

Installation booklet
English

RECTANGULAR SERIES WKS25 - 500 Pa

Cert. N° 1812-CPR-1046 EN 15650

1MUBWKS25EN-LIND rev 19-05

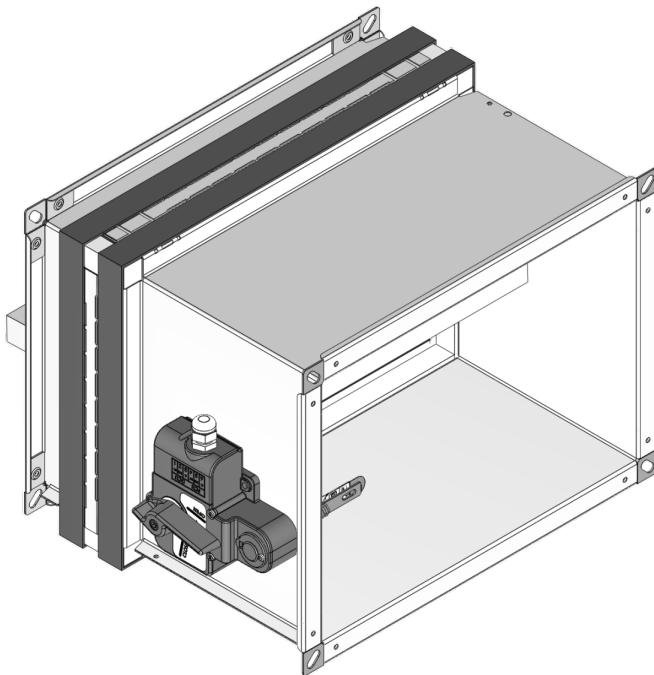


www.lindab.com - Fire dampers are manufactured by MP3 Srl www.mp3-italia.it

For further information please refer to the Technical Manual.

As the manufacturer is constantly improving its products, the aesthetic or dimensional features, the technical data, the equipment and accessories indicated could be subject to variations.

This is a 15 page installation booklet.



OVERVIEW

■ Fire resistance classification according to EN 13501-3-2009

		EI 120 S (500 Pa)	EI 90 S (500 Pa)	EI 60 S (500 Pa)	EI 30 S (500 Pa)	
Rigid wall	EI 120 S Installation within vertical rigid wall					
	Wall minimum thickness 100 mm Wall minimum density 550 kg/m ³ Plasterboard and rock wool 100 kg/m ³ sealing ve (i↔o)	D	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard)					
	Wall minimum thickness 100 mm Wall rock wool density up to 100 kg/m ³ (optional) Plasterboard sealing ve (i↔o)	D	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600
	EI 90 S Installation within vertical light wall (gypsum blocks wall)					
	Wall minimum thickness 70 mm Wall minimum density 995 kg/m ³ Plasterboard sealing ve (i↔o)	D	-	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600
Flexible wall	EI 120 S Installation within vertical light wall (gypsum blocks wall)					
	Wall minimum thickness 100 mm Wall minimum density 995 kg/m ³ Plasterboard sealing ve (i↔o)	D	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600	B x H min 100 x 200 max 800 x 600

B X H are fire damper minimum and maximum nominal dimensions (base x height) in mm

ve Vertical installation
ho Horizontal installation
(i↔o) Origin of fire irrelevant
Pa Pascal of depression
E Integrity
I Thermal insulation
S Smoke seal
W Wet method sealing
D Dry method sealing

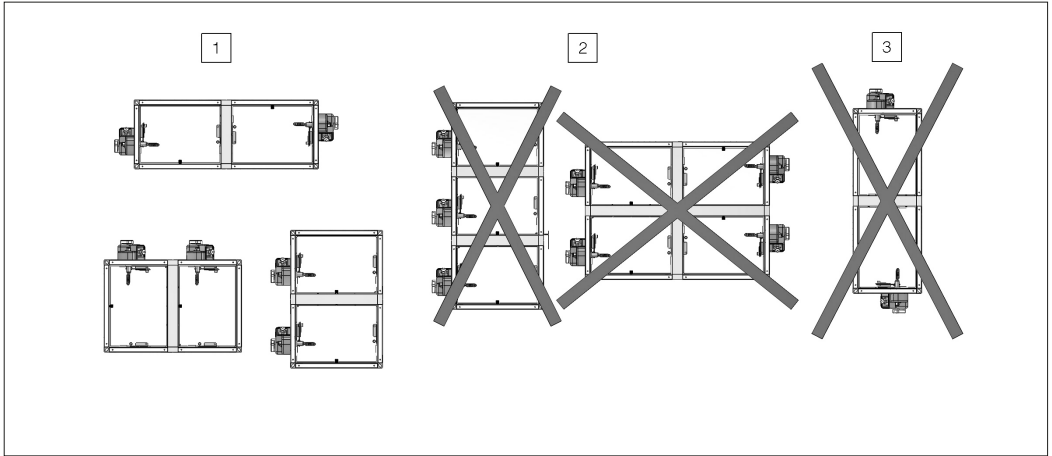
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■ Installations within vertical light wall (Shaft wall)

		EI 90 S (300 Pa)	EI 60 S (300 Pa)	EI 30 S (300 Pa)
Flexible wall	EI 90 S Installation within vertical light wall (Shaft wall)			
	Wall minimum thickness 90 mm Plasterboard sealing ve (i↔o)	D	B x H min 100 X 200 max 800 X 600	B x H min 100 X 200 max 800 X 600

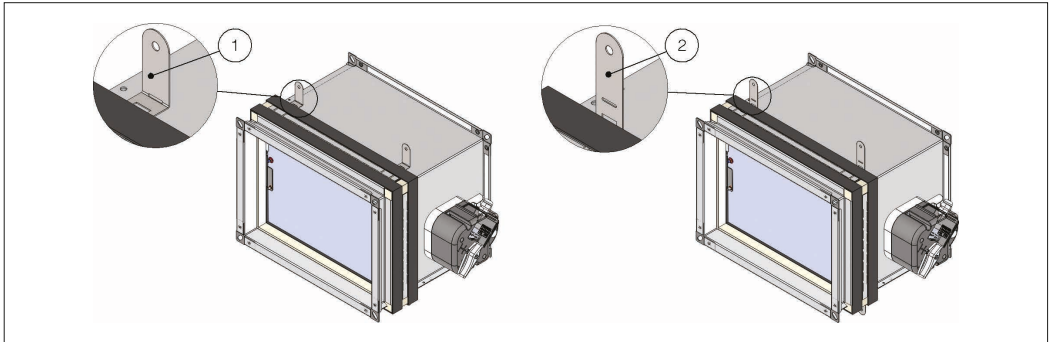
■ Fire dampers pairing for big ducts dimensions

1. It is allowed to pair two fire dampers. Maximum paired size: 1645x600, 1245x800, 800x1245.
2. It is forbidden to pair three or more fire dampers.
3. It is forbidden to vertically pair two fire dampers with vertical axis.



■ Fixing flaps

1. Bend for walls 100 mm thick or higher
2. Bend for walls 70 mm thick or higher

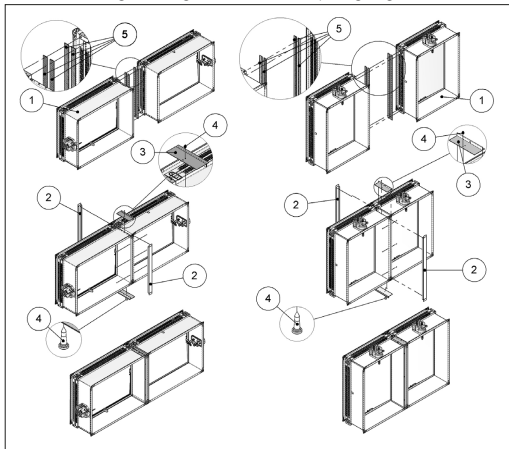


■ Fire dampers pairing

The patented WKS25 rectangular fire dampers can be paired side-by-side or vertically (not more than two) using the custom connection kit (see section Accessories and spare parts) which includes an intumescent gasket to be placed between the two dampers.

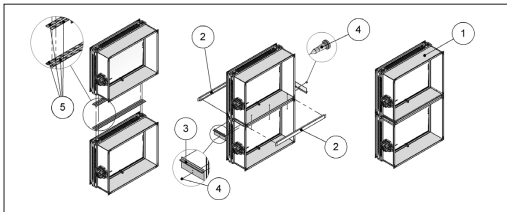
The pair of dampers, may be installed in vertical wall in the same way as a single damper.

1. WKS25 Fire damper
2. Steel profile designed as a function of the pairing length
3. Steel plate
4. Fixing screws
5. Intumescent gasket long as a function of the pairing length



- It is forbidden to pair three or more fire dampers.

1. WKS25 Fire damper
2. Steel profile designed as a function of the pairing length
3. Steel plate
4. Fixing screws
5. Intumescent gasket long as a function of the pairing length

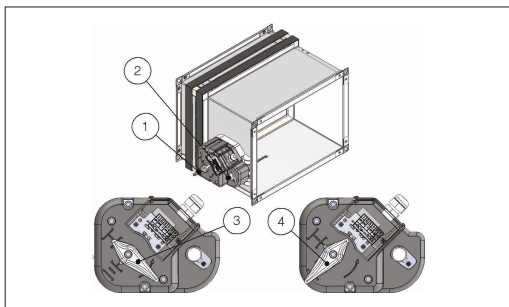


- It is forbidden to pair three or more fire dampers.
- It is forbidden to vertically pair two fire dampers with vertical axis.

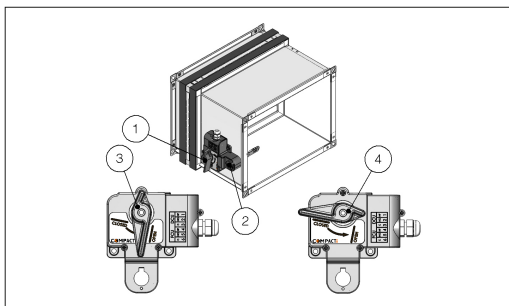
■ Mechanism type

▣ Manual and compact manual

Manual



Compact manual



1. Manual opening lever
2. Manual closing button
3. Lever position when the blade is open
4. Lever position when the blade is closed

Blade closing mode

Automatic closing with thermal fuse.

The control mechanism has a thermosensitive element that automatically closes the blade when the temperature in the duct exceeds 70°C (or 95°C for the fire damper with 95°C thermal fuse). It is possible to close the damper by pressing the indicated button.

Blade opening mode

The damper must be opened when the ventilation system is switched off.

It is possible to open the damper blade by rotating the lever anticlockwise.

In case of closed damper as a result of the action of the thermosensitive element, it is possible to manually reopen the damper by rotating the lever counterclockwise once the element has been replaced.

Position indication microswitches

On request, the fire damper can be supplied with position microswitches (S2 optional) that signal the blade position (open or closed). Refer to the section Electrical connections for more details.

Closing by remote control

Not available

Temperature calibration of thermosensitive element for automatic damper closing

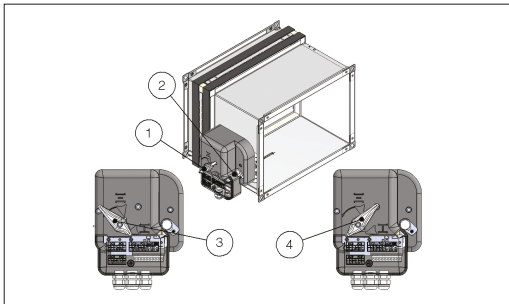
70 °C±7 °C (Standard)

95 °C±9 °C (On request).

CAUTION: The compact mechanism is not interchangeable with other types of manual mechanism.

Manual with magnet

1. Manual opening lever
2. Manual closing button
3. Lever position when the blade is open
4. Lever position when the blade is closed



Blade closing mode

Automatic closing with thermal fuse.

The control mechanism has a thermosensitive element that automatically closes the blade when the temperature in the duct exceeds 70°C (or 95°C for the fire damper with 95°C thermal fuse).

It is possible to close the damper by pressing the indicated button. It is possible to remotely close the fire damper.

The manual command mechanism with magnet is equipped with an electromagnet which, in case power is interrupted (interruption magnet version) or when power is supplied (input magnet version), commands the closing of the damper.

Blade opening mode

The damper must be opened when the ventilation system is switched off.

In case of closed damper by pressing the closing button or remotely by electromagnet, it is possible to manually open the fire damper blade by rotating the lever anticlockwise.

In case of closed damper as a result of the action of the thermosensitive element, it is possible to manually reopen the damper by rotating the lever counterclockwise once the element has been replaced.

Position indication microswitches

It is advisable to install the fire damper with position microswitches (S2 optional) which signal the position of the blade (open or closed). Refer to the section Electrical connections for more details.

Closing by remote control

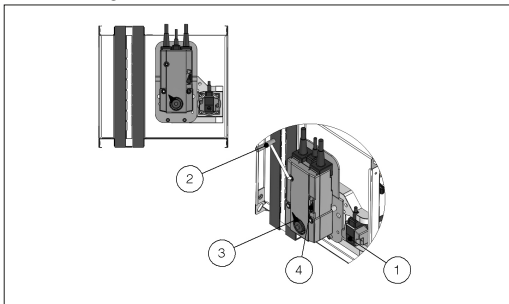
With power supply input or interruption magnet.

Temperature calibration of thermosensitive element for automatic damper closing

- 70 °C±7 °C (Standard)
- 95 °C±9 °C (On request).

Belimo motorized version

1. Manual closing switch
2. Manual opening lever
3. Position indicator
4. Blade locking lever



Blade closing mode

Automatic closing with thermal fuse.

The control mechanism has a thermosensitive element that automatically closes the blade when the temperature in the duct or in the room exceeds 72°C (or 95°C for the 95°C version).

To close the damper when the motor is connected, press the switch on the temperature sensor or cut off the power supply.

Blade opening mode

The damper must be opened when the ventilation system is switched off.

To open the damper with the electric motor driven actuator, provide power supply to the motor. Refer to the section Electrical connections for further information.

To manually open the damper, use the handle supplied and carefully rotate clockwise to the 90° indicator. To hold the damper in open position operate on the lever indicated in figure.

During the manual opening of the damper, power must not be supplied to the motor.

Position indication microswitches

The motorized versions are supplied with two microswitches to show the blade's position (open or closed). Refer to the section Electrical connections for further information.

Closing by remote control

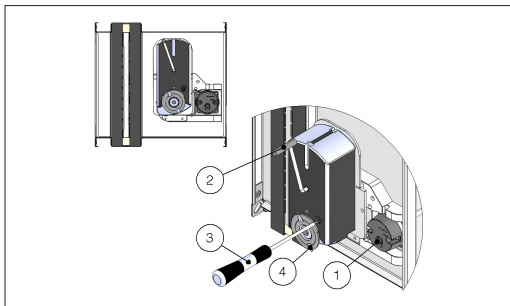
If power to the motor is cut off, the blade will close.

Temperature calibration of thermosensitive element for automatic damper closing

- 72 °C±7 °C (Standard)
- 95 °C±9 °C (On request).

Siemens motorized version

1. Manual closing switch
2. Manual opening lever
3. Screwdriver
4. Position indicator



Blade closing mode

Automatic closing with thermal fuse.

The control mechanism has a thermosensitive element that automatically closes the blade when the temperature in the duct or in the room exceeds 72°C (or 95°C for the 95°C version).

To close the damper when the motor is connected, press the switch on the temperature sensor or cut off the power supply.

Blade opening mode

The damper must be opened when the ventilation system is switched off.

To open the damper with the electric motor driven actuator, provide power supply to the motor. Refer to the section Electrical connections for further information.

To manually open the damper, use the handle supplied and carefully rotate counterclockwise to the 90° indicator. To hold the damper in open position, rotate the screw anticlockwise as shown in the picture.

During the manual opening of the damper, power must not be supplied to the motor.

Position indication microswitches

The motorized versions are supplied with two microswitches to show the blade's position (open or closed). Refer to the section Electrical connections for further information.

Closing by remote control

If power to the motor is cut off, the blade will close.

Temperature calibration of thermosensitive element for automatic damper closing

72 °C±7 °C (Standard)

95 °C±9 °C (On request).

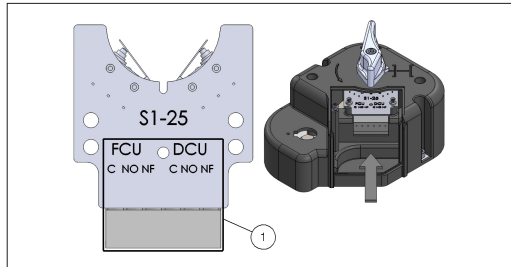
ELECTRICAL CONNECTIONS

Electrical wiring

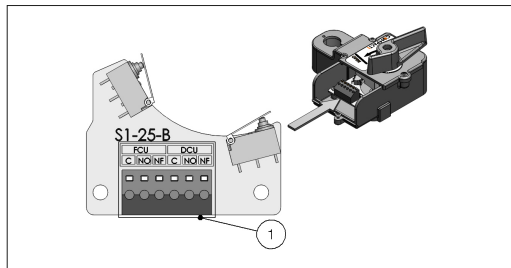
Electrical connections must be done by qualified and trained people. Switch off the power supply before starting any work on the electric elements. Never switch on the power supply during electrical connections.

Manual and compact manual

S1-25 electric board (S2 optional) for blade position microswitches (manual)



S1-25-B electric board (S2 optional) for blade position microswitches (compact manual)



- 1 Microswitch contacts for blade position
 FCU Closed blade contact
 DCU Open blade contact
 NO Normally open
 C Common
 NF Normally closed

- Manual with magnet - MR/MI version (the magnet is powered using 24 V DC/48 V DC through S0-25 electric board)

S0-25 electric board (S2 optional) for 24V DC / 48V DC power supply. Blade position microswitches included

- 1 Microswitch contacts for blade position
 2 Magnet power supply contacts. 24V DC or 48V DC. Keep to the polarity for input magnet

MAG Magnet power supply

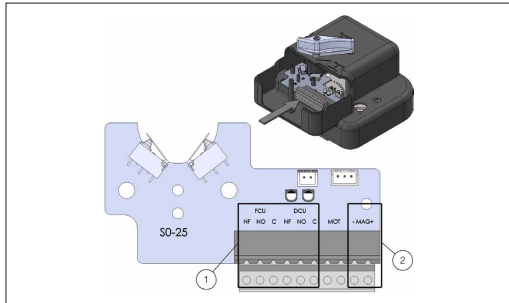
FCU Closed blade contact

DCU Open blade contact

NO Normally open

C Common

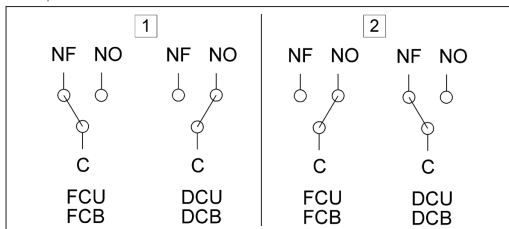
NF Normally closed



S2 microswitches position for manual control and magnetic control

1. The fire damper's blade is open (the air flow is allowed)
 2. The fire damper's blade is closed (the air flow is not allowed)

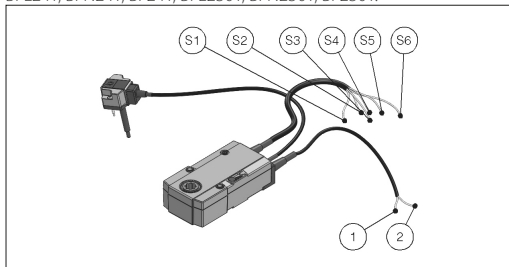
FCU Closed blade contact
 DCU Open blade contact



Motorized version

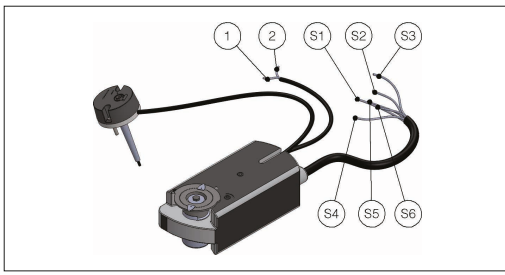
Belimo servomotor:

BFL24T, BFN24T, BF24T, BFL230T, BFN230T, BF230T.

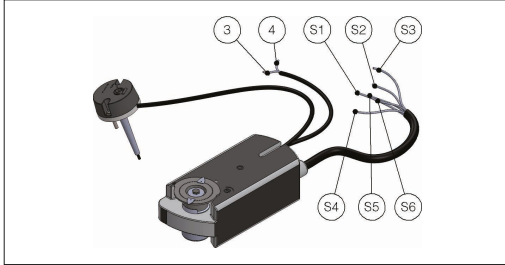


Siemens servomotor:

GRA126, GNA126, GGA126.



Siemens servomotor:
GRA326, GNA326, GGA326.



Motorized fire dampers electrical wiring

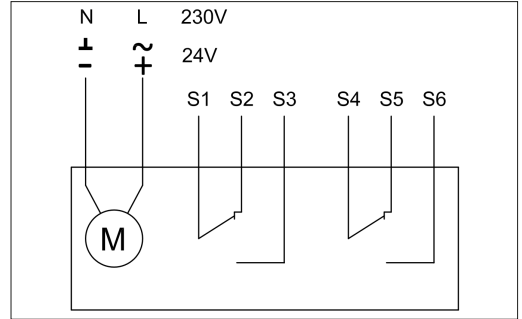
To connect the dampers to the power supply, proceed as follows:

■ Electrical specifications

- Check that the voltage and electrical frequency are equivalent to those of the motor of the servomotor (check the motor's information label);
- Make the connections as shown in the below diagram.

Microswitches position for motorized version

- 1 Negative (DC) or neutral (AC)
- 2 Positive (DC) or phase (AC)
- 3 Phase
- 4 Neutral
- S1 Common closed damper microswitch
- S2 Normally closed, closed damper microswitch
- S3 Normally opened, closed damper microswitch
- S4 Common open damper microswitch
- S5 Normally closed, open damper microswitch
- S6 Normally opened, open damper microswitch



Manual and compact manual

Manual with magnet Belimo motorized version Siemens motorized version

Voltage and power consumption

Magnet (WKS25MR/MI):
24/48 V DC (automatic voltage switching
on S0-25 electric board for 24V magnet)

Power interruption magnet (MR):
P = 1,6 W

Power input magnet (MI):
P = 3,4 W

Motor 24V AC/DC (WKS25VSB):
Belimo BFL24T
Opening: 2,5 W
In stand-by: 0,8 W

230V AC motor (WKS25DSB):
Belimo BFL230T:
Opening: 3,5 W
In stand-by: 1,1 W

Motor 24V AC/DC (WKS25VSS):
Siemens GRA126
Opening: 3,5 W
In stand-by: 2 W

Motor 230V AC (WKS25VSS)
Siemens GRA326
Opening: 4,5 W
In stand-by: 3,5 W

Microswitches position contacts

Manual control version:
12VDC / 2A
125VAC / 0,1A

Motorized version:
Siemens: AC 24V...230V / 6 (2)A
Belimo: DC 5V...AC 250V / 1mA...3A (0,5A)

Blade closing time

Spring: 1 s

motor: < 30 s

Protection degree

IP42

IP42 MAGNETIC VERSION
IP54 MOTORIZED VERSION

MAINTENANCE AND INSPECTIONS

Fire dampers and control mechanisms do not require routine maintenance.

Extraordinary maintenance (repairs) and periodic inspection operations are the responsibility of the ventilation system operator.

■ Periodic inspection and cleaning

Periodic inspection shall be performed in accordance with the requirements of the law or by the building regulations or other local regulations.

In the absence of specific regulations (or to their complement), in accordance with point 8.3 of the EN 1560 standard, it is recommended

The implementation of a periodic inspection plan allows to guarantee the efficiency and functionality of the fire dampers for the fire safety of the building.

to carry out the following control activities at intervals of no more than 6 months:

- If the damper is connected to a remote control or command system (eg BMS or alarm or fire detection), that responds correctly to commands by performing at least one opening and closing test

and verifying the correct movement of the blade and the correct functioning of the microswitches (limit switches).

- If the damper is not connected to a remote control or command system, manually execute an opening and closing test and check the correct movement of the blade and the correct functioning of the microswitches (limit switches) if present.

Together with the control activities, it is recommended to visually verify the absence of corrosion, the integrity of the electrical wiring and the sealing of the construction support.

■ Repair

For safety reasons, repair activities involving fire-fighting components must be carried out only by qualified personnel.

Only original spare parts supplied by the fire damper manufacturer must be used.

A functional test must be performed after each repair.

■ Disposal

Disposal in case of destruction must be carried out in accordance with national legislation. For electrical and electronic parts also refer to EU Directive 2011/65.

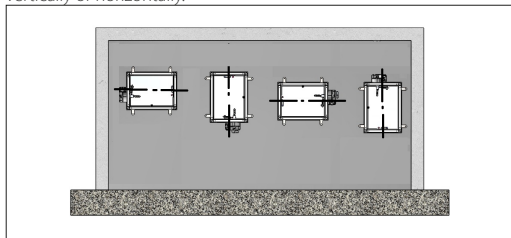
INSTALLATION

The sizes shown are in mm.

It is recommended to perform a functional test before installation to exclude possible damage during transport and another test immediately after installation to exclude accidental damage to the product and interference with mounting components.

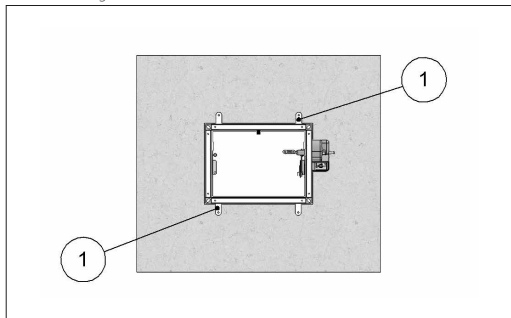
■ Blade rotation axis positioning

The fire damper can be installed both with the blade axis positioned vertically or horizontally.



■ Positioning brackets before fixing

1. Positioning brackets



■ Installation of flexible connectors in order to balance out the ventilation ducts expansion

CAUTION: Refer anyway to law and national standardization.

Flexible connectors compensate any duct thermal expansion and wall bending in case of fire.

Flexible connectors are used to limit fire damper stresses due to external forces in case of fire and to preserve fire resistance class.

Damper cleaning is included in the ordinary maintenance activities of the ventilation ducts.

Fire dampers can be cleaned with a dry or wet cloth.

In the case of resistant dirt, it is possible to use normal household detergents.

If prescribed for the type of building, it is possible to use disinfectant detergents.

The use of detergents or mechanical abrasive cleaning systems is not permitted.

These indications comply with the standards EN 15650 annex D and EN 15423 annex C.

At the end of the inspection, cleaning or repair operations, check that the fire damper is in the normal operating position.

Keep records of all inspections, repair activities, any problems encountered and their resolution.

This practice, even when not mandatory, is very useful in practice.

In general it is always appropriate the use of flexible connectors for the followings installations:

- light walls;
- Plasterboard and rock wool or Fire Batt (Weichschott) sealing;
- Applique fixing system.

Flexible connector must be normal flammability and in case of fire the grounding bonding should disconnet to guarantee the complete separation between fire damper and connected air duct.

When flexible connectors made of conductive material (e.g. aluminum) are used, no additional grounding bonding is required.

Despite flexible connector installation, the fire damper must be installed in the construction support so that its weight does not affect damper's installation position both during normal operation and in case of fire.

It is recommended not to compress flexible connectors in the installation phase.

Flexible connector must be at least 100mm long and in order that possible duct thermal expansions are balanced.

Take care that the flexible connector does not interfere with opening / closing movement of the blade.

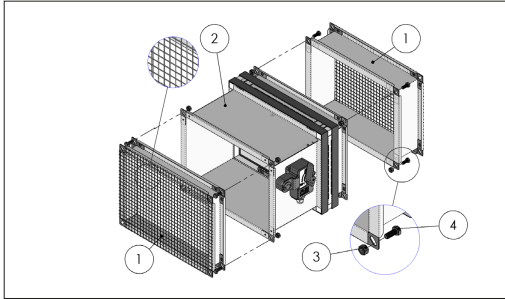
■ Transfer Application (application not connected to air ducts on one or both sides)

Following tests performed as per EN 1366-2, section 6.3.6 Standard, it is possible to install the fire damper free from air duct from one or both sides.

- Attention: fire resistance classification for transfer application is conform to section Fire resistance classification according to EN 13501-3-2009 limited to EI 120S if the ducted classification is higher.
- End cap with mesh shall be mounted on the side not connected to air duct.
- End cap with mesh is made from galvanized steel sheet and includes nuts and screws for fixing on fire damper.
- End cap with mesh is supplied loose from the fire damper.

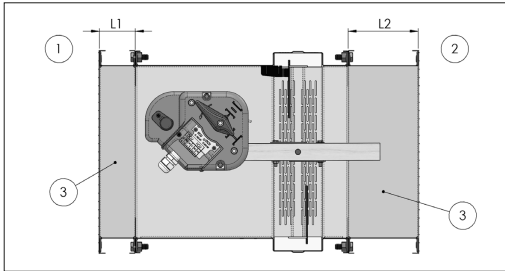
■ Components (Transfer Application)

1. Extension duct with net, 12 x 12 mm mesh opening
2. Fire damper
3. M8 nut
4. M8 screw



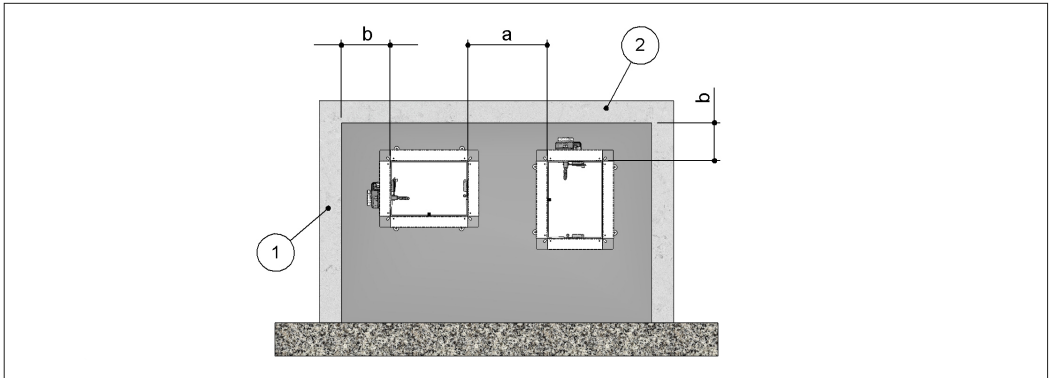
■ Technical data (Transfer Application)

- | | |
|----------------------------------|---|
| 1. Mechanism side | L2 End cap length mechanism opposite side |
| 2. Mechanism opposite side | H Nominal height of fire damper |
| 3. End cap with mesh | |
| L1 End cap length mechanism side | |



■ Minimum distances

1. Side vertical wall
2. Floor
- a. Distance between fire dampers installed within vertical wall
- b. Distance between fire damper and vertical lateral wall / floor



Length of end cap with mesh depending on fire damper height H.

H	L1	L2
200	50	50
250	50	100
300	50	100
350	50	150
400	50	150
450	50	200
500	50	200
550	50	250
600	100	250

- H Nominal height of fire damper
 L1 End cap length mechanism side
 L2 End cap length mechanism opposite side

■ Minimum distances

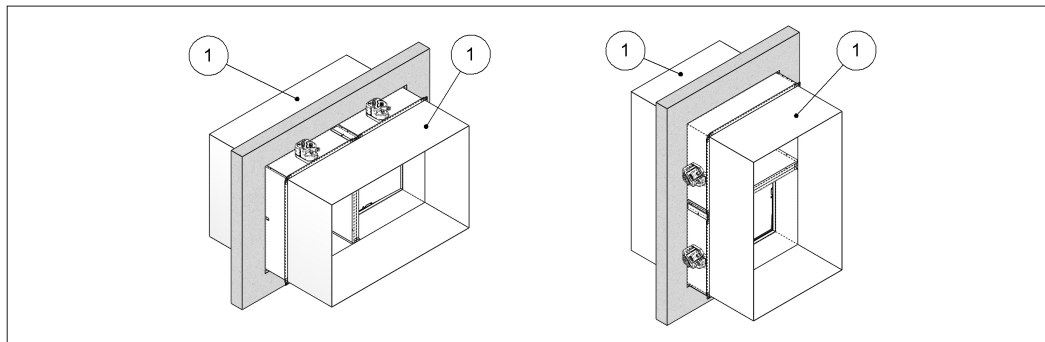
It is recommended to keep enough space for using the control mechanism or for maintenance. In accordance with Articles 7 and 13 of EN 1366-2 respect the minimum distances indicated below.

		Fire dampers installed within vertical wall		Fire dampers installed within floor		
Installation		a [mm]	b [mm]	c [mm]	d [mm]	Paired installation
Rigid wall	EI 120 S Installation within vertical rigid wall Plasterboard sealing	44	22	-	-	Yes. One air duct
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard) Plasterboard sealing	44	22	-	-	Yes. One air duct
	EI 120 S Installation within vertical light wall (gypsum blocks wall) Plasterboard sealing	44	22	-	-	Yes. One air duct
	EI 90 S Installation within vertical light wall (gypsum blocks wall) Plasterboard sealing	200	75	-	-	No

The minimum distance between two or more paired installations is 200 mm.

It is forbidden to pair three or more fire dampers.

1. One air duct



■ Installations within vertical light wall (Shaft wall)

		Fire dampers installed within vertical wall		Fire dampers installed within floor	
Installation		a [mm]	b [mm]	c [mm]	d [mm]
Flexible wall	EI 60 S Installation within vertical light wall (Shaft wall)	200	75	-	-
	Plasterboard and mortar or plaster putty sealing				

■ Construction supports characteristics

The European standard for fire dampers foresees a precise correlation between the wall/floor characteristics and the fire resistance class obtained, as well as the correlation between wall/floor used for the test and wall/floor used for the actual installation.

The test results obtained on a type of wall/floor are valid also for walls/floor of the same type but with greater thickness and/or density than those used in the test.

For plasterboard walls, the test results are also valid for walls with a greater number of plasterboard layers on each side.

As a result, the indicated thickness and density characteristics are to be considered as minimum values.

The wall/floor in which the fire dampers are installed must be fire class certified according to the standards foreseen for the structure.

■ Rigid walls

Can be made with aerated concrete blocks, poured concrete, concrete panels, perforated cell elements in concrete or brick in accordance with the following characteristics:

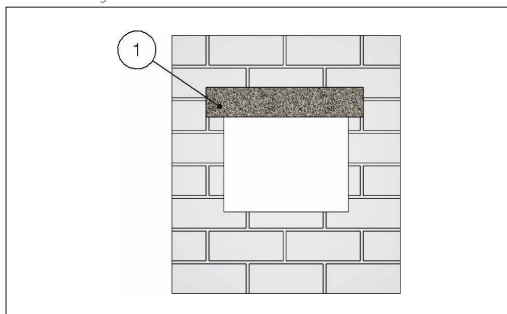
- minimum thickness 100 mm;
- minimum density 550 kg/m³.

The use of a reinforcing beam above the opening is recommended for walls made from concrete blocks, bricks or in concrete cell elements.

For walls built with perforated elements, it is also recommended that the area of the opening be made from full elements (for example

aerated concrete blocks) to guarantee the correct adhesion of the mortar.

1. Reinforcing beam



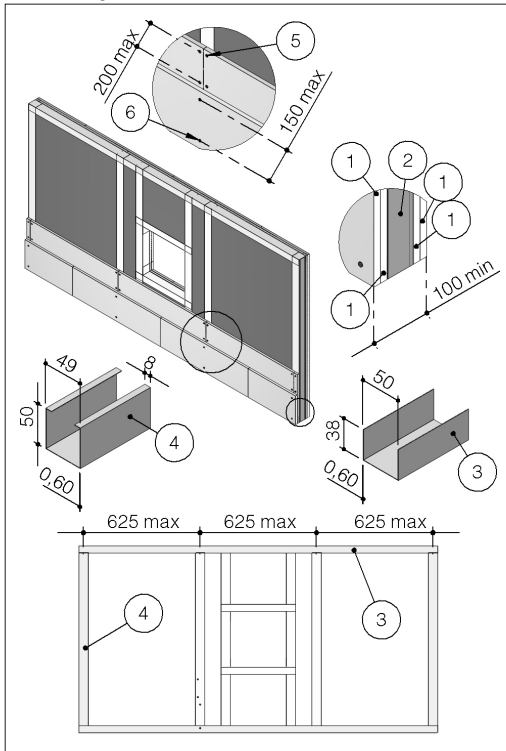
■ Light plasterboard vertical walls

During testing, light plasterboard walls have been used with the following characteristics:

- U-shaped horizontal metal frame (50 mm) and C-shaped vertical frame (49 mm) made from 0,6 mm thick sheet metal;

- Vertical profiles placed with a maximum spacing of 625 mm between each other;
 - Filling made of rock wool with density up to 100 kg/m^3 (optional);
 - Each side is made from two plasterboard layers 12,5 mm thick, unalined to avoid alignment between the joints of the layer above and below.
- The following indications are given for the installation walls:
- metal profiles minimum width: 49 mm;
 - metal profiles minimum thickness: 0,6 mm;
 - vertical profiles placed with a maximum spacing of 625 mm between each other;
 - vertical profile fixing with selfthreading screws or by clinching to the bottom horizontal profile and insertion in the top horizontal profile;
 - profiles fixed using self-threading screws or by clinching on every intersection.
 - installation of a frame around the damper with base and height where shown in the installation instructions;
 - Filling made of rock wool with density up to 100 kg/m^3 (optional);
 - each side is made from two plasterboard layers 12,5 mm minimum thick, unalined to avoid alignment between the joints of the layer above and below.
 - the front plasterboards layers are fixed using long enough screws to pass through the lower plasterboard and attach to the steel profile underneath.

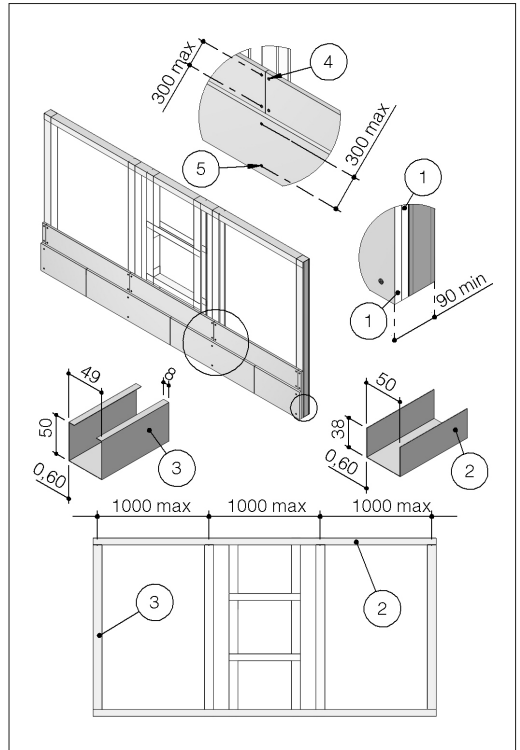
1. Plasterboard thickness 12,5 mm
2. Rock wool density up to 100 kg/m^3 (optional)
3. Horizontal U-shaped profile
4. Vertical C-shaped profile
5. Self-drilling screw $\varnothing 3,5 \times 25 \text{ mm}$
6. Self-drilling screw $\varnothing 3,5 \times 35 \text{ mm}$



■ Light plasterboard vertical walls (Shaft wall)

The following indications are given for the installation walls:

- U-shaped horizontal metal frame (minimum width 50 mm) and C-shaped vertical frame (minimum width 49 mm) made from sheet metal (minimum thickness 0,6 mm);
 - vertical profiles placed with a maximum spacing of 1000 mm between each other;
 - vertical profile fixing with selfthreading screws or by clinching to the bottom horizontal profile and insertion in the top horizontal profile;
 - profiles fixed using self-threading screws or by clinching on every intersection.
 - installation of a frame around the damper with base and height where shown in the installation instructions;
 - one side is made from two plasterboard layers 20 mm minimum thick, unalined to avoid alignment between the joints of the layer above and below;
 - the front plasterboards layers are fixed using long enough screws to pass through the lower plasterboard and attach to the steel profile underneath.
1. Plasterboard thickness 20 mm
 2. Horizontal U-shaped profile
 3. Vertical C-shaped profile
 5. Self-drilling screw $\varnothing 3,5 \times 35 \text{ mm}$
 5. Self-drilling screw $\varnothing 3,5 \times 55 \text{ mm}$



■ Gypsum blocks light walls

Gypsum blocks wall can be built with special solid gypsum blocks with interlocking shaped edges as indicated in the supplier's instructions and according to the following characteristics:

- minimum thickness 70 or 100 mm according to the type and resistance class required;
- minimum density 995 kg/m³.

It is generally advisable to first build the wall and then provide the opening for the fire damper.

■ EI 120 S Installation within vertical rigid wall

The WKS25 fire dampers classified EI 120 S within vertical rigid walls, guarantee fire and heat sealing for 120 minutes only if installed inside walls with a minimum fire resistance class of REI 120, minimum thickness of 100 mm and minimum density of 550 kg/m³.

In accordance with standard EN 1366-2 (Article 13.7) the results of the tests are extended to thicker or higher density walls.

WKS25 series fire dampers can therefore also be installed within walls made of brick or concrete with a minimum thickness of 100 mm.

Comply with the minimum distances indicated on section Minimum distances

■ Single fire damper wall opening

A rectangular opening must be provided in the wall with a side 50 mm greater than the nominal size of the fire damper. It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

The use of a reinforcing beam above the opening is recommended for walls made from concrete blocks, bricks or in concrete cell elements.

For walls built with perforated elements, it is also recommended that the area of the opening be made from full elements (for example aerated concrete blocks) to guarantee the correct adhesion of the mortar.

■ Paired fire dampers wall opening

A rectangular opening must be provided in the wall with a side 50 mm greater than the nominal size of the paired fire dampers:

– Vertically paired fire dampers

base = damper base + 50 mm

height = height1 + height2 + 45 mm + 50 mm

– Side by side paired fire dampers

base = base1 + base2 + 45 mm + 50 mm

height = damper height + 50 mm.

It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

The use of a reinforcing beam above the opening is recommended for walls made from concrete blocks, bricks or in concrete cell elements.

■ Damper positioning

Lift the fixing flaps located on the fire damper casing. See section Fixing flaps for further details.

Position the damper in the opening so that the side of the closing mechanism extends from the wall by 185 mm.

Be careful not to damage the intumescent gasket on the outside the casing.

Secure the fire damper to the wall using four screws on the four holes of the fixing flaps.

The double test (with the mechanism inside and outside the fire area) demonstrated that there is no preferred direction for the position of the damper, both in relation to air flow and the side with the higher probability of exposure to fire, as indicated in standard EN1366-2 (paragraph 6.2).

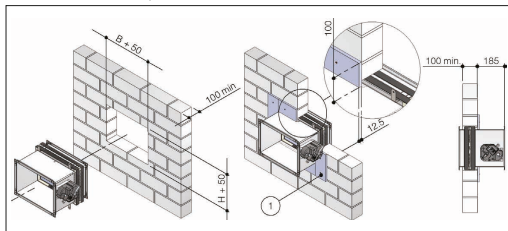
■ Filling

It is not necessary to insert any material, but simply cover the gap between the damper and the wall by applying on face of the wall mechanism side a layer of plasterboard, to a total minimum thickness of 12,5 mm, to make a frame 100 mm wide.

B. Nominal base dimension (mm)

H. Nominal height dimension (mm)

1. Plasterboard infill panel, thickness 12,5 mm



■ EI 120 S Installation in vertical rigid wall - Special cases

■ Installation in contact with ceiling or floor or side wall

Opening dimensions are as indicated in the previous section.

Apply only three plasterboard layers "U" shaped along the three free sides of damper.

This installation is allowed for two fire dampers paired in battery as well.

■ Corner room installation

Opening dimensions are as indicated in the previous section.

Apply two plasterboard layers, to compose a "L" shape on the two free sides of the fire damper.

This installation is allowed for two fire dampers paired in battery as well.

In case of two side by side paired fire dampers it is necessary to position the fire dampers with vertical axis, due to the mechanism presence.

B. Nominal base dimension (mm)

H. Nominal height dimension (mm)

1. Ceiling contact installation

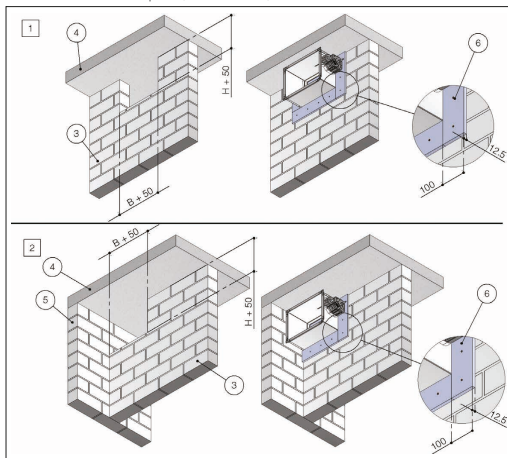
2. Corner room installation

3. Installation wall

4. Ceiling or floor

5. Side vertical wall

6. Plasterboard infill panel, thickness 12,5 mm



■ EI 120 S Installation within vertical light wall (plasterboard)

The WKS25 fire dampers classified EI 120 S within light (plasterboard) walls guarantee fire and heat sealing for 120 minutes only if installed inside walls with a minimum fire resistance class of EI 120 and minimum thickness of 100 mm.

Laboratory test were carried out using 100 mm thick wall with two plasterboard layers 12,5 mm thick for side and insulated with rock wool 100 kg/m³ density (optional).

In accordance with standard EN 1366-2 (Article 13.7) the results of the tests are extended to thicker or higher density walls.

Comply with the minimum distances indicated on section Minimum distances

■ Single fire damper wall opening

A rectangular opening must be provided in the wall with a frame made by metal profiles ideal for use with plasterboard (min. thickness 0,6 mm) with a side 75 mm greater than the nominal size of the damper. It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

The perimeter of the opening must be covered with a layer of plasterboard as wide as the thickness of the wall.

■ Paired fire dampers wall opening

A rectangular opening must be provided in the wall with a frame made by metal profiles ideal for use with plasterboard (min. thickness 0,6 mm) with a side 75 mm greater than the nominal size of the paired dampers:

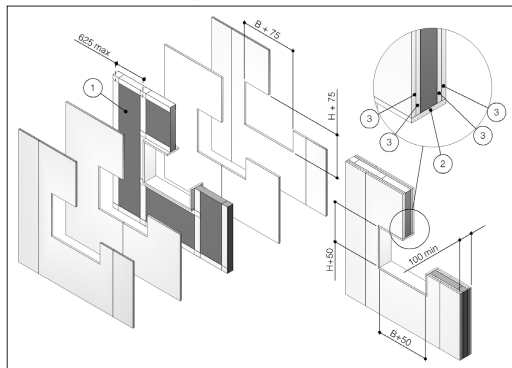
- Vertically paired fire dampers
 - base = damper base + 75 mm
 - height = height1 + height2 + 45 mm + 75 mm
- Side by side paired fire dampers
 - base = base1 + base2 + 45 mm + 75 mm
 - height = damper height + 75 mm.

The perimeter of the opening must be covered with a layer of plasterboard as wide as the thickness of the wall.

It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

- B. Nominal base dimension (mm)
- H. Nominal height dimension (mm)

1. Rock wool, 100 kg/m³
2. Plasterboard infill panel, thickness 12,5 mm
3. Plasterboard thickness 12,5 mm



■ Damper positioning

Lift the fixing flaps located on the fire damper casing. See section Fixing flaps for further details.

Position the damper in the opening so that the side of the closing mechanism extends from the wall by 185 mm.

Be careful not to damage the intumescent gasket on the outside the casing.

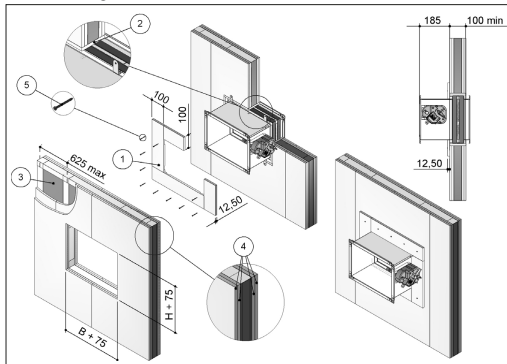
Secure the fire damper to the wall using four screws on the four holes of the fixing flaps.

The double test (with the mechanism inside and outside the fire area) demonstrated that there is no preferred direction for the position of the damper, both in relation to air flow and the side with the higher probability of exposure to fire, as indicated in standard EN1366-2 (paragraph 6.2).

■ Filling

It is not necessary to insert any material, but simply cover the gap between the damper and the wall by applying on face of the wall mechanism side a layer of plasterboard, to a total minimum thickness of 12,5 mm, to make a frame 100 mm wide.

1. Plasterboard infill panel, thickness 12,5 mm
2. Plasterboard infill panel, thickness 12,5 mm
3. Rock wool density up to 100 kg/m³ (optional)
4. Plasterboard thickness 12,5 mm
5. Self-drilling screw Ø 3,5 X 45 mm



■ El 120 S Installation within vertical light wall (plasterboard) - Special cases

■ Installation in contact with ceiling or floor or side wall

A rectangular opening must be provided in the wall with the three sides made by metal profiles ideal for use with plasterboard. The side parallel to the ceiling or to the wall 75 mm greater than the nominal sizes of the damper and the side perpendicular to the ceiling or to the floor 63 mm greater than the nominal sizes of the damper.

The three metal profiles must be covered with a plasterboard layer 12,5 mm thick, as wide as the the thickness of the wall.

No need to apply anything on the wall or on the ceiling.

Just apply three plasterboard layers, to compose a "U" shape on the three free sides of the fire damper.

This installation is allowed for two fire dampers paired in battery as well.

■ Corner room installation

A rectangular opening must be provided in the wall with the two sides made by metal profiles ideal for use with plasterboard. The opening size must be 63 mm greater than the nominal sizes of the damper.

The two metal profiles must be covered with a plasterboard layer 12,5 mm thick, as wide as the the thickness of the wall.

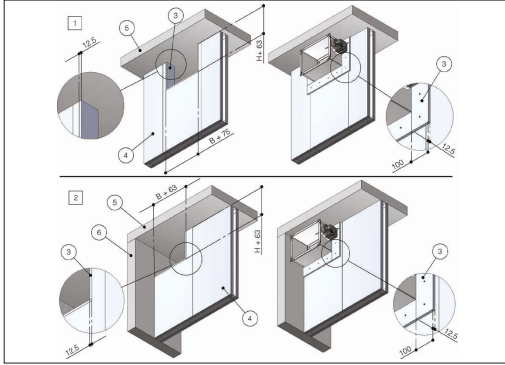
No need to apply anything on the wall or on the ceiling.

Apply two plasterboard layers, to compose a "L" shape on the two free sides of the fire damper.

This installation is allowed for two fire dampers paired in battery as well.

In case of two side by side paired fire dampers it is necessary to position the fire dampers with vertical axis, due to the mechanism presence.

- B. Nominal base dimension (mm)
- H. Nominal height dimension (mm)
- 1. Ceiling contact installation
- 2. Corner room installation
- 3. Plasterboard infill panel, thickness 12,5 mm
- 4. Installation wall
- 5. Ceiling or floor
- 6. Side vertical wall



■ EI 90 S Installation within vertical light wall (gypsum blocks wall)

The WKS25 fire dampers classified EI 90 S within vertical light walls built with gypsum blocks "carreaux de plâtre", guarantee fire and heat sealing for 90 minutes only if installed inside walls with a minimum fire resistance class of EI 90, minimum thickness of 70 mm and minimum density of 995 kg/m³. In accordance with standard EN 1366-2 (Article 13.7) the results of the tests are extended to thicker or higher density walls. Comply with the minimum distances indicated on section Minimum distances

■ Wall opening

A rectangular opening must be provided in the wall with a side 50 mm greater than the nominal size of the fire damper. It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

■ Damper positioning

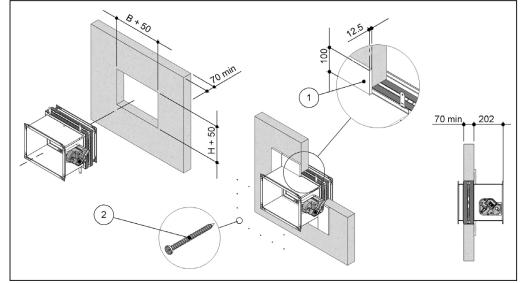
Lift the fixing flaps located on the fire damper casing. See section Fixing flaps for further details. Position the damper in the opening so that the side of the closing mechanism extends from the wall by 202 mm. Be careful not to damage the intumescent gasket on the outside the casing.

Secure the fire damper to the wall using four screws on the four holes of the fixing flaps. The double test (with the mechanism inside and outside the fire area) demonstrated that there is no preferred direction for the position of the damper, both in relation to air flow and the side with the higher probability of exposure to fire, as indicated in standard EN1366-2 (paragraph 6.2).

■ Filling

It is not necessary to insert any material, but simply cover the gap between the damper and the wall by applying on face of the wall mechanism side a layer of plasterboard, to a total minimum thickness of 12,5 mm, to make a frame 100 mm wide.

- B. Nominal base dimension (mm)
- H. Nominal height dimension (mm)
- 1. Plasterboard infill panel, thickness 12,5 mm
- 2. Self-drilling screw Ø 3,5 X 45 mm



■ EI 120 S Installation within vertical light wall (gypsum blocks wall)

The WKS25 fire dampers classified EI 120 S within vertical light walls built with gypsum blocks "carreaux de plâtre", guarantee fire and heat sealing for 120 minutes only if installed inside walls with a minimum fire resistance class of EI 120, minimum thickness of 100 mm and minimum density of 995 kg/m³. In accordance with standard EN 1366-2 (Article 13.7) the results of the tests are extended to thicker or higher density walls. Comply with the minimum distances indicated on section Minimum distances

■ Single fire damper wall opening

A rectangular opening must be provided in the wall with a side 50 mm greater than the nominal size of the fire damper. It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

■ Paired fire dampers wall opening

A rectangular opening must be provided in the wall with a side 50 mm greater than the nominal size of the paired fire dampers:

- Vertically paired fire dampers
 - base = damper base + 50 mm
 - height = height1 + height2 + 45 mm + 50 mm
- Side by side paired fire dampers
 - base = base1 + base2 + 45 mm + 50 mm
 - height = damper height + 50 mm.

It is advisable not to exceed by more than 10 mm from the indicated sizes so as not to compromise the correct thermal insulation.

■ Damper positioning

Lift the fixing flaps located on the fire damper casing. See section Fixing flaps for further details.

Position the damper in the opening so that the side of the closing mechanism extends from the wall by 185 mm. Be careful not to damage the intumescent gasket on the outside the casing.

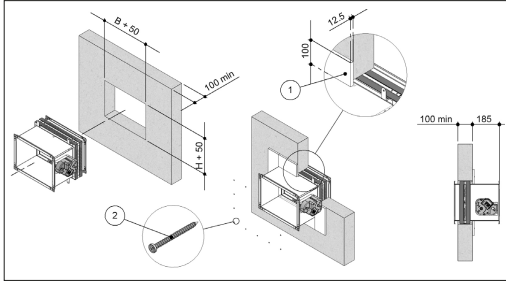
Secure the fire damper to the wall using four screws on the four holes of the fixing flaps.

The double test (with the mechanism inside and outside the fire area) demonstrated that there is no preferred direction for the position of the damper, both in relation to air flow and the side with the higher probability of exposure to fire, as indicated in standard EN1366-2 (paragraph 6.2).

■ Filling

It is not necessary to insert any material, but simply cover the gap between the damper and the wall by applying on face of the wall mechanism side a layer of plasterboard, to a total minimum thickness of 12,5 mm, to make a frame 100 mm wide.

- B. Nominal base dimension (mm)
- H. Nominal height dimension (mm)
- 1. Plasterboard infill panel, thickness 12,5 mm
- 2. Self-drilling screw Ø 3,5 X 45 mm



■ EI 120 S Installation within vertical light wall (gypsum blocks wall)- Special cases

■ Installation in contact with ceiling or floor or side wall
Opening dimensions are as indicated in the previous section. Apply only three plasterboard layers "U" shaped along the three free sides of damper. This installation is allowed for two fire dampers paired in battery as well.

■ Corner room installation
Opening dimensions are as indicated in the previous section. Apply two plasterboard layers, to compose a "L" shape on the two free sides of the fire damper.

■ Installation within vertical light wall (Shaft wall)
WKS25 fire dampers are tested and approved in:

Fire resistance classification	Hole size "D1 x D2" [mm]	Damper protrusion from the wall "E" [mm]	Wall minimum thickness "S" [mm]	Sealing
EI 90 S Installation within vertical light wall (Shaft wall)				
EI 90 S (300 Pa)	(B+90) x (H+90)	185	90	Plasterboard infill panel, thickness 20 mm

- B. Nominal base of the damper
- H. Nominal height of the damper

Refer to the section Construction supports characteristics for further information.

Comply with the minimum distances indicated on section Minimum distances .

■ Wall opening

A opening must be provided in the wall as indicated in the table and in the drawing

■ Damper positioning

Position the damper in the opening so that the side of the closing mechanism extends as indicated in the table and in the drawing.

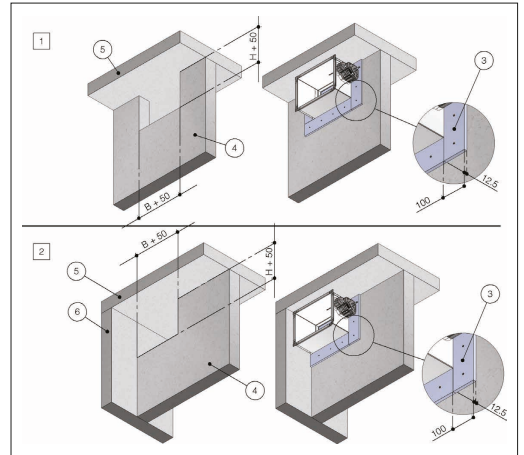
■ Filling

It is not necessary to insert any material, but simply cover the gap between the damper and the wall by applying on face of the wall mechanism side a layer of plasterboard, to a total minimum thickness of 20 mm, to make a frame 75 mm wide.

This installation is allowed for two fire dampers paired in battery as well.

In case of two side by side paired fire dampers it is necessary to position the fire dampers with vertical axis, due to the mechanism presence.

1. Ceiling contact installation
2. Corner room installation
3. Plasterboard infill panel, thickness 12,5 mm
4. Installation wall
5. Ceiling or floor
6. Side vertical wall



- B. Nominal base dimension (mm)
- H. Nominal height dimension (mm)
- 1. Plasterboard thickness 20 mm
- 2. Plasterboard infill panel, thickness 20 mm
- 3. Metal frame
- 4. Self-drilling screw Ø 3,5 X 70 mm

