

## WHS25

Installation booklet

This is a 17 page installation booklet.

English

FIRE DAMPER

CIRCULAR SERIES WHS25 - 500 Pa

Cert. N° 1812-CPR-1226 EN 15650



\*1MUBWHS25EN-LIND\* rev 20-10



[www.lindab.com](http://www.lindab.com) - Fire dampers are manufactured by MP3 Srl [www.mp3-italia.it](http://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.



# 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/m³ ve (↔→)	D	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
	EI 120 S Installation within vertical light wall (plasterboard)					
Flexible wall	Wall minimum thickness 100 mm With metal frame around fire damper Without plasterboard infill panel ve (↔→) Wall rock wool density up to 80 kg/m³ (optional)	D	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
	EI 120 S Installation within vertical light wall (plasterboard)					
	Wall minimum thickness 100 mm Without metal frame around fire damper With plasterboard infill panel ve (↔→) Wall rock wool density up to 80 kg/m³ (optional)	D	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
	EI 90 S Installation within vertical light wall (gypsum blocks wall)					
	Wall minimum thickness 70 mm Wall minimum density 995 kg/m³ ve (↔→)	D	-	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
Floor	EI 120 S Installation within vertical light wall (gypsum blocks wall)					
	Wall minimum thickness 100 mm Wall minimum density 995 kg/m³ ve (↔→)	D	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
	EI 90 S Installation within floor					
Floor	Floor minimum thickness 100 mm Floor minimum density 650 kg/m³ ho (↔→)	D	-	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
	EI 120 S Installation within floor					
Floor	Floor minimum thickness 150 mm Floor minimum density 650 kg/m³ ho (↔→)	D	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315

Ø is the minimum and maximum nominal diameter of fire dampers in mm

- ve Vertical installation
  - ho Horizontal installation
  - (↔→) Origin of fire irrelevant
  - Pa Pascal of depression
  - E Integrity
  - I Thermal insulation
  - S Smoke seal
  - W Wet method sealing
  - D Dry method sealing
- Cert. N° 1812-CPR-1226 EN 15650

■ Fire Batt (Weichschott) sealings

		EI 120 S (300 Pa)	EI 90 S (300 Pa)	EI 60 S (300 Pa)	EI 30 S (300 Pa)
EI 120 S Installation within vertical rigid wall with Fire Batt (Weichschott) sealing					
Rigid wall	Wall minimum thickness 100 mm				
	Wall minimum density 550 kg/m³				
	Rock wool 140 kg/m³ and endothermic varnish sealing ve (↔→○)	W	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
EI 120 S Installation within vertical light wall (plasterboard) with Fire Batt (Weichschott) sealing					
Flexible wall	Wall minimum thickness 100 mm				
	Wall rock wool density up to 80 kg/m³ (optional)				
	Rock wool density 140 kg/m³ and endothermic varnish sealing ve (↔→○)	W	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
EI 120 S Installation within vertical light wall (gypsum blocks wall) with Fire Batt (Weichschott) sealing					
Flexible wall	Wall minimum thickness 100 mm				
	Wall minimum density 995 kg/m³				
	Rock wool 140 kg/m³ and endothermic varnish sealing ve (↔→○)	W	Ø min 100 max 315	Ø min 100 max 315	Ø min 100 max 315
EI 90 S Installation within floor and Fire Batt (Weichschott) sealing					
Floor	Floor minimum thickness 150 mm				
	Floor minimum density 650 kg/m³				
	Rock wool 140 kg/m³ and endothermic varnish sealing ho (↔→○)	W	-	Ø min 100 max 315	Ø min 100 max 315

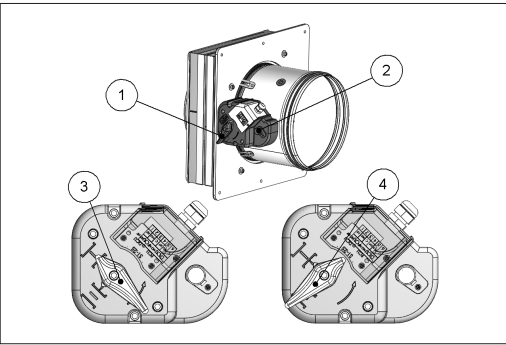
■ Installations within vertical light wall (Shaft wall)

		EI 90 S (300 Pa)	EI 60 S (300 Pa)	EI 30 S (300 Pa)
EI 90 S Installation within vertical light wall (Shaft wall)				
Flexible wall	Wall minimum thickness 90 mm			
	ve (↔→○)	D	Ø min 100 max 315	Ø min 100 max 315

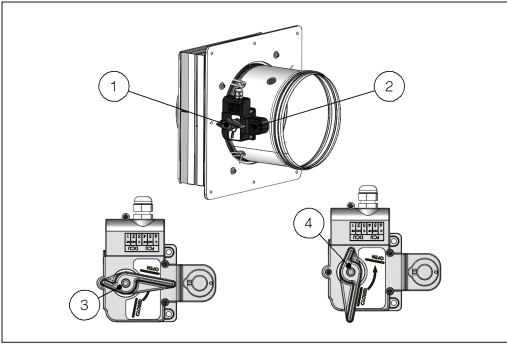
■ Mechanism type

■ 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**

Make sure that the damper is open before the ventilation system start-up, otherwise there is a risk of product malfunction.

It is possible to open the damper blade by rotating the lever anti-clockwise.

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

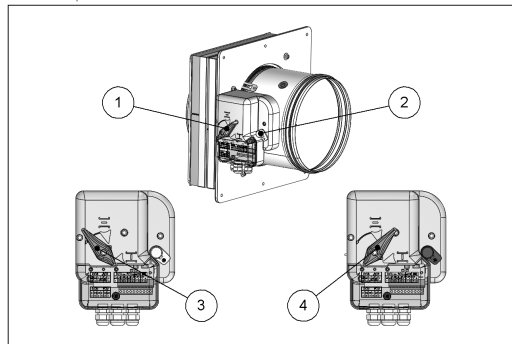
### Temperature calibration of thermosensitive element for automatic damper closing

70 °C±7 °C (Standard)

95 °C±9 °C (On request).

### 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

Make sure that the damper is open before the ventilation system start-up, otherwise there is a risk of product malfunction.

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.

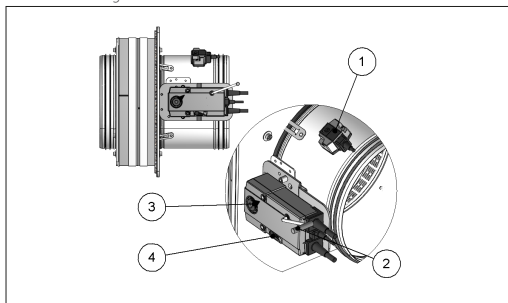
### Temperature calibration of thermosensitive element for automatic damper closing

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

Make sure that the damper is open before the ventilation system start-up, otherwise there is a risk of product malfunction.

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.

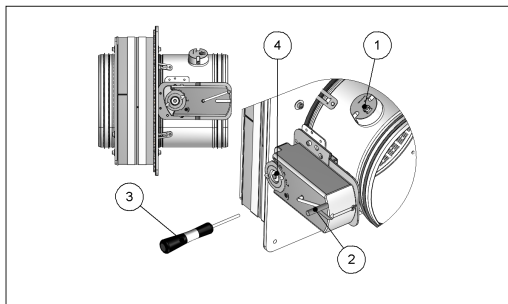
### Temperature calibration of thermosensitive element for automatic damper closing

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

Make sure that the damper is open before the ventilation system start-up, otherwise there is a risk of product malfunction.

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 °C 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).

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

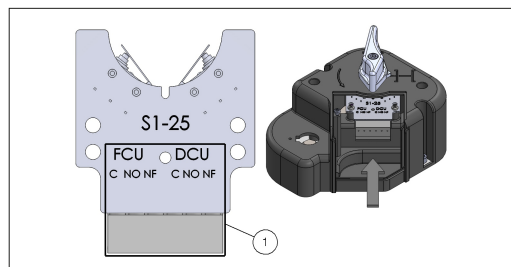
## ELECTRICAL CONNECTIONS

### ■ Electrical wiring

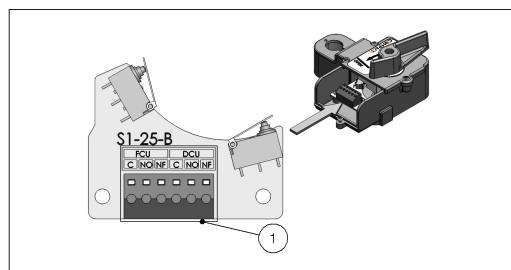
Electrical connections must be done by qualified and trained people. Switch off the power supply before starting any work on the electric elements. Never switch on the power supply during electrical connections.

### ■ 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

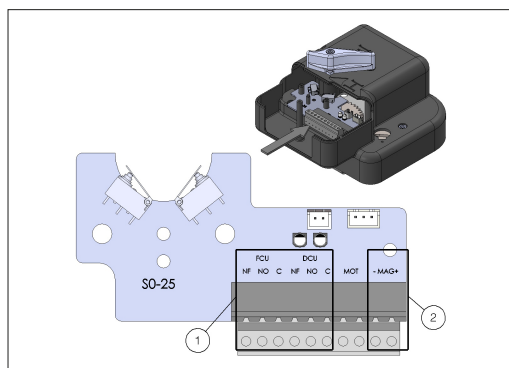
NO Normally open

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 electronic 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

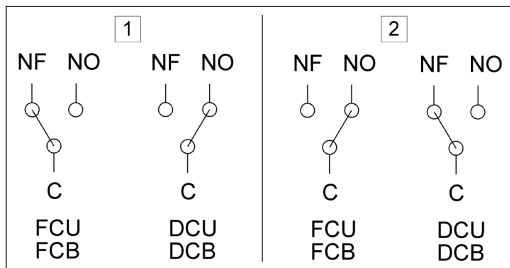
DCU Open blade contact

NO Normally open

C Common

NF Normally closed

- S2 microswitches position for manual control and magnetic control

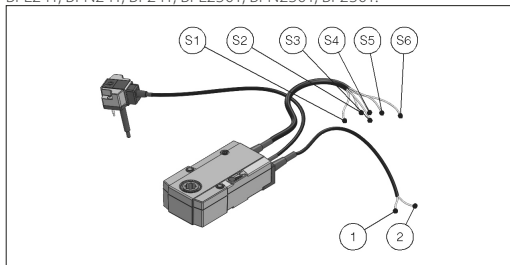


1. The fire damper's blade is open (the air flow is allowed)
  2. The fire damper's blade is closed (the air flow is not allowed)
- FCU Closed blade contact  
DCU Open blade contact  
NO Normally open  
C Common  
NF Normally closed

- Motorized version

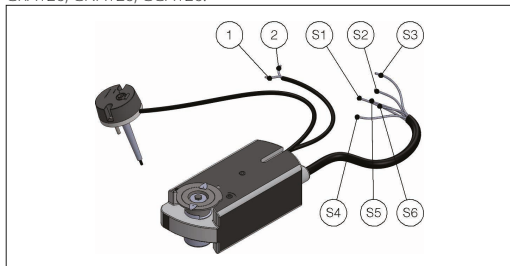
#### Belimo servomotor:

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



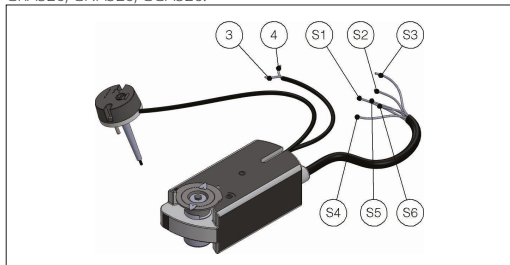
#### Siemens servomotor:

GRA126, GNA126, GGA126.



#### Siemens servomotor:

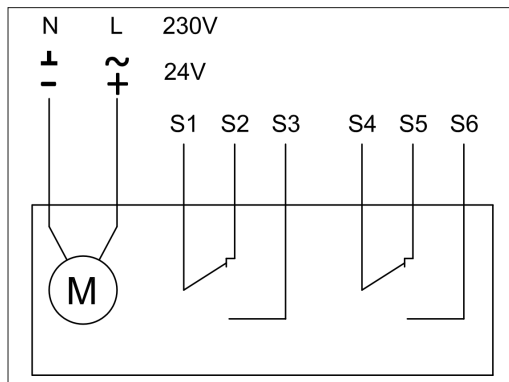
GRA326, GNA326, GGA326.



#### Motorized fire dampers electrical wiring

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



- 24V AC/DC power supply  
/- Negative (DC) or neutral (AC) black wire  
~/+ Positive (DC) or phase (AC) red wire  
230V AC power supply  
N Neutral blue wire  
L Phase brown wire

#### Microswitches position contacts

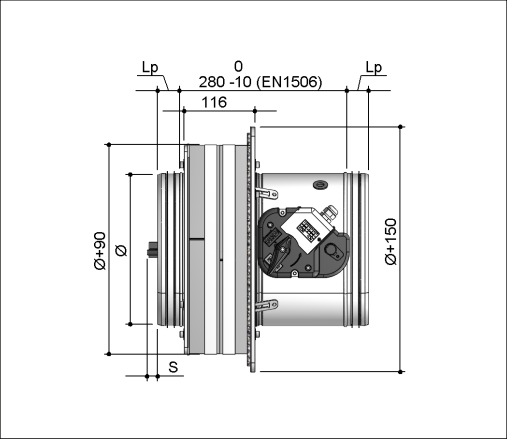
- S1 Common closed damper microswitch  
S2 Normally closed, closed damper microswitch  
S3 Normally opened, closed damper microswitch  
S4 Common open damper microswitch  
S5 Normally closed, open damper microswitch  
S6 Normally opened, open damper microswitch

	Manual and compact manual	Manual with magnet Belimo motorized version Siemens motorized version
Voltage and power consumption	-	Magnet (WHS25MR/MI): 24/48 V DC (automatic voltage switching on SO-25 electric board for 24 V magnet)
		Power interruption magnet (MR): P = 1,6 W
		Power input magnet (MI): P = 3,4 W
		Motor 24 V AC/DC (WHS25VSB): Belimo BFL24T Opening: 2,5 W In stand-by: 0,8 W
Microswitches position contacts	Manual control version: 12 V DC / 2 A 125 V AC / 0,1 A	Motor 230 V AC (WHS25DSB): Belimo BFL230T: Opening: 3,5 W In stand-by: 1,1 W
		Motor 24 V AC/DC (WHS25VSS): Siemens GRA126 Opening: 3,5 W In stand-by: 2 W
		Motor 230 V AC (WHS25DSS): Siemens GRA326 Opening: 4,5 W In stand-by: 3,5 W
		Motorized version: Siemens: AC 24 V...230 V / 6 (2) A Belimo: DC 5 V...AC 250 V / 1 mA...3 A (0,5 A)
Blade closing time	Spring: 1 s	motor: < 30 s
Protection degree	IP42	IP42 MAGNETIC VERSION IP54 MOTORIZED VERSION

TECHNICAL DATA

The sizes shown are in mm.

■ Dimension



Ø	mm	100	125	140	150	160	180
S blade exposition	mm	0	0	0	0	0	0
Lp	mm	35	35	35	35	35	35
Ø	mm	200	224	250	280	300	315
S blade exposition	mm	0	4	17	32	42	50
Lp	mm	35	35	35	35	35	35

Lp Overlap length between fire damper and duct

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.  
It is recommended to keep enough space (about 200mm) for using or replacing the control mechanism or for maintenance. Also provide the necessary space to remove the ventilation duct from the damper whenever necessary.  
It is recommended to provide inspection hatches on both sides of the ducts connected to the fire damper.  
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.

■ 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 to carry out the following control activities at intervals of no more than 12 months:

- Check the servomotor electrical wiring for damage (where applicable);
- Check end-switch wiring for damage (where applicable);
- Check damper cleanliness and clean where necessary;
- Check the condition of blades and seals, rectify and report where necessary;

- Check the correct opening and closing of the fire damper by manual operation according to the instructions in the technical manual of the fire damper;
- Check the opening and closing operation of the damper controlled by the fire alarm system (if present);
- Check the operation of the end switches in open and closed state, adjust and report if necessary;
- Confirm that the damper fulfils its function as part of the control system (where necessary);
- Check that the damper is left in its normal operating position, which usually corresponds to the open position.

#### ■ Repair

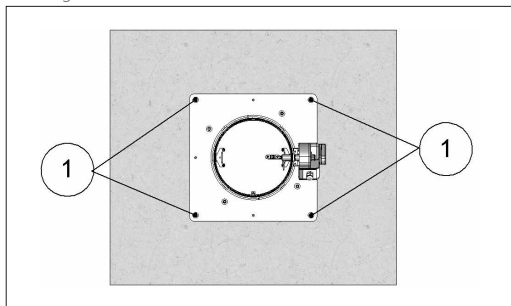
For safety reasons, repair activities involving fire-fighting components must be carried out only by qualified personnel.

## 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.

#### ■ Fixing method

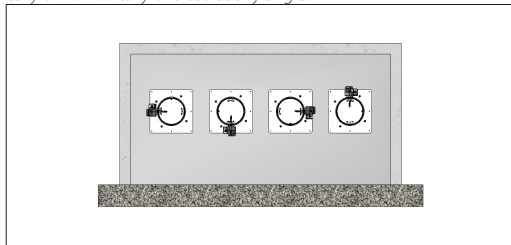


1. Fixing screws

For further details please refer to each specific installation.

#### ■ Blade rotation axis positioning

The fire damper can be installed with the blade axis positioned vertically or horizontally or tilted at any angle.



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

**ATTENTION: the following indications must be considered binding only if legislation or local regulation where the fire dampers are installed require the use of flexible connectors.**

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.

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.

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

A functional test must be performed after each repair.

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.

#### ■ 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.

Flexible connector must be normal flammability and in case of fire the grounding bonding should disconnect 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)

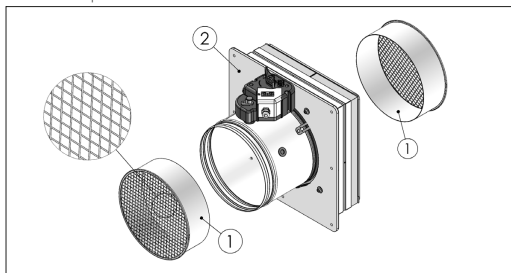
Note: For this application please refer to national legislation to verify if any specific obligation is required.

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.
- End cap with mesh is supplied not installed on the fire damper.

#### ■ Components (Transfer Application)

1. End cap with mesh (to fix to fire damper with steel screws)
2. Fire damper





■ Technical data (Transfer Application)

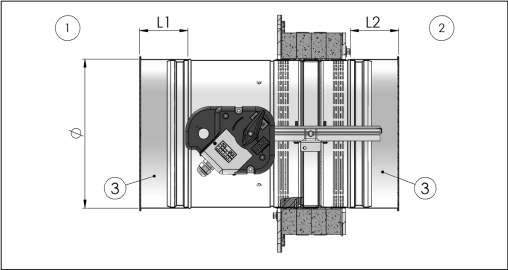
1. Mechanism side

2. Mechanism opposite side

3. End cap with mesh

L1 End cap length mechanism side
- L2 End cap length mechanism opposite side

Ø Fire damper nominal diameter



Length of end cap with mesh depending on fire damper diameter Ø.

Ø	L1	L2
100	40	40
125	40	40
140	40	40
150	40	40
160	40	40
180	40	40
200	40	60
224	40	40
250	60	80
280	60	100
300	60	100
315	60	120

- Ø Fire damper nominal diameter
- L1 End cap length mechanism side
- L2 End cap length mechanism opposite side

■ Minimum distances

It is recommended to keep enough space (about 200mm) for using or replacing the control mechanism or for maintenance. Also provide the necessary space to remove the ventilation duct from the damper whenever necessary.  
In accordance with Articles 7 and 13 of EN 1366-2 respect the minimum distances indicated below.

Minimum distances

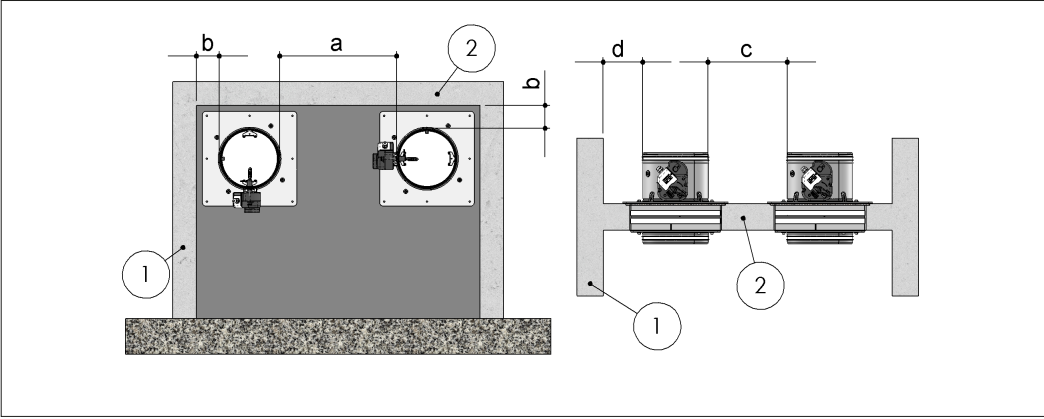
1. Side vertical wall

2. Floor

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

c. Distance between fire dampers installed within floor

d. Distance between fire damper and vertical lateral wall



		Fire dampers installed within vertical wall		Fire dampers installed within floor	
Installation		a [mm]	b [mm]	c [mm]	d [mm]
Rigid wall	El 120 S Installation within vertical rigid wall	200	75	-	-
Flexible wall	El 120 S Installation within vertical light wall (plasterboard)	200	75	-	-
	El 120 S Installation within vertical light wall (plasterboard)	200	75	-	-
	El 120 S Installation within vertical light wall (gypsum blocks wall)	200	75	-	-
	El 90 S Installation within vertical light wall (gypsum blocks wall)	200	75	-	-
Floor	El 120 S Installation within floor	-	-	200	75
	El 90 S Installation within floor	-	-	200	75

#### ■ Fire Batt (Weichschott) sealings

		Fire dampers installed within vertical wall		Fire dampers installed within floor	
Installation		a [mm]	b [mm]	c [mm]	d [mm]
Rigid wall	El 120 S Installation within vertical rigid wall with Fire Batt (Weichschott) sealing Rock wool 140 kg/m³ and endothermic varnish sealing	200	75	-	-
Flexible wall	El 120 S Installation within vertical light wall (plasterboard) with Fire Batt (Weichschott) sealing Rock wool 140 kg/m³ and endothermic varnish sealing	200	75	-	-
	El 120 S Installation within vertical light wall (gypsum blocks wall) with Fire Batt (Weichschott) sealing Rock wool 140 kg/m³ and endothermic varnish sealing	200	75	-	-
Floor	El 90 S Installation within floor and Fire Batt (Weichschott) sealing Rock wool 140 kg/m³ and endothermic varnish sealing	-	-	200	75

#### ■ 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	El 90 S Installation within vertical light wall (Shaft wall)	200	75	-	-

#### ■ 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

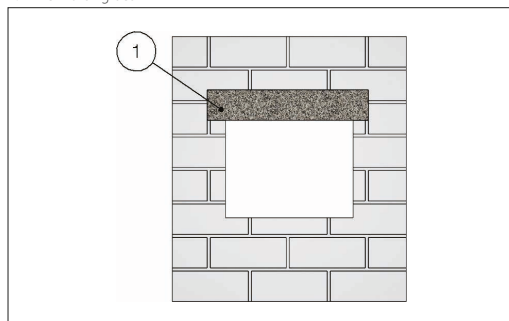
Can be made with aerated concrete blocks, poured concrete, concrete panels, perforated cell elements in concrete or brick in accordance with the following characteristics:

- 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:

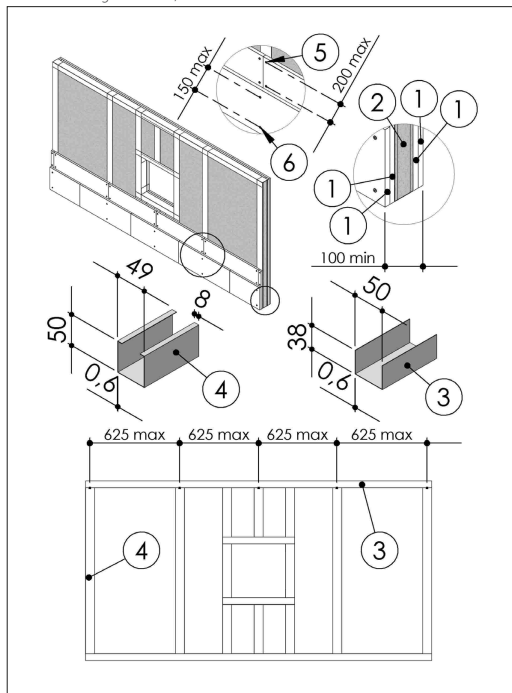
- U-shaped horizontal metal frame (50 mm) and C-shaped vertical frame (49 mm) made from 0,6 mm thick sheet metal;
- Vertical profiles placed with a maximum spacing of 1000 mm between each other (**625 mm only for installations with Weichschott sealing**);

- Filling made of rock wool with density up to  $80 \text{ kg/m}^3$  (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 1000 mm between each other (**625 mm only for installations with Weichschott sealing**);
- 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  $80 \text{ kg/m}^3$  (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  $80 \text{ kg/m}^3$  (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 with steel reinforcement

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

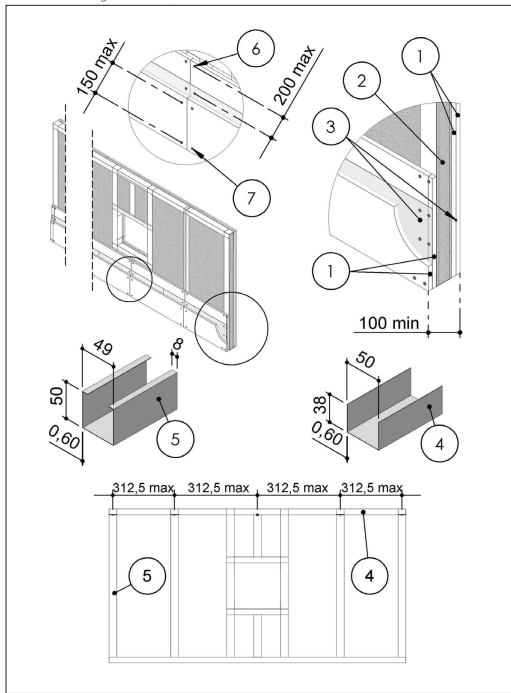
- U-shaped horizontal metal frame (50 mm) and C-shaped vertical frame (49 mm) made from 0,6 mm thick sheet metal;
- Vertical profiles placed with a maximum spacing of 312,5 mm between each other;
- reinforcement sheet;

- Filling made of rock wool with density up to  $100 \text{ kg/m}^3$  (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 312,5mm 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  $100 \text{ kg/m}^3$  (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  $100 \text{ kg/m}^3$  (optional)
3. Reinforcement sheet
4. Horizontal U-shaped profile
5. Vertical C-shaped profile
6. Self-drilling screw  $\varnothing 3,5 \times 25 \text{ mm}$
7. Self-drilling screw  $\varnothing 3,5 \times 35 \text{ mm}$



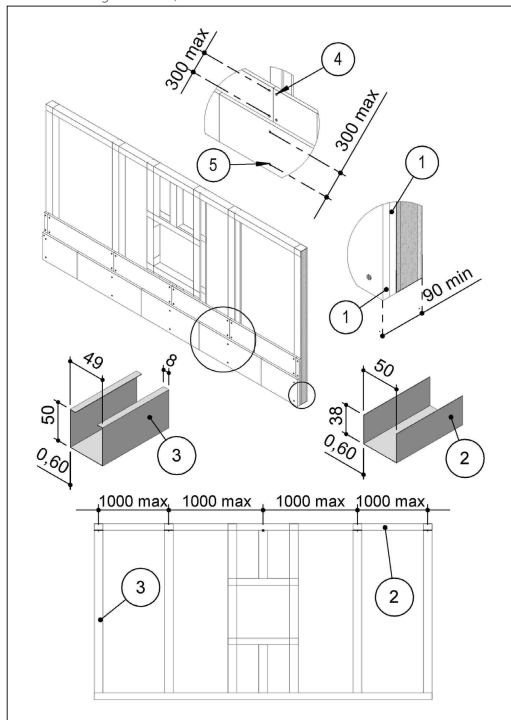
#### ■ Light plasterboard vertical walls (Shaft wall)

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
4. Self-drilling screw Ø 3,5 X 35 mm
5. Self-drilling screw Ø 3,5 X 55 mm



#### ■ Installations within vertical rigid wall

Refer to the section Construction supports characteristics for further information.

Comply with the minimum distances indicated on section Minimum distances.

Before and after installation please perform a functional test. Refer to section Mechanism type for further information.

#### ■ Wall opening

An 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 drawing.

Be careful not to damage the external intumescent gasket.

Secure the fire damper to the construction support with:

- 4 screws M6 X 45 mm (minimum)
- 4 steel washer
- 4 anchors M6 x 45 mm (minimum)

#### ■ 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/m<sup>3</sup>.

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

#### ■ Aerated concrete floors

Aerated concrete floors can be built during installation or with pre-formed slabs with interlocking shaped edges according to the following characteristics:

- minimum thickness 100 or 150 mm according to the type and resistance class required;
- minimum density 650 kg/m<sup>3</sup>

#### ■ Poured concrete floors

Poured concrete floors can be built during installation or with pre-formed slabs with interlocking shaped edges according to the following characteristics:

- minimum thickness 100 or 150 mm according to the resistance class required;
- minimum density 2200 kg/m<sup>3</sup>.

Close the blade before installing the fire damper.

#### ■ Filling

It is not necessary to insert any material between construction support and damper.

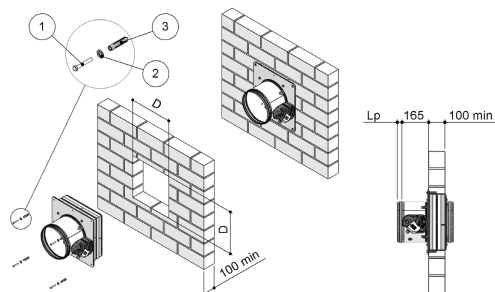
Sealing with concrete is not allowed.

	Fire resistance classification	"D" hole size [mm]	Wall minimum thickness "S" [mm]
<b>EI 120 S Installation within vertical rigid wall</b>			
Wall minimum density 550 kg/m <sup>3</sup>	EI 120 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	100

Lp Overlap length between fire damper and duct: see section Dimension

D Hole size: see table above

1. Screw M6 X 45 mm (minimum)
2. Steel washer
3. Anchor M6 x 45 mm (minimum)



#### ■ Installations within vertical light wall (plasterboard)

Refer to the section Construction supports characteristics for further information.

Comply with the minimum distances indicated on section Minimum distances.

Before and after installation please perform a functional test. Refer to section Mechanism type for further information.

#### ■ 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 drawing.

Be careful not to damage the external intumescent gasket.

Secure the fire damper to the construction support with:

- 4 self-drilling screws Ø 3,5 X 45 mm
- 4 steel washer

Close the blade before installing the fire damper.

#### ■ Filling

It is not necessary to insert any material between construction support and damper.

Sealing with concrete is not allowed.

	Fire resistance classification	"D" hole size [mm]	Wall minimum thickness "S" [mm]
<b>EI 120 S Installation within vertical light wall (plasterboard)</b>			
Wall rock wool density up to 80 kg/m <sup>3</sup> (optional) With metal frame around fire damper Without plasterboard infill panel	EI 120 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	100
<b>EI 120 S Installation within vertical light wall (plasterboard)</b>			
Wall rock wool density up to 80 kg/m <sup>3</sup> (optional) Without metal frame around fire damper With plasterboard infill panel	EI 120 S (500 Pa)	(Ø + 125) x (Ø + 125) (square hole)	100

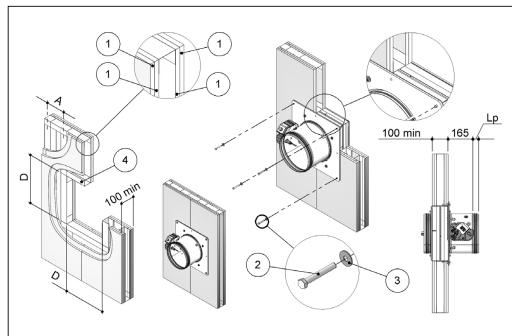
#### EI 120 S Installation within vertical light wall (plasterboard) with metal frame around the damper

1. Plasterboard thickness 12,5 mm
2. Self-drilling screw Ø 3,5 X 45 mm
3. Washer
4. Metal frame

Lp Overlap length between fire damper and duct: see section Dimension

D Hole size: see table above

A Distance between vertical profiles: 625 mm see section Light plasterboard vertical walls or 312,5 mm see section Light plasterboard vertical walls with steel reinforcement

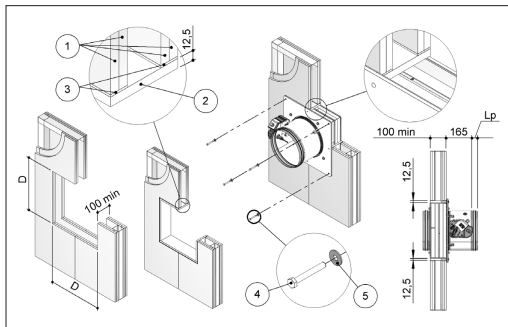


#### EI 120 S Installation within vertical light wall (plasterboard) without metal frame around the damper

1. Plasterboard thickness 12,5 mm
2. Plasterboard infill panel, thickness 12,5 mm
3. Plaster putty
4. Self-drilling screw Ø 3,5 X 45 mm
5. Washer

Lp Overlap length between fire damper and duct: see section Dimension

D Hole size: see table above



#### ■ Installation within vertical light wall (gypsum blocks wall)

Refer to the section Construction supports characteristics for further information.

Comply with the minimum distances indicated on section Minimum distances.

Before and after installation please perform a functional test. Refer to section Mechanism type for further information .

■ 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 drawing.  
Be careful not to damage the external intumescent gasket.

Secure the fire damper to the construction support with:

- 4 screws M6 X 45 mm (minimum)
- 4 steel washer
- 4 anchors M6 x 45 mm (minimum)

Close the blade before installing the fire damper.

■ Filling

It is not necessary to insert any material between construction support and damper.  
Sealing with concrete is not allowed.

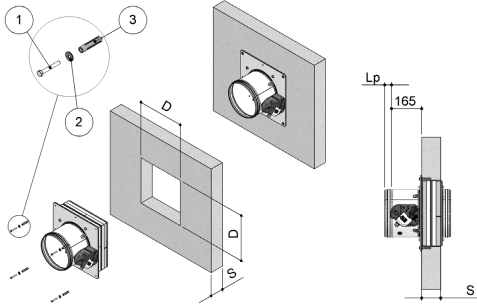
	Fire resistance classification	"D" hole size [mm]	Wall minimum thickness "S" [mm]
<b>EI 120 S Installation within vertical light wall (gypsum blocks wall)</b>			
Wall minimum density 995 kg/m <sup>3</sup>	EI 120 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	70
<b>EI 90 S Installation within vertical light wall (gypsum blocks wall)</b>			
Wall minimum density 995 kg/m <sup>3</sup>	EI 90 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	100

D Hole size: see table above

S Wall minimum thickness: see table above

Lp Overlap length between fire damper and duct: see section Dimension

1. Screw M6 X 45 mm (minimum)
2. Steel washer
3. Anchor M6 x 45 mm (minimum)



■ Installations within floor

Refer to the section Construction supports characteristics for further information.

Comply with the minimum distances indicated on section Minimum distances .

Before and after installation please perform a functional test. Refer to section Mechanism type for further information .

■ Floor opening

A opening must be provided in the floor 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 drawing.

Be careful not to damage the external intumescent gasket.

The fire damper must be positioned just above the floor as indicated in the drawing.

Secure the fire damper to the construction support with:

- 4 screws M6 X 45 mm (minimum)
- 4 steel washer
- 4 anchors M6 x 45 mm (minimum)

Close the blade before installing the fire damper.

■ Filling

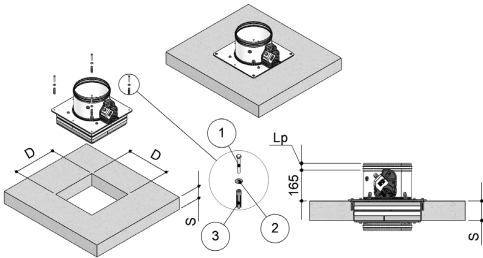
It is not necessary to insert any material between construction support and damper.  
Sealing with concrete is not allowed.

	Fire resistance classification	"D" hole size [mm]	Floor minimum thickness "S" [mm]
<b>EI 120 S Installation within floor</b>			
Floor minimum density 650 kg/m <sup>3</sup>	EI 120 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	150
<b>EI 90 S Installation within floor</b>			
Floor minimum density 650 kg/m <sup>3</sup>	EI 90 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	100

The fire damper must be positioned just above the floor as indicated in the drawing.

- 1. Floor
- 2. Fire damper

- D Hole size: see table above
- S Floor minimum thickness: see table above
- Lp Overlap length between fire damper and duct: see section Dimension
- 1. Screw M6 X 45 mm (minimum)
- 2. Steel washer
- 3. Anchor M6 x 45 mm (minimum)



■ Installations within vertical wall with Fire Batt (Weichschott) sealing  
Refer to the section Construction supports characteristics for further information.  
Comply with the minimum distances indicated on section Minimum distances .  
Refer to section Indications for the correct duct suspension and for damper connection for further information.  
Before and after installation please perform a functional test. Refer to section Mechanism type for further information .

■ 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 drawing.

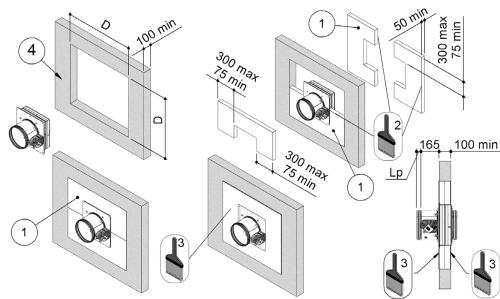
The fire damper has to be fixed at the bottom and suspended from the ceiling.  
Close the blade before installing the fire damper.

■ Filling

Fill the space between the damper and the wall using Fire Batt (Weichschott) sealing made from two rock wool panels with minimum thickness of 50 mm and minimum density of 140 kg/m³.  
The panels must be covered on both faces of the wall with endothermic varnish type PROMASTOP E PASTE or HILTI CFS-CT (minimum thickness of 1 mm) and with an internal perimeter sealant type PROMASTOP E PASTE or HILTI CFS-S ACR (minimum thickness of 1 mm).  
Don't use fixing screws

	Fire resistance classification	"D" hole size [mm]	Wall minimum thickness "S" [mm]	Sealing	
Rigid wall	EI 120 S Installation within rigid vertical wall with Fire Batt (Weichschott) sealing				
	Wall minimum density 550 kg/m³	EI 120 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	100	Rock wool 140 kg/m³ and endothermic varnish sealing
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard) with Fire Batt (Weichschott) sealing				
	Wall rock wool density up to 80 kg/m³ (optional)	EI 120 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	100	Rock wool 140 kg/m³ and endothermic varnish sealing
	EI 120 S Installation within vertical light wall (gypsum blocks wall) with Fire Batt (Weichschott) sealing				
	Wall minimum density 995 kg/m³	EI 120 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	100	Rock wool 140 kg/m³ and endothermic varnish sealing

1. Rock wool panel 50 mm thick with 140 kg/m<sup>3</sup> density.
  2. PROMASTOP E PASTE or HILTI CFS-S ACR type sealant
  3. PROMASTOP E PASTE or HILTI CFS-CT endothermic varnish
  4. Wall indicated in the table
- Lp Overlap length between fire damper and duct: see section Dimension  
D Hole size: see table above  
S Wall minimum thickness: see table above



■ Installation within floor with Fire Batt (Weichschott) sealing  
Refer to the section Construction supports characteristics for further information.  
Comply with the minimum distances indicated on section Minimum distances .  
Refer to section Indications for the correct duct suspension and for damper connection for further information.  
Before and after installation please perform a functional test. Refer to section Mechanism type for further information .

■ Floor opening

A opening must be provided in the floor 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 drawing.

Be careful not to damage the external intumescent gasket.  
The fire damper must be positioned just above the floor as indicated in the drawing.  
Close the blade before installing the fire damper.

■ Filling

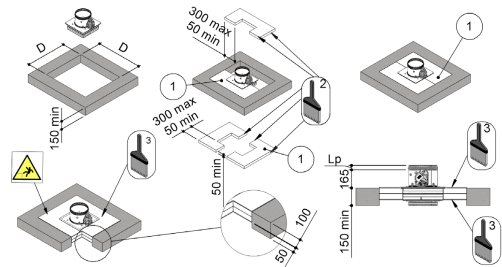
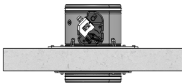
Fill the space between the damper and the floor using Fire Batt (Weichschott) sealing made from two rock wool panels with minimum thickness of 50 mm and minimum density of 140 kg/m<sup>3</sup>.  
The panels must be covered on both faces of the wall with endothermic varnish type PROMASTOP E PASTE or HILTI CFS-CT (minimum thickness of 1 mm) and with an internal perimeter sealant type PROMASTOP E PASTE or HILTI CFS-S ACR (minimum thickness of 1 mm).  
Don't use fixing screws

	Fire resistance classification	"D" hole size [mm]	Floor minimum thickness "S" [mm]	Sealing
EI 90 S Installation within floor and Fire Batt (Weichschott) sealing				
Floor minimum density 650 kg/m <sup>3</sup>	EI 90 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	150	Rock wool 140 kg/m <sup>3</sup> and endothermic varnish sealing

The fire damper must be positioned just above the floor as indicated in the drawing.

1. Floor
2. Fire damper

1. Rock wool panel 50 mm thick with 140 kg/m<sup>3</sup> density.
  2. PROMASTOP E PASTE or HILTI CFS-S ACR type sealant
  3. PROMASTOP E PASTE or HILTI CFS-CT endothermic varnish
- Lp Overlap length between fire damper and duct: see section Dimension  
D Hole size: see table above  
S Floor minimum thickness: see table above



■ Installation within vertical light wall (Shaft wall)

Refer to the section Construction supports characteristics for further information.

Comply with the minimum distances indicated on section Minimum distances .



Before and after installation please perform a functional test. Refer to section Mechanism type for further information .

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 drawing.

Be careful not to damage the external intumescent gasket. Secure the fire damper to the construction support with:

- 4 screws M6 X 45 mm (minimum)
  - 4 steel washer
- Close the blade before installing the fire damper.

Filling

It is not necessary to insert any material between construction support and damper.  
Sealing with concrete is not allowed.

Fire resistance classification	"D" hole size [mm]	Wall minimum thickness "S" [mm]
EI 90 S Installation within vertical light wall (Shaft wall)		
EI 90 S (300 Pa)	( $\varnothing + 100$ ) x ( $\varnothing + 100$ ) (square hole)	90

1. Plasterboard thickness 20 mm
  2. Plasterboard arch infill, thickness 20 mm
  3. Mortar M-10, EN998-2 or plaster putty
  4. Metal frame
  5. Self-drilling screw  $\varnothing 3,5$  X 45 mm
  6. Screw M6 X 45 mm (minimum)
  7. Steel washer
- D Hole size: see table above  
Lp Overlap length between fire damper and duct: see section Dimension

