with minimum density of 60 kg/m^3) and aluminum tape remains with the Customer. The secund variant provides for supply by the Manufacturer of complete set of fire dampers and all the elements needed for installation.

The fire dampers are assembled into batteries with use of assembly strips with length of 1200 [mm]. In case when total dimension of their battery is smaller than multiple of the length of the assembling strip, the last one should be cut with angle grinder on the construction site to match the dimension of the battery (basic variant) or cut in manufacturing facility by Manufacturer (complete variant)

Fire dampers should be marked with letters: A, B, C, D.

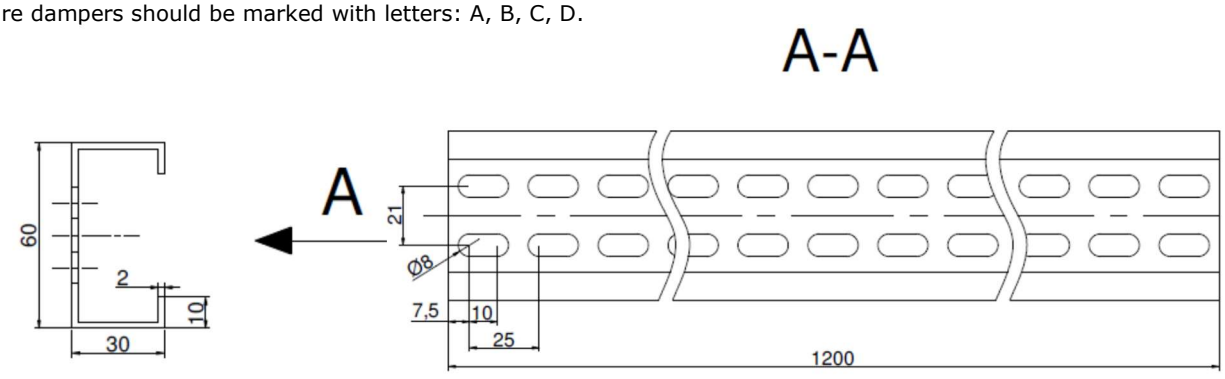

Figure 11. Connection strip

SMAY offers four basic types of damper battery systems.

Arrangement 1 – vertical battery consisting of two fire dampers KWP (Figure 12)

a. Fix the gasket on insulating spacer of one of adjoining fire dampers (position (1) in the Figure 12).
b. Put non-combustible mineral wool into recess in upper surface of the fire damper. The thickness of mineral wool should be twice as the thickness of the recess in upper surface of the fire damper in order to fill the whole free space between the fire dampers as shown in (w1).

   NOTE: The alternative way of wool mounting is to use two layers of wool with thickness of 30 mm. In this case, apply the fire resistant PROMASTOP-CC with width of 50 mm. The mass is placed between the strips of wool and between wool and damper housings.

c. Place the fire damper A on the fire damper B and assemble them together on the front and back with use of perforated assembly strips (2) and self-tapping screws M6x10 (3), which should be tightened into the openings in fire damper body. In order to carry out the correct assembly, 4 self-tapping screws should be used per each assembly strip with length of 1200 [mm].

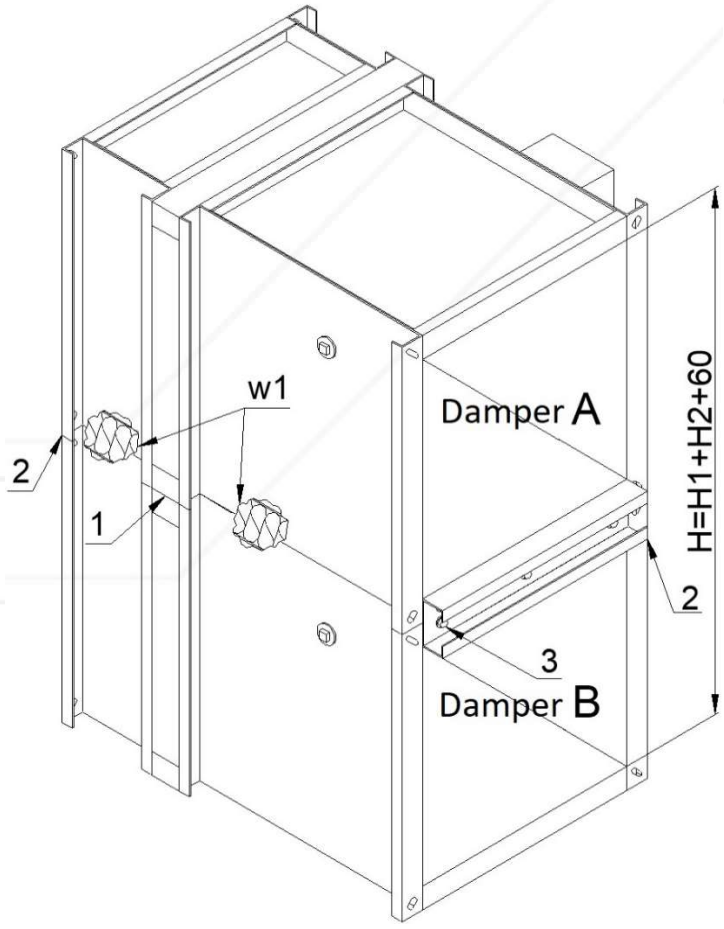

Figure 12. Arrangement 1 - vertical battery consisting of two fire dampers KWP

Arrangement 2 - vertical battery consisting of three fire dampers KWP (Figure 13)

a. Fix the gasket on insulating spacer of one of adjoining fire dampers (position (1) in the Figure 13).
b. Put non-combustible mineral wool into recess in upper surface of the fire damper. The thickness of mineral wool should be twice as the thickness of the recess in upper surface of the fire damper in order to fill the whole free space between the fire dampers as shown in (w1).

   NOTE: The alternative way of wool mounting is to use two layers of wool with thickness of 30 mm. In this case, apply the fire resistant PROMASTOP-CC with width of 50 mm. The mass is placed between the strips of wool and between wool and damper housings.

c. Place the fire damper B on the fire damper C and assemble them together on the front and back with use of perforated assembly strips (2) and self-tapping screws M6x10 (3), which should be tightened into the openings in fire damper body. In order to carry out the correct assembly, 4 self-tapping screws should be used per each assembly strip with length of 1200 [mm].
d. Repeat accordingly paragraphs 2 and 3 to assemble fire damper A on fire damper B.

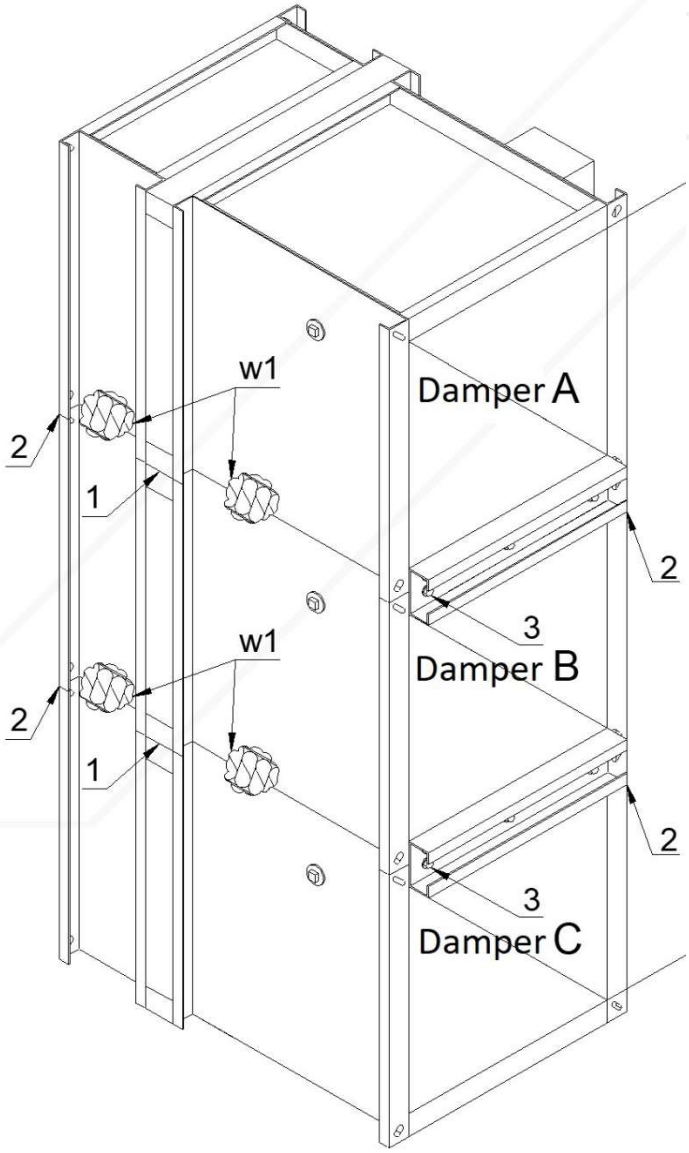

Figure 13. Arrangement 2 - vertical battery consisting of three fire dampers KWP

Arrangement 3 - horizontal battery consisting of two fire dampers KWP (Figure 14)

a. Fix the gasket on insulating spacer of one of adjoining fire dampers (position (1) in the Figure 14).

b. Set together the sides of fire damper A and the fire damper B (where the gasket was fixed) and assemble them together on the front and back with use of perforated assembly strips (2) and self-tapping screws M6x10 (3), which should be tightened into the openings in fire damper body. In order to carry out the correct assembly, 4 self-tapping screws should be used per each assembly strip with length of 1200 [mm].

c. Fill the whole free space between the joint of fire dampers with non-combustible mineral wool, as shown in (w1).

   NOTE: The alternative way of wool mounting is to use two layers of wool with thickness of 30 mm. In this case, apply the fire resistant PROMASTOP-CC with width of 50 mm. The mass is placed between the strips of wool and between wool and damper housings.

d. The place of sealing the top of the fire damper with mineral wool should be sealed with aluminum tape (4).

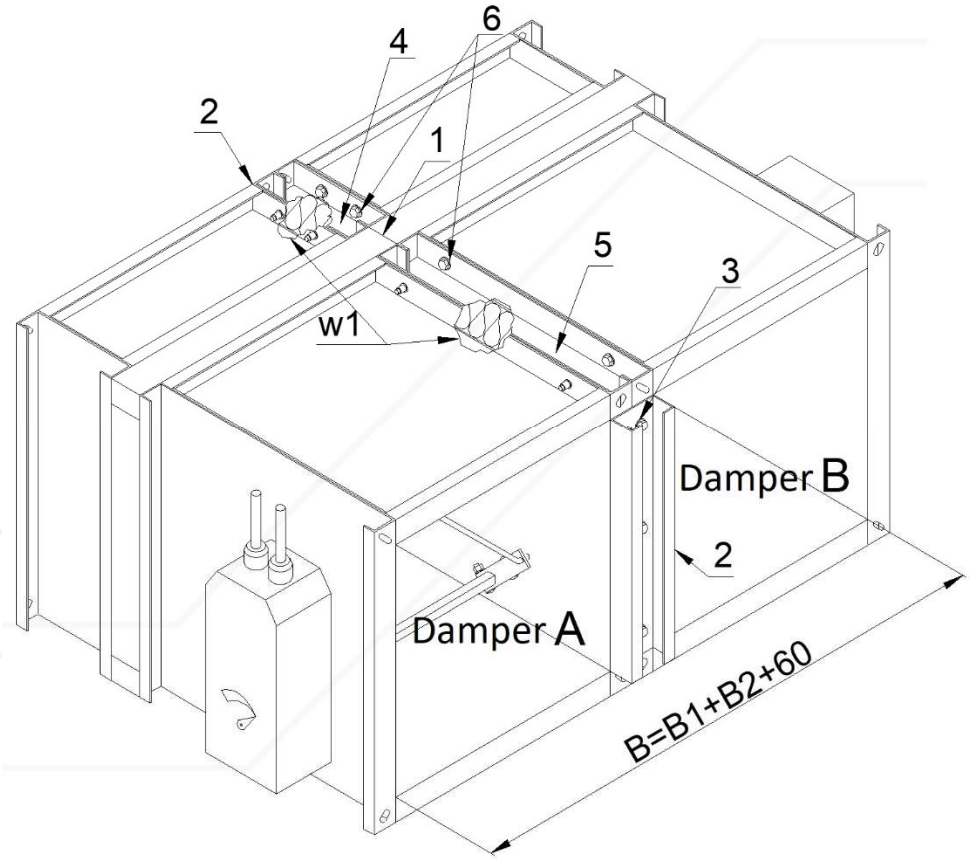

Figure 14. Arrangement 3 – horizontal battery consisting of two fire dampers KWP

Arrangement 4 – battery consisting of four fire dampers KWP (Figure 15)

The assembly of battery consisting of four fire dampers KWP is divided into two steps:

- Step 1 – assembly of fire damper A and fire damper B and assembly of fire damper C and fire damper D.
- Step 2 – assembly of the set of fire dampers A, B and the set of fire dampers C, D.

STEP 1:

a. Fix the gasket on insulating spacer of one of adjoining fire dampers (position (1) in the Figure 15).

b. Set together the sides of fire damper A and the fire damper B (where the gasket was fixed) and assemble them together on the front and back with use of perforated assembly strips (2) and self-tapping screws M6x10 (3), which should be tightened into the openings in fire damper body. In order to carry out the correct assembly, 4 self-tapping screws should be used per each assembly strip with length of 1200 [mm].

c. Repeat paragraph 2 to assemble fire damper **C** on the fire damper **D**.

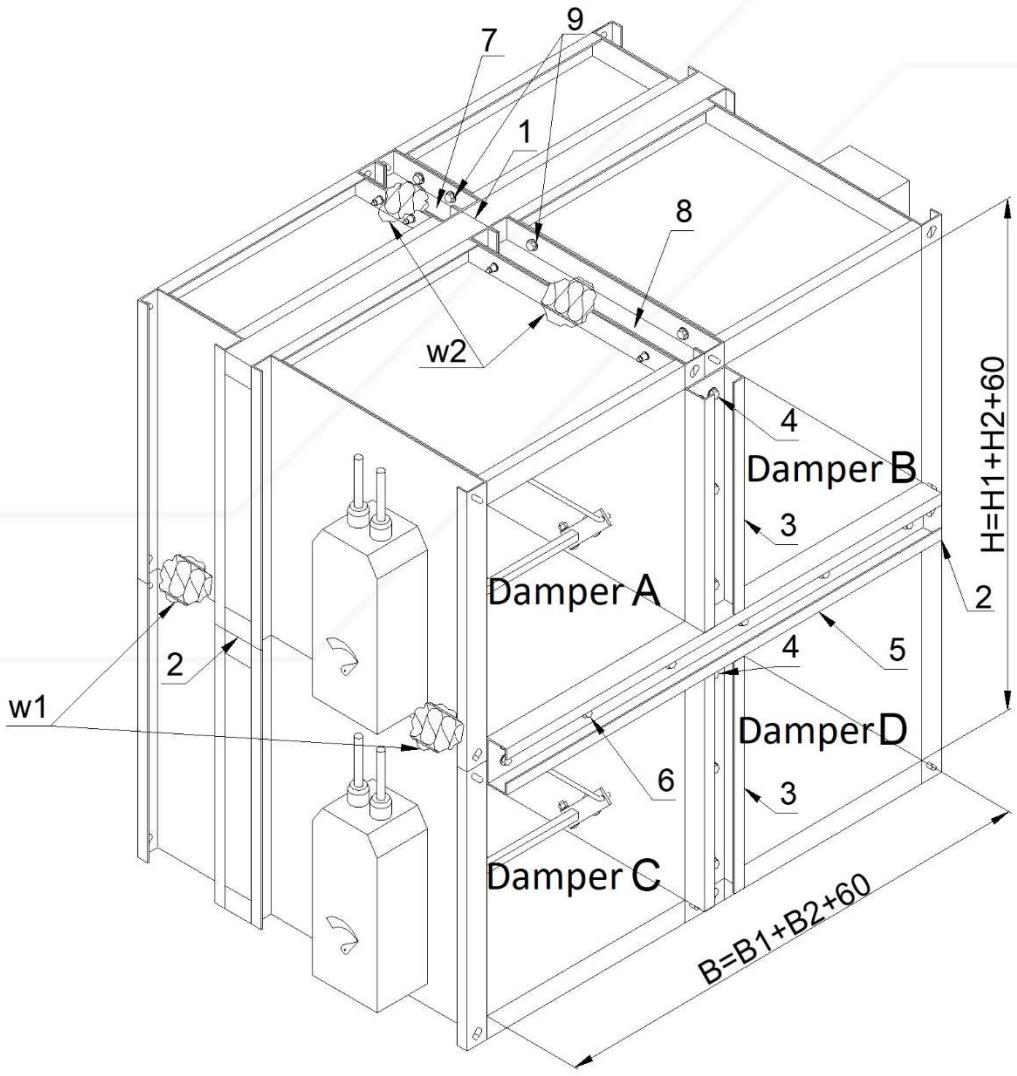

Figure 15. Battery made of four dampers KWP-O

STEP 2:

a. Fix the gasket on insulating spacer of one of adjoining fire dampers.

b. Put non-combustible mineral wool into recess in upper surface of the fire damper C and fire damper D. The thickness of mineral wool should be twice as the thickness of the recess in upper surface of the fire dampers in order to fill the whole free space between the fire dampers C and D and the fire dampers A and B, as shown in (w1).

   NOTE: The alternative way of wool mounting is to use two layers of wool with thickness of 30mm. In this case, apply the fire resistant PROMASTOP-CC with width of 50 mm. The mass is placed between the strips of wool and between wool and damper housings.

c. Place the set of fire dampers A and B on the set of fire dampers C and D and assemble them together on the front and back with use of perforated assembly strips (5) and self-tapping screws M6x10 (6), which should be tightened into the openings in fire damper body. In order to carry out the correct assembly, 4 self-tapping screws should be used per each assembly strip with length of 1200 [mm].

d. The empty space between joint of the bodies of fire dampers A, B and fire dampers C, D should be filled with non-combustible mineral wool (as shown in (w2)).

   NOTE: The alternative way of wool mounting is to use two layers of wool with thickness of 30mm. In this case, apply the fire resistant PROMASTOP-CC with width of 50 mm. The mass is placed between the strips of wool and between wool and damper housings.

e. The place of sealing the top of the battery with mineral wool should be sealed with aluminum tape **(7)**.

Installation of KWP fire dampers batteries in rigid wall compartment (Figure 15 to 18)

a. Make an opening in the wall with dimensions depending on the battery size and its arrangement:
   - For vertical battery consisting of two KWP fire dampers: (B1+120)x(H1+H2+180) (Figure 15),
   - For vertical battery consisting of three KWP fire dampers: (B1+120)x(H1+H2+H3+240) (Figure 16),
   - For horizontal battery consisting of two KWP fire dampers: (B1+B2+180)x(H1+120) (Figure 17),
   - For battery consisting of four KWP fire: (B1+B2+180)x(H1+H2+180) (Figure 18),

b. Put the battery of fire dampers into the installation opening on depth marked by undercuts on the damper body [dimension 60mm). From one side fix it with suspension Z1, and from other side, fix it to ventilation duct suspended on suspension Z2 according to the figure).

   NOTE: Fixing of the ductwork has to cover the weight of the battery of fire dampers. Specifically the bolts, anchors, installation frame of the duct and screws used to join the duct with battery of fire dampers should be taken into account. If there is no possibility of ensuring the safe suspension of the battery of fire dampers during installation, the battery should be supported from the bottom side.

c. After setting the fire damper as described, fill the gap between the fire damper and the wall with cement, cement-lime mortar or concrete or PROMASTOP MG III of production of the PROMAT company.

d. After 72 hours from the finish of assembly, you can disassemble suspensions.

REMARKS:

a. Install the fire damper in such way, that the damper blades would be in horizontal position.
b. Fire damper cannot be the support for the constructed wall.
c. Ductwork cannot be the load for the fire damper, ductwork suspensions have to provide full load capacity.
d. Ductwork suspensions fixed to the fire damper have to be made in accordance with the ductwork manufacturer instructions.
e. Selection of mounting rails should be performed in accordance to the guidelines provided by the manufacturer of suspensions, considering weight and arrangement of the battery of fire dampers.
f. In place of suspensions Z1, Z2 and cement mortar, mounting brackets may be applied! Paying special attention for immobilization of the fire damper).

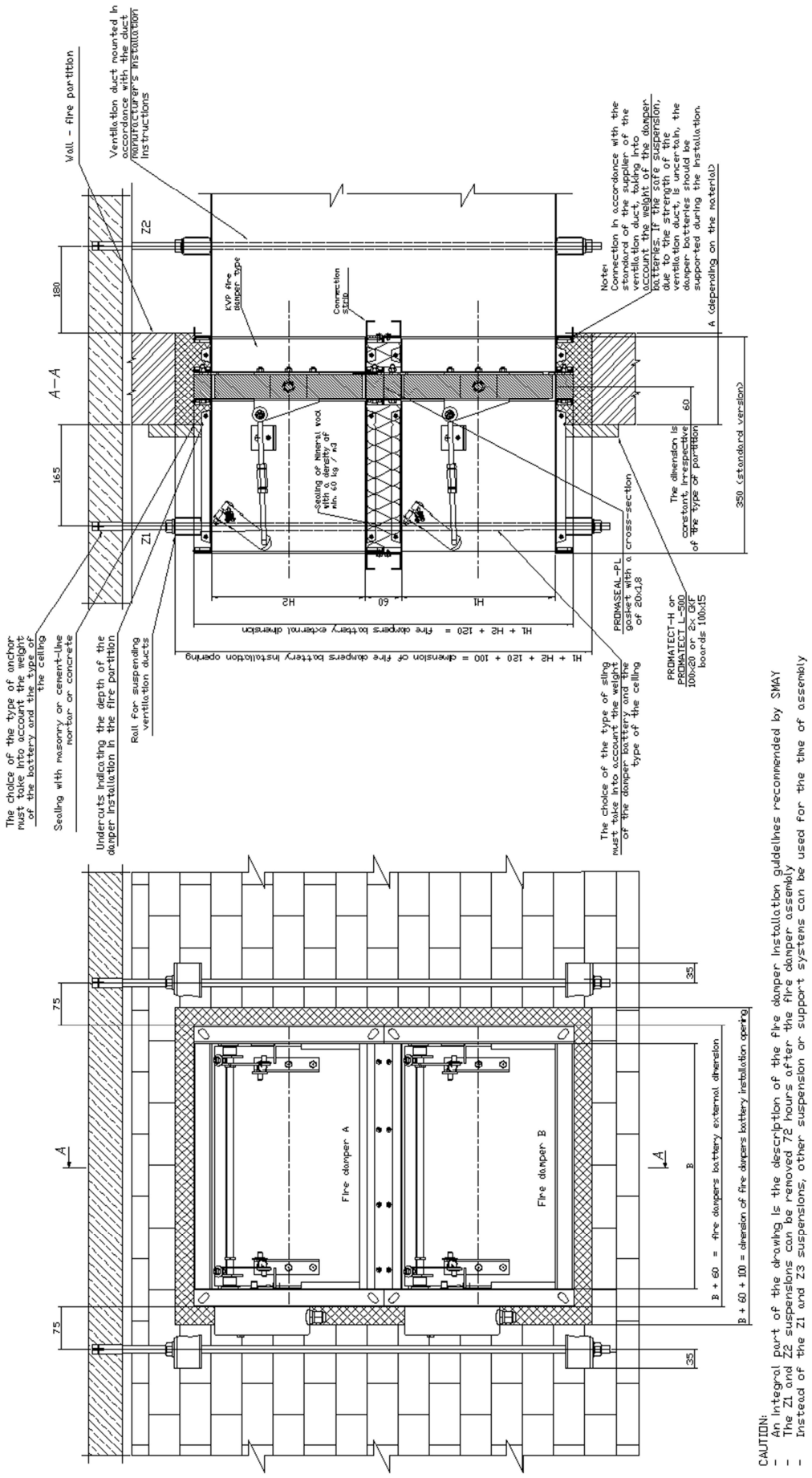

Figure 16. Installation of a battery consisting of two fire dampers KWP in vertical arrangement in wall

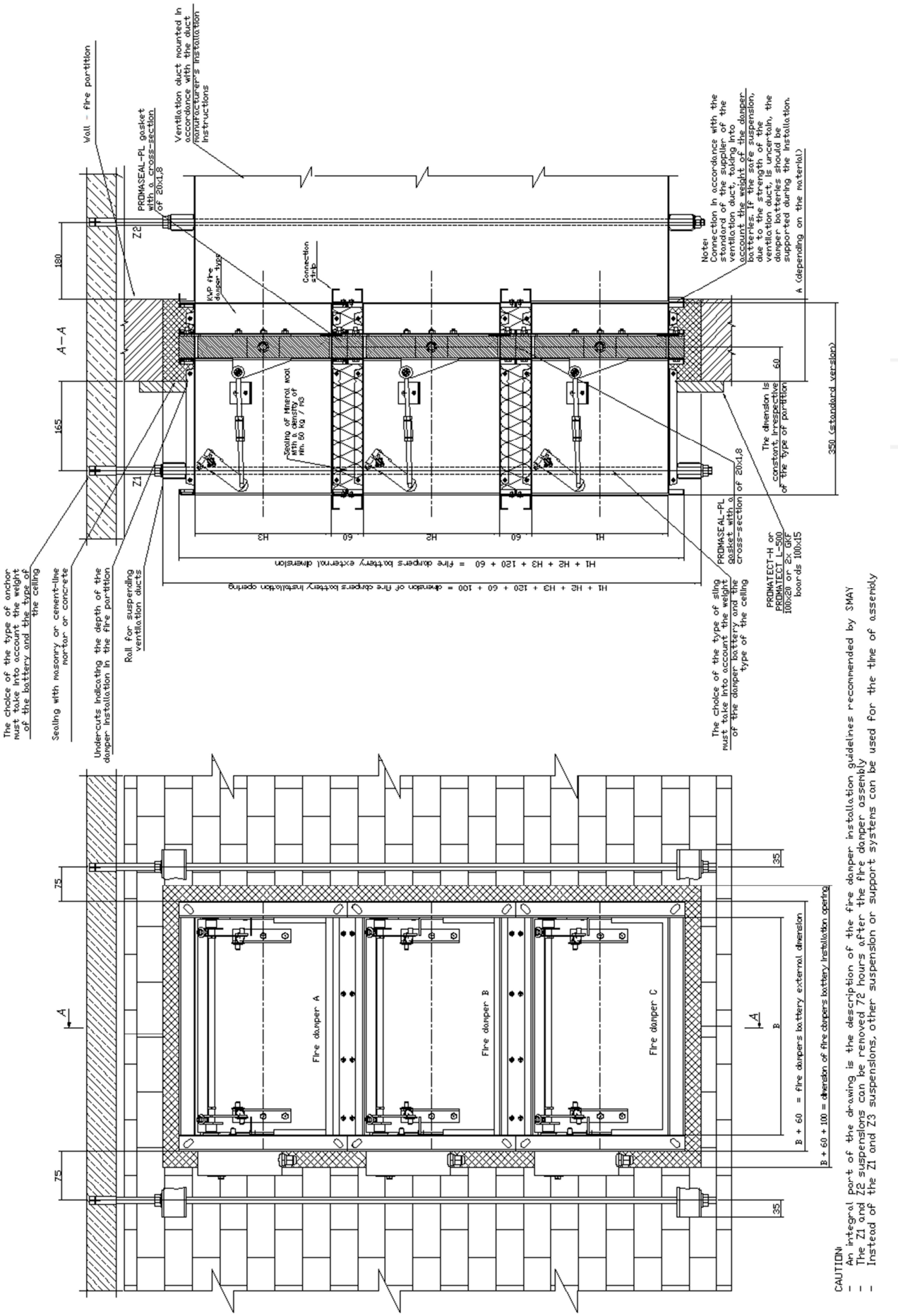

Figure 17.Installation of a battery consisting of three fire dampers KWP in vertical arrangement in wall

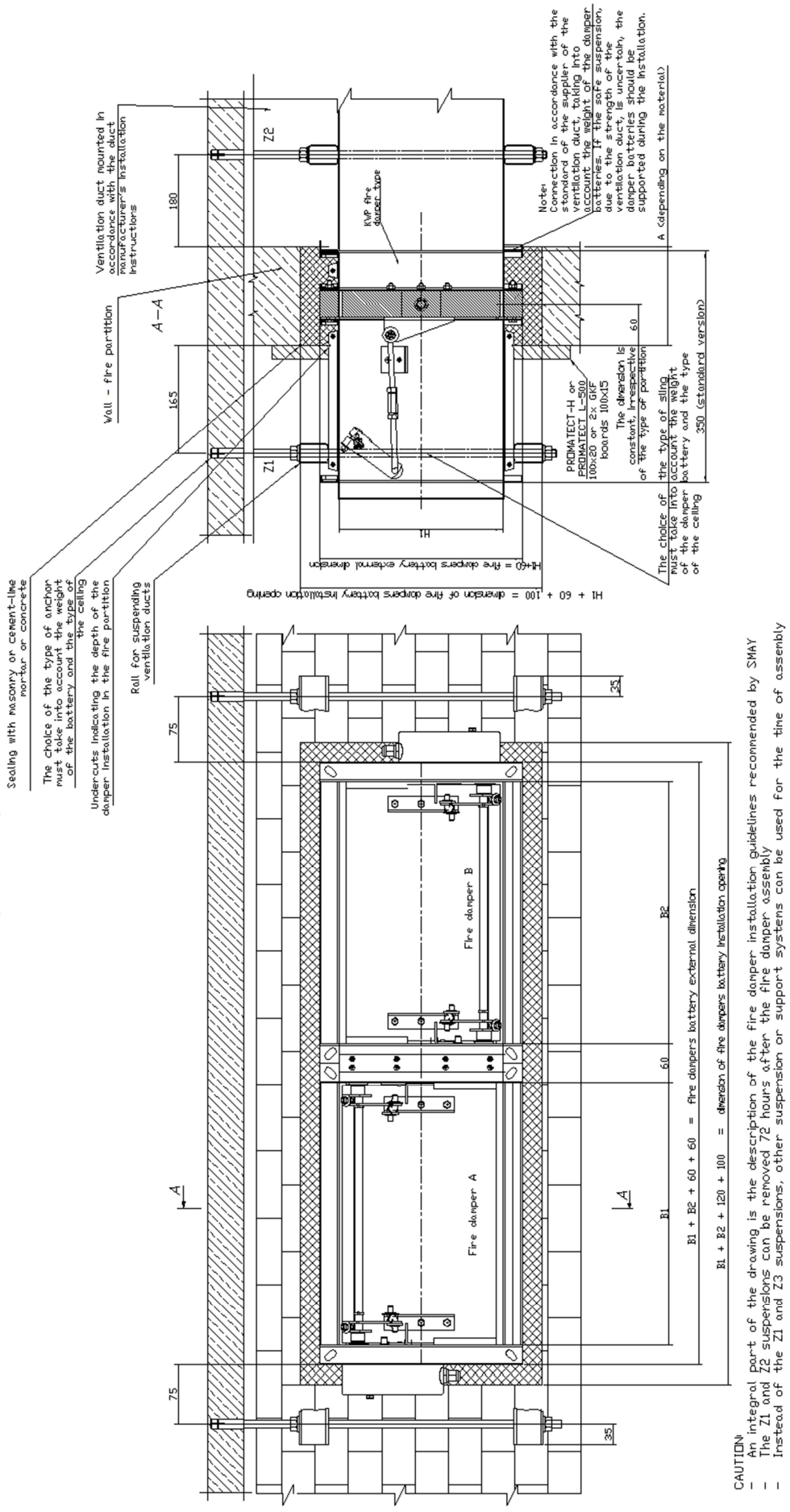

Figure 18. Installation of battery consisting of two fire dampers KWP in horizontal arrangement in wall

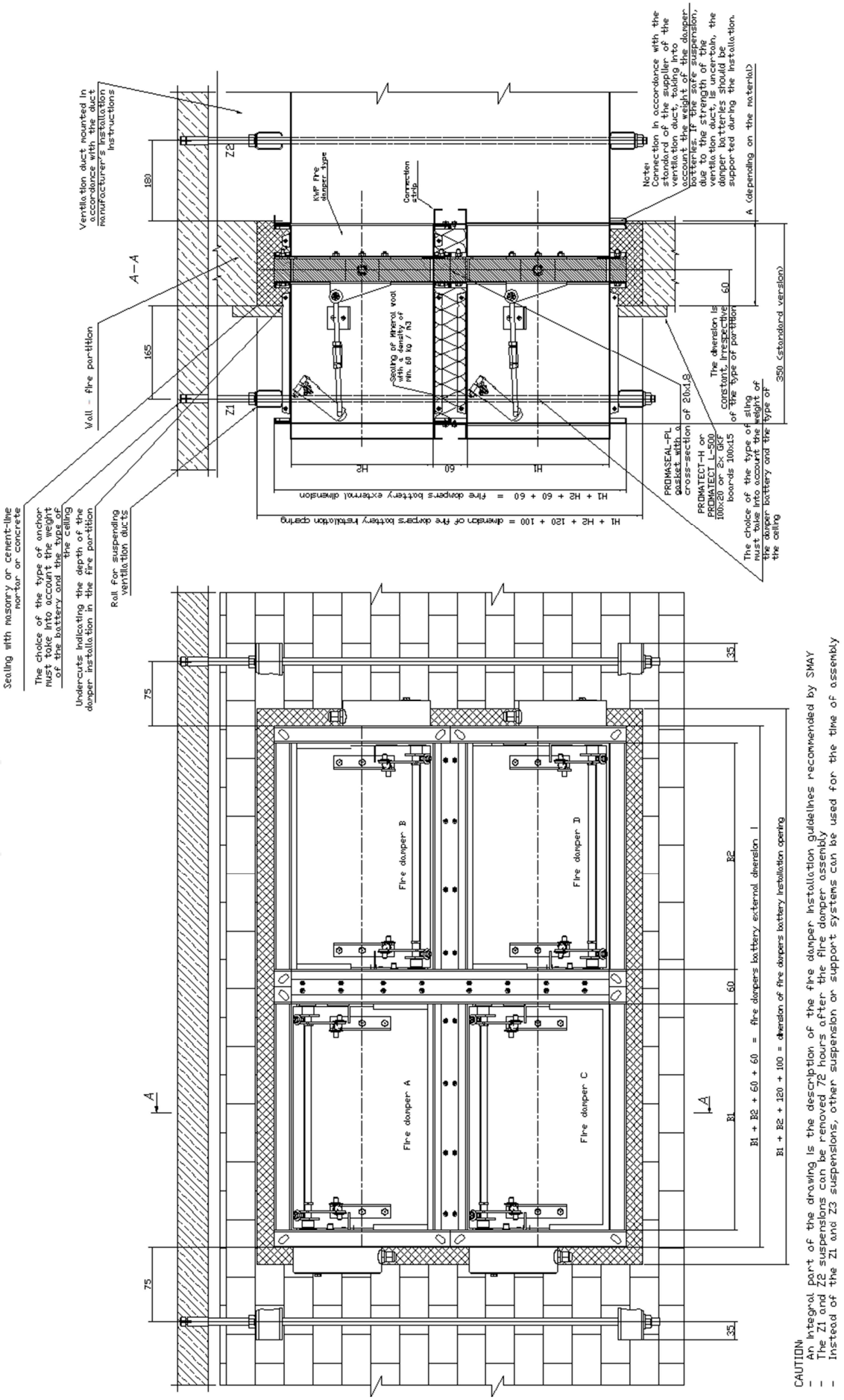

Figure 19. Installation of a battery consisting of four fire dampers KWP in wall