

WHS25

Technical Manual
Installation type with fire resistance class
English
FIRE DAMPER
CIRCULAR SERIES WHS25 - 500 Pa
Cert. N° 1812-CPR-1226



This is a 46 page manual.

1. Overview	p. 4
1.1. Description	p. 4
1.2. General characteristics	p. 4
1.3. European Standards applied	p. 4
1.4. Certifications and approvals	p. 4
1.5. Components	p. 4
1.6. Available dimensions	p. 4
1.7. Performances	p. 5
1.8. Fire resistance classification according to EN 13501-3-2009	p. 5
1.9. Mechanism type	p. 7
2. Technical data	p. 10
2.1. Dimension	p. 10
2.2. Weights	p. 10
3. Installation	p. 11
3.1. Intended use	p. 11
3.2. Not allowed uses	p. 11
3.3. Fixing method	p. 11
3.4. Blade rotation axis positioning	p. 11
3.5. Installation of flexible connectors in order to balance out the ventilation ducts expansion	p. 11
3.6. Transfer Application (application not connected to air ducts on one or both sides)	p. 13
3.7. Minimum distances	p. 15
3.8. Construction supports characteristics	p. 17
3.9. Installations within vertical rigid wall	p. 20
3.10. Installations within vertical light wall (plasterboard)	p. 21
3.11. Installation within vertical light wall (gypsum blocks wall)	p. 23
3.12. Installations within floor	p. 24
3.13. Installations within vertical wall with Fire Batt (Weichschott) sealing	p. 26
3.14. Installation within floor with Fire Batt (Weichschott) sealing	p. 28
3.15. Installation within vertical light wall (Shaft wall)	p. 30
4. Electrical connections	p. 31
4.1. Electrical wiring	p. 31
4.2. Electrical specifications	p. 33
5. Maintenance and inspections	p. 34
5.1. Periodic inspection and cleaning	p. 34
5.2. Repair	p. 34
5.3. Disposal	p. 34
6. Selection	p. 35
6.1. Air flow rates in relation to the diameter	p. 35
6.2. Air flow rates as a function of the pressure drop	p. 35
6.3. Air flow rates as a function of generated sound levels	p. 35
6.4. Pressure drop and sound level graph	p. 36
6.5. Sound spectrum table	p. 36
7. Accessories and spare parts	p. 37
8. How to order	p. 41
8.1. Motorized fire dampers	p. 41
8.2. Fire damper with manual control	p. 41
8.3. Electric motor driven actuators	p. 41
9. Specification Text	p. 42
9.1. Series WHS25 compact circular fire dampers	p. 42
10. Revision Index	p. 43

1. OVERVIEW

1.1. Description

Fire dampers WHS25 are devices for use in heating, ventilation and air-conditioning (HVAC) systems at fire boundaries to maintain compartmentation and protect means of escape in case of fire. They satisfy integrity, insulation and smoke leakage criteria for the declared time of fire resistance.

Tested and classed in accordance with EN 1366-2 and EN 13501-3 regulations with 500 Pa depression.

Studied and optimized for small diameter ducts and reduced installation space focusing on aerualic and acoustical performance.

1.3. European Standards applied

CE certification	EN 15650
Test	EN 1366-2
Classification	EN 13501-3
Thermal fuse reliability	ISO 10294-4
Air tightness	EN 1751
Resistance to corrosive environments	EN 60068-2-52

1.4. Certifications and approvals

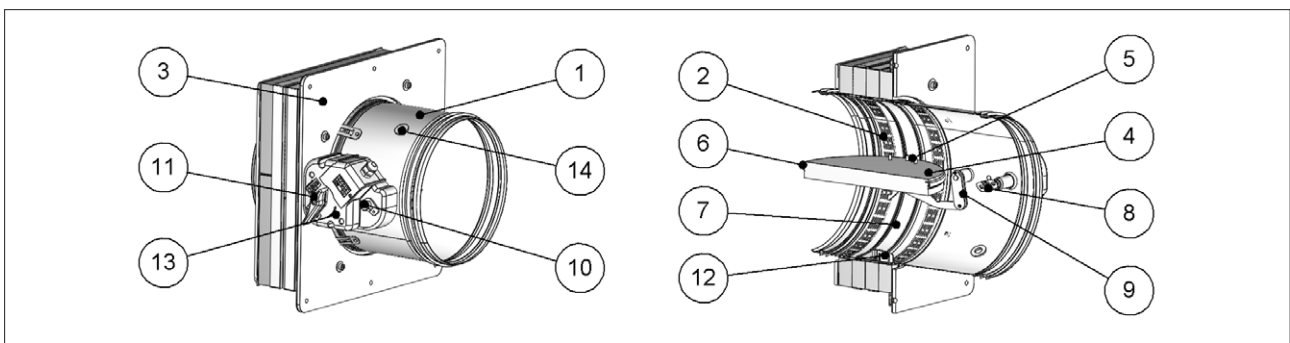
CE Certificate of Constancy of Performance

n° 1812-CPR-1226

Efectis

1.5. Components

1. Casing made from galvanized carbon steel.
2. Thermal labyrinth
3. Reinforcement WHS25
4. Damper blade made from refractoring material
5. Blade pivot
6. Cold smoke air seal gasket
7. Intumescent graphite gasket on inside of casing for the hot seal of the blade once closed
8. Temperature controlled closing device (thermal fuse)
9. Blade actioning device
10. Manual closing device (Test button)
11. Manual reset lever
12. Closed blade stopper
13. Protection box
14. Inspection opening Ø 18mm for endoscope (available only for non-motorized version)



1.6. Available dimensions

Ø	mm	100	125	140	150	160	180	200	224	250	280	300	315
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1.7. Performances

Performance	Reference standard	Class
Thermal fuse testing	ISO 10294-4	Compliant
Open and Close cycle reliability	EN 15650	Compliant
Resistance to corrosion in humid and saline environments	EN 60068-2-52	Degree of severity 2
Casing tightness	EN 1751	Class C
Blade seal	EN 1751	Class 3 minimum

1.8. 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 p. 20				
	Wall minimum thickness 100 mm	∅	∅	∅	∅
	Wall minimum density 550 kg/m ³ ve (i↔o)	D min 100 max 315	min 100 max 315	min 100 max 315	min 100 max 315
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard) p. 21				
	Wall minimum thickness 100 mm				
	With metal frame around fire damper				
	Without plasterboard infill panel	D	∅	∅	∅
	ve (i↔o)	min 100 max 315	min 100 max 315	min 100 max 315	min 100 max 315
	Wall rock wool density up to 80 kg/m ³ (optional)				
	EI 120 S Installation within vertical light wall (plasterboard) p. 21				
	Wall minimum thickness 100 mm				
	Without metal frame around fire damper				
	With plasterboard infill panel	D	∅	∅	∅
ve (i↔o)	min 100 max 315	min 100 max 315	min 100 max 315	min 100 max 315	
Wall rock wool density up to 80 kg/m ³ (optional)					
Floor	EI 90 S Installation within vertical light wall (gypsum blocks wall) p. 23				
	Wall minimum thickness 70 mm	D	-	∅	∅
	Wall minimum density 995 kg/m ³ ve (i↔o)			min 100 max 315	min 100 max 315
	EI 120 S Installation within vertical light wall (gypsum blocks wall) p. 23				
	Wall minimum thickness 100 mm	D	∅	∅	∅
	Wall minimum density 995 kg/m ³ ve (i↔o)	min 100 max 315	min 100 max 315	min 100 max 315	min 100 max 315
Floor	EI 90 S Installation within floor p. 24				
	Floor minimum thickness 100 mm	D	-	∅	∅
	Floor minimum density 650 kg/m ³ ho (i↔o)			min 100 max 315	min 100 max 315
	EI 120 S Installation within floor p. 24				
Floor minimum thickness 150 mm	D	∅	∅	∅	
Floor minimum density 650 kg/m ³ ho (i↔o)	min 100 max 315	min 100 max 315	min 100 max 315	min 100 max 315	

∅ is the minimum and maximum nominal diameter of fire dampers 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
 Cert. N° 1812-CPR-1226

1.8.1. Fire Batt (Weichschott) sealings

		EI 120 S (300 Pa)	EI 90 S (300 Pa)	EI 60 S (300 Pa)	EI 30 S (300 Pa)
Rigid wall	EI 120 S Installation within vertical rigid wall with Fire Batt (Weichschott) sealing p. 26				
	Wall minimum thickness 100 mm		∅	∅	∅
	Wall minimum density 550 kg/m ³ Rock wool 140 kg/m ³ and endothermic varnish sealing ve (i↔o)	W	min 100 max 315	min 100 max 315	min 100 max 315
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard) with Fire Batt (Weichschott) sealing p. 26				
	Wall minimum thickness 100 mm		∅	∅	∅
	Wall rock wool density up to 80 kg/m ³ (optional) Rock wool density 140 kg/m ³ and endothermic varnish sealing ve (i↔o)	W	min 100 max 315	min 100 max 315	min 100 max 315
Flexible wall	EI 120 S Installation within vertical light wall (gypsum blocks wall) with Fire Batt (Weichschott) sealing p. 26				
	Wall minimum thickness 100 mm		∅	∅	∅
	Wall minimum density 995 kg/m ³ Rock wool 140 kg/m ³ and endothermic varnish sealing ve (i↔o)	W	min 100 max 315	min 100 max 315	min 100 max 315
Floor	EI 90 S Installation within floor and Fire Batt (Weichschott) sealing p. 28				
	Floor minimum thickness 150 mm			∅	∅
	Floor minimum density 650 kg/m ³ Rock wool 140 kg/m ³ and endothermic varnish sealing ho (i↔o)	W	-	min 100 max 315	min 100 max 315

1.8.2. Installations within vertical light wall (Shaft wall)

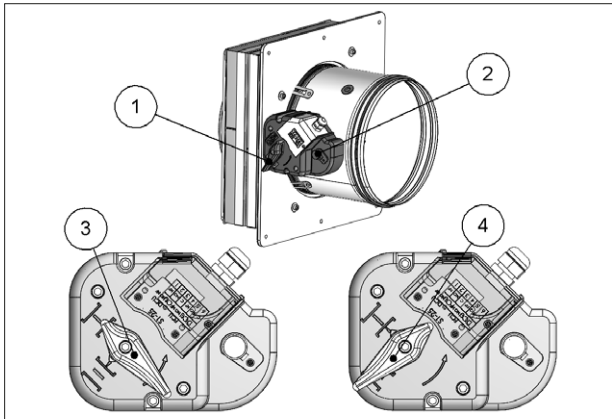
			EI 90 S (300 Pa)	EI 60 S (300 Pa)	EI 30 S (300 Pa)
Flexible wall	EI 90 S Installation within vertical light wall (Shaft wall) p. 30				
	Wall minimum thickness 90 mm ve (i↔o)		D	∅ min 100 max 315	∅ min 100 max 315

1.9. Mechanism type

Mechanism type selection must be done according to national legislation and according to building type where fire damper will be installed. In particular it must be considered

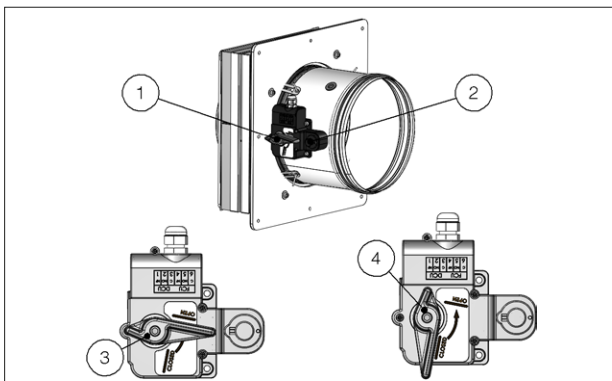
1.9.1. Manual and compact manual

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 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.

if fire alarm system or smoke detection system need specific control over the fire damper or if periodic controls (such as opening and closing) are required.

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 p. 31 for more details.

Closing by remote control

Not available

Temperature calibration of thermosensitive element for automatic damper closing

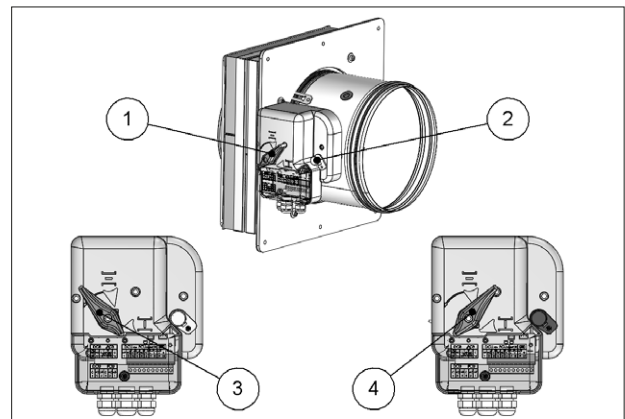
70 °C±7 °C (Standard)

95 °C±9 °C (On request).

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

1.9.2. 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 antyclockwise. 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 [p. 31](#) for more details.

Closing by remote control

With power supply input or interruption magnet.

Temperature calibration of thermosensitive element for automatic damper closing

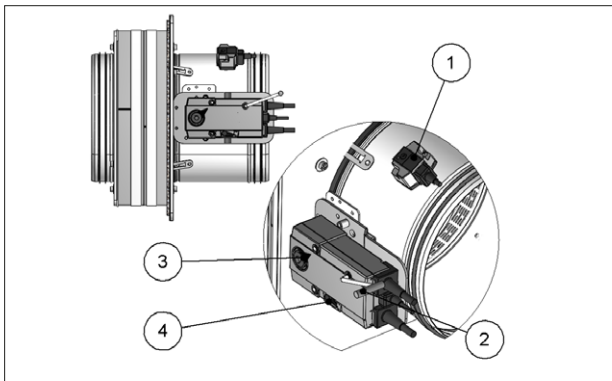
70 °C±7 °C (Standard)

95 °C±9 °C (On request).

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

1.9.3. 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 [p. 31](#) 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 [p. 31](#) for further information.

Closing by remote control

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

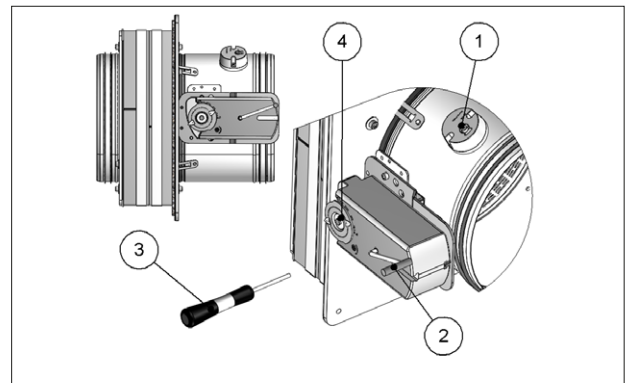
Temperature calibration of thermosensitive element for automatic damper closing

72 °C±7 °C (Standard)

95 °C±9 °C (On request).

1.9.4. 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 [p. 31](#) 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 antyclockwise 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 [p. 31](#) 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

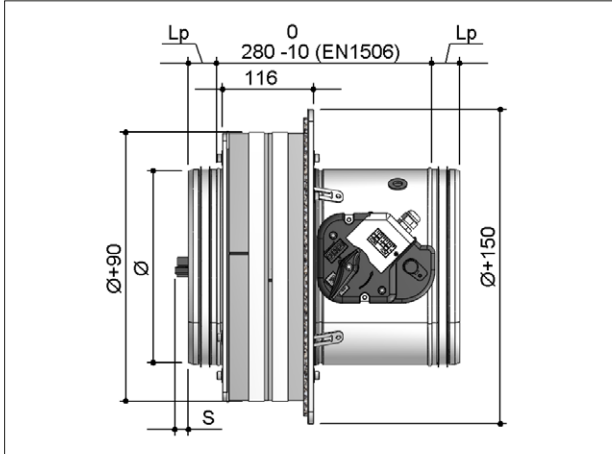
72 °C±7 °C (Standard)

95 °C±9 °C (On request).

2. TECHNICAL DATA

The sizes shown are in mm.

2.1. Dimension

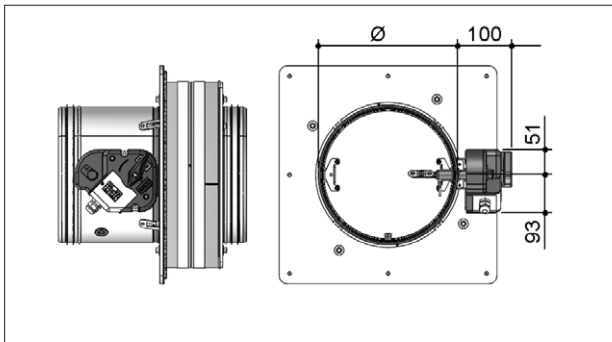


Lp Overlap length between fire damper and duct

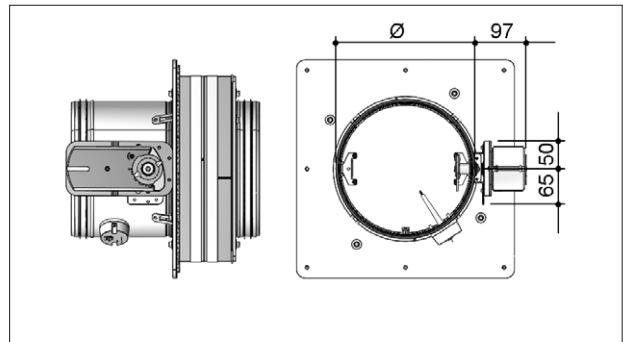
Ø	mm	100	125	140	150	160	180
S blade exposition	mm	0	0	0	0	0	0
Lp	mm	35	35	35	35	35	35

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

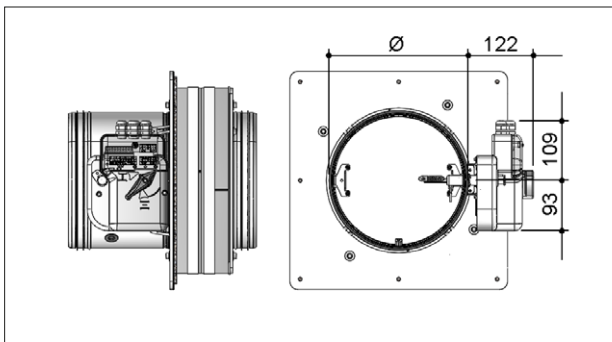
2.1.1. Manual



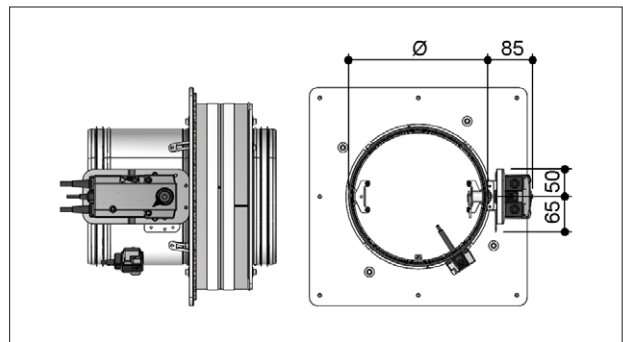
2.1.3. Siemens motorized version



2.1.2. Manual with magnet



2.1.4. Belimo motorized version



2.2. Weights

Ø	mm	100	125	140	150	160	180	200	224	250	280	300	315
Weight	kg	6,6	7,2	7,6	7,8	8,2	8,8	9,6	10,7	12,0	13,7	15,0	16,0

Manual version. Motorized version: +1 kg

3. 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.

3.1. Intended use

The MP3 fire dampers are "Devices for use in heating, ventilation and air conditioning (HVAC) systems at fire boundaries to maintain compartmentation and protect means of escape in case of fire" according to the 3.1 paragraph of EN 15650:2010 standard.

It is compulsory to install the fire damper according to the instructions indicated in the technical data sheet and manual to maintain the declared performances and, in particular, the fire classes.

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 EN1366-2:2015 (paragraph 6.2).

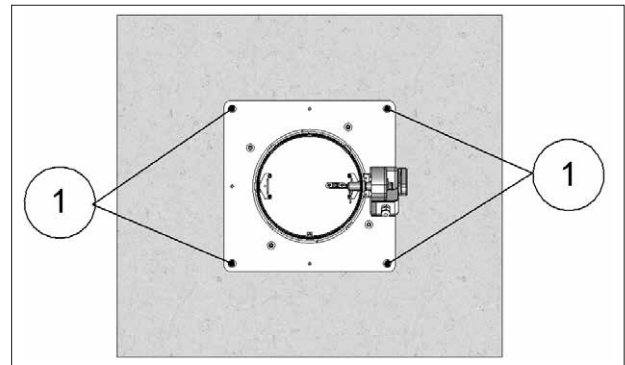
Use permitted in any civil and industrial building.
Use permitted in saline atmosphere, for example:

- maritime and port environments;
- fish markets;
- slaughterhouses;
- cheese makers.

3.2. Not allowed uses

- Use with installations different to those described in the technical data sheet and manual;
- use as smoke control damper;
- use as shut off damper;
- use in external environments without adequate protection from atmospheric conditions;
- use in explosive environments;
- use on board of ships;
- use in cooker extraction hoods;
- use in pneumatic conveying systems of dust or corn;
- use in ventilation systems within locations subject to chemical contamination;
- use in non inspectable environments;
- installation in fire resistant false ceilings crossings;
- use in ventilation ducts where condensation can occur.

3.3. Fixing method

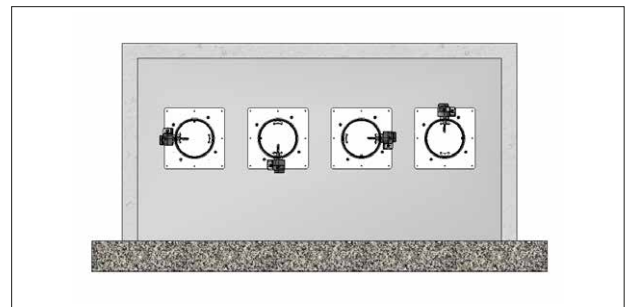


1. Fixing screws

For further details please refer to each specific installation.

3.4. Blade rotation axis positioning

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



3.5. 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.

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.

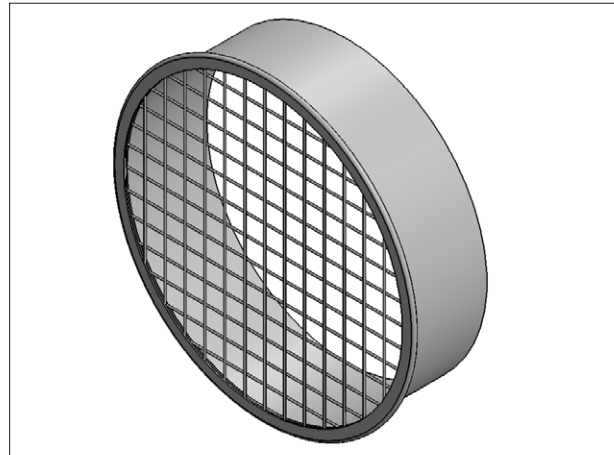
Refer to the section Technical data [p. 10](#) for blade exposition values.

3.6. 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.

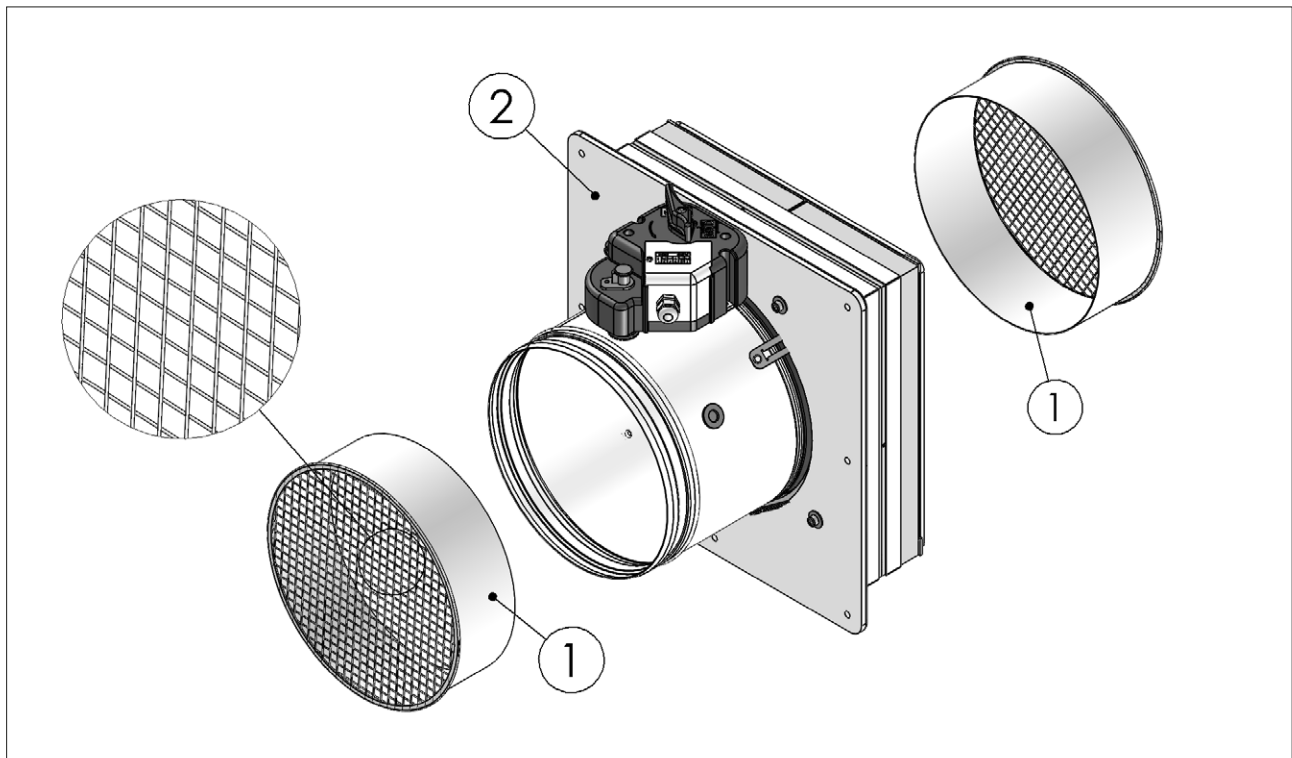
- Attention: fire resistance classification for transfer application is conform to section Fire resistance classification according to EN 13501-3-2009 p. 5 limited to EI 120S if the ducted classification is higher.
- End cap with mesh shall be mounted on the side not connected to air duct.
- End cap with mesh is made from galvanized steel sheet.
- End cap with mesh is supplied not installed on the fire damper.
- Refer to the section How to order (transfer Application) p. 14 for codes to use.



3.6.1. Components (Transfer Application)

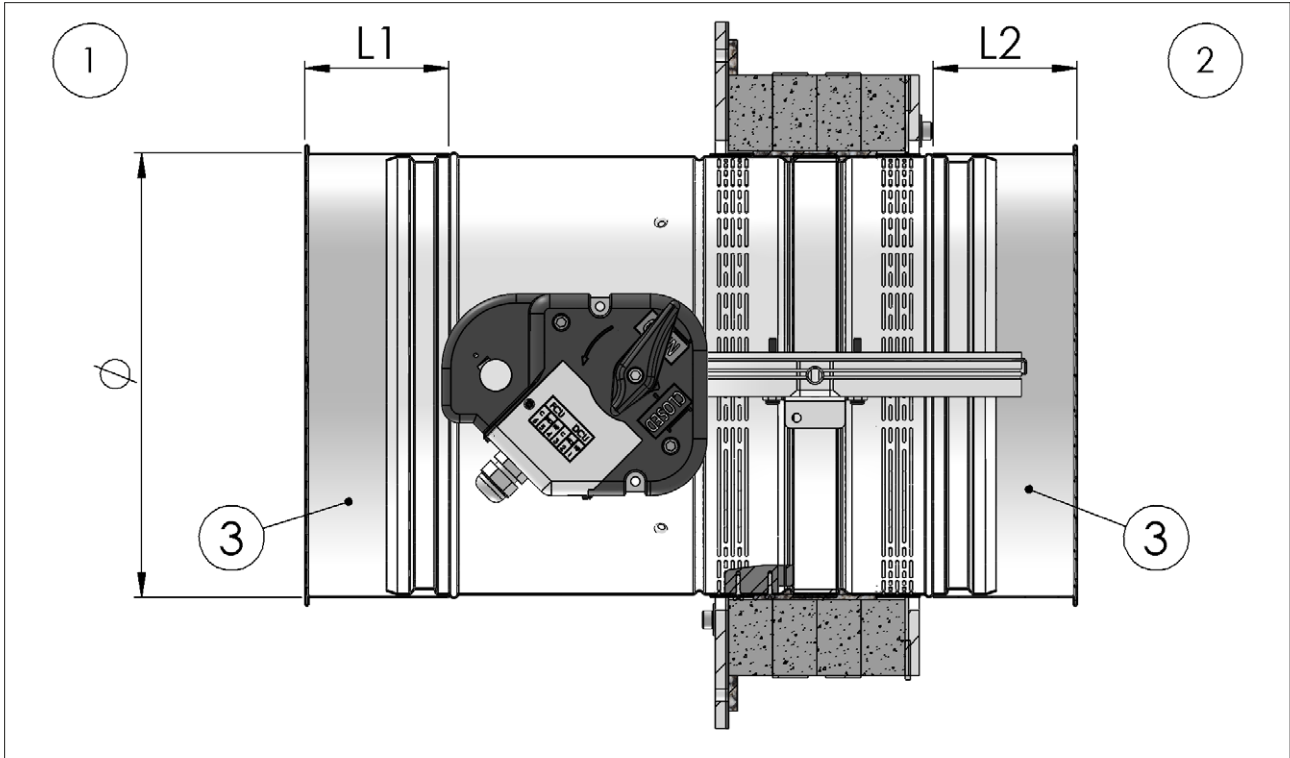
1. End cap with mesh (to fix to fire damper with steel screws)

2. Fire damper



3.6.2. 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
- ∅ Fire damper nominal diameter



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

∅	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

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

3.6.3. How to order (transfer Application)

Code	EPNF	End cap with mesh
Type	XYZ	Nominal diameter dimension (mm)
Diameter	XYZ	Length dimension (mm)
Length		
Examples		Code
End cap with mesh length 80 mm for fire damper ∅100 not connected to air ducts on mechanism side		EPNF10040
End cap with mesh length 60 mm for fire damper ∅200 not connected to air ducts on mechanism opposite side		EPNF20060
End caps with mesh length 60 mm (mechanism side) and length 120 mm (mechanism opposite side) with mesh for fire damper ∅315 not connected to air ducts on both sides		EPNF31560 EPNF315120

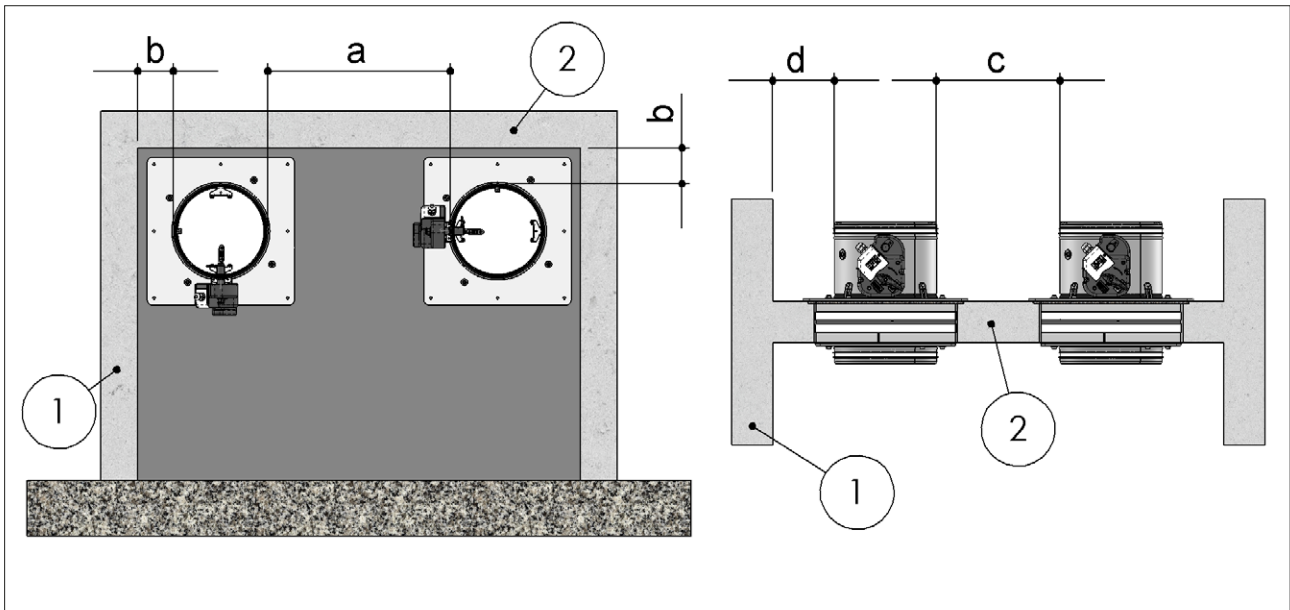
3.7. Minimum distances

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

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Side vertical wall 2. Floor | <ol style="list-style-type: none"> 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 |
|---|--|



Installation	Fire dampers installed within vertical wall		Fire dampers installed within floor	
	a [mm]	b [mm]	c [mm]	d [mm]
Rigid wall				
EI 120 S Installation within vertical rigid wall p. 20	200	75	-	-
Flexible wall				
EI 120 S Installation within vertical light wall (plasterboard) p. 21	200	75	-	-
EI 120 S Installation within vertical light wall (plasterboard) p. 21	200	75	-	-
EI 120 S Installation within vertical light wall (gypsum blocks wall) p. 23	200	75	-	-
EI 90 S Installation within vertical light wall (gypsum blocks wall) p. 23	200	75	-	-
Floor				
EI 120 S Installation within floor p. 24	-	-	200	75
EI 90 S Installation within floor p. 24	-	-	200	75

3.7.1. Fire Batt (Weichschott) sealings

	Installation	Fire dampers installed within vertical wall		Fire dampers installed within floor	
		a [mm]	b [mm]	c [mm]	d [mm]
Rigid wall	EI 120 S Installation within vertical rigid wall with Fire Batt (Weichschott) sealing p. 26 Rock wool 140 kg/m ³ and endothermic varnish sealing	200	75	-	-
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard) with Fire Batt (Weichschott) sealing p. 26 Rock wool 140 kg/m ³ and endothermic varnish sealing	200	75	-	-
	EI 120 S Installation within vertical light wall (gypsum blocks wall) with Fire Batt (Weichschott) sealing p. 26 Rock wool 140 kg/m ³ and endothermic varnish sealing	200	75	-	-
Floor	EI 90 S Installation within floor and Fire Batt (Weichschott) sealing p. 28 Rock wool 140 kg/m ³ and endothermic varnish sealing	-	-	200	75

3.7.2. Installations within vertical light wall (Shaft wall)

	Installation	Fire dampers installed within vertical wall		Fire dampers installed within floor	
		a [mm]	b [mm]	c [mm]	d [mm]
Flexible wall	EI 90 S Installation within vertical light wall (Shaft wall) p. 30	200	75	-	-

3.8. 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.

3.8.1. Rigid walls

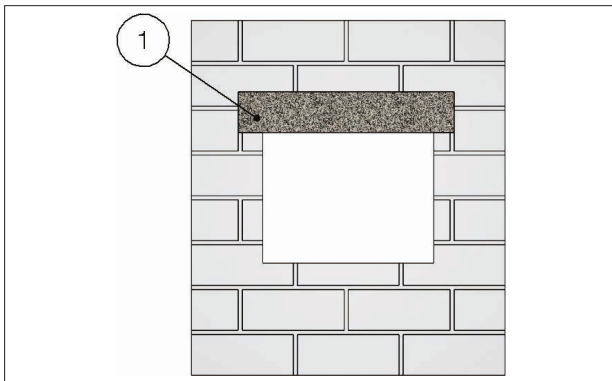
Can be made with aerated concrete blocks, poured concrete, concrete panels, perforated cell elements in concrete or brick in accordance with the following characteristics:

- 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



3.8.2. Light plasterboard vertical walls

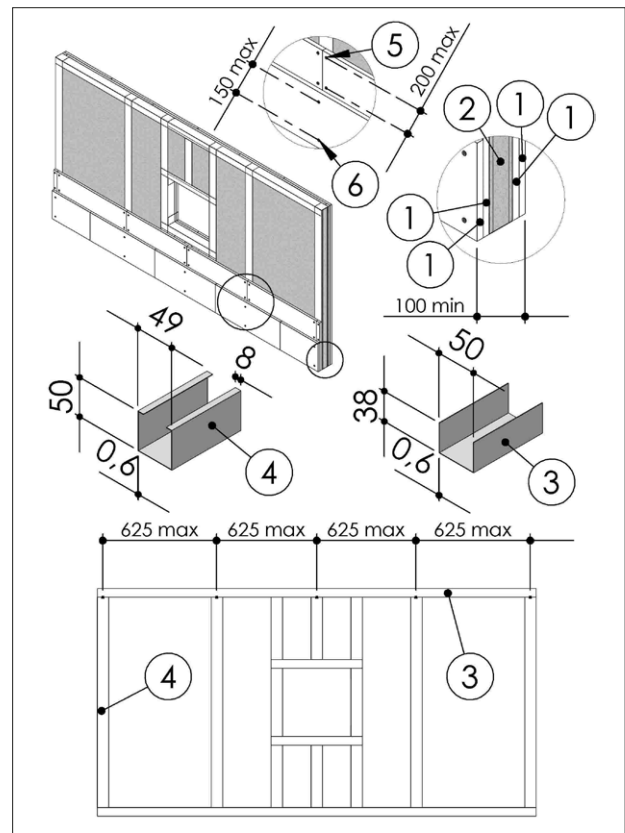
During testing, light plasterboard walls have been used with the following characteristics:

- 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 kg/m³ (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 kg/m³ (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 kg/m³ (optional)
3. Horizontal U-shaped profile
4. Vertical C-shaped profile
5. Self-drilling screw Ø 3,5 X 25 mm
6. Self-drilling screw Ø 3,5 X 35 mm



3.8.3. Light plasterboard vertical walls with steel reinforcement

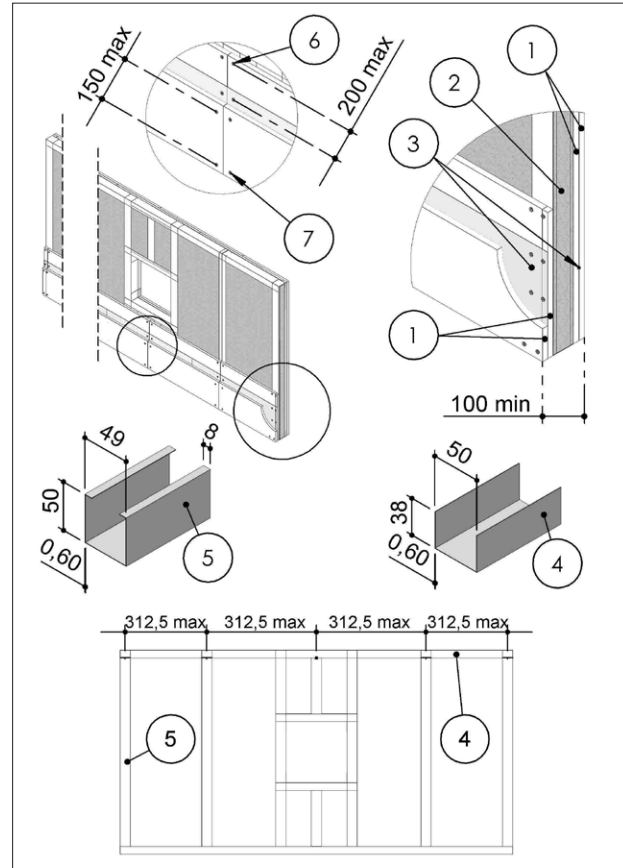
During testing, light plasterboard walls have been used with the following characteristics:

- 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 kg/m³ (optional);
- Each side is made from two plasterboard layers 12,5 mm thick, unalinged 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 kg/m³ (optional);
- each side is made from two plasterboard layers 12,5 mm minimum thick, unalinged 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/m³ (optional)
3. Reinforcement sheet
4. Horizontal U-shaped profile
5. Vertical C-shaped profile
6. Self-drilling screw Ø 3,5 X 25 mm
7. Self-drilling screw Ø 3,5 X 35 mm

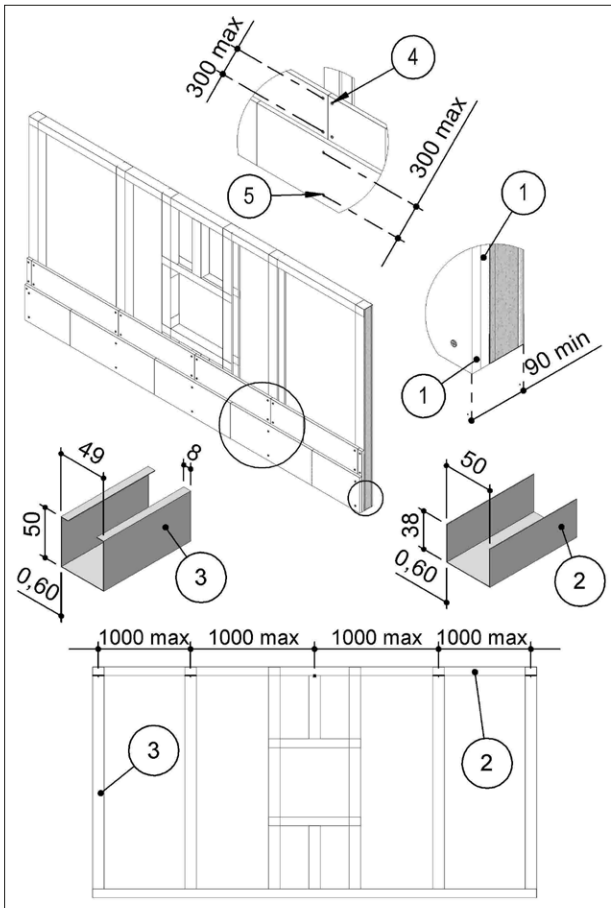


3.8.4. Light plasterboard vertical walls (Shaft wall)

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, unalinged 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 $\varnothing 3,5 \times 35$ mm
5. Self-drilling screw $\varnothing 3,5 \times 55$ mm



3.8.5. 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.

3.8.6. Aerated concrete floors

Aerated concrete floors can be built during installation or with preformed 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/m³

3.8.7. Poured concrete floors

Poured concrete floors can be built during installation or with preformed 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/m³.

3.9. Installations within vertical rigid wall

Refer to the section Construction supports characteristics [p.17](#) for further information.

Comply with the minimum distances indicated on section Minimum distances [p.15](#).

Before and after installation please perform a functional test. Refer to section Mechanism type for further information [p.7](#).

3.9.1. Wall opening

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

3.9.2. 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.

3.9.3. Filling

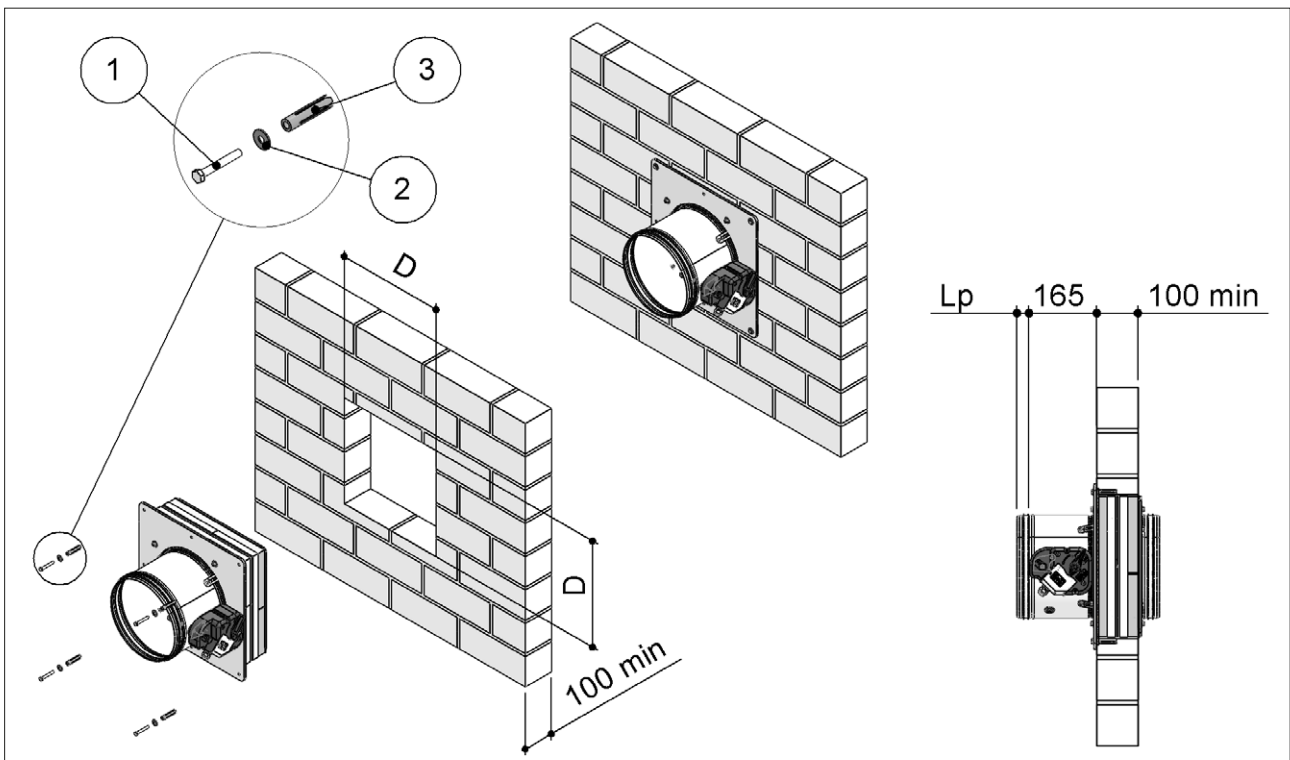
It is not necessary to insert any material between construction support and damper.

Sealing with concrete is not allowed.

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

Lp Overlap length between fire damper and duct: see section Dimension [p.10](#)
 D Hole size: see table above

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



3.10. Installations within vertical light wall (plasterboard)

Refer to the section Construction supports characteristics [p.17](#) for further information.

Comply with the minimum distances indicated on section Minimum distances [p.15](#).

Before and after installation please perform a functional test. Refer to section Mechanism type for further information [p.7](#).

3.10.1. Wall opening

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

3.10.2. 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 $\varnothing 3,5 \times 45$ mm
- 4 steel washer

Close the blade before installing the fire damper.

3.10.3. Filling

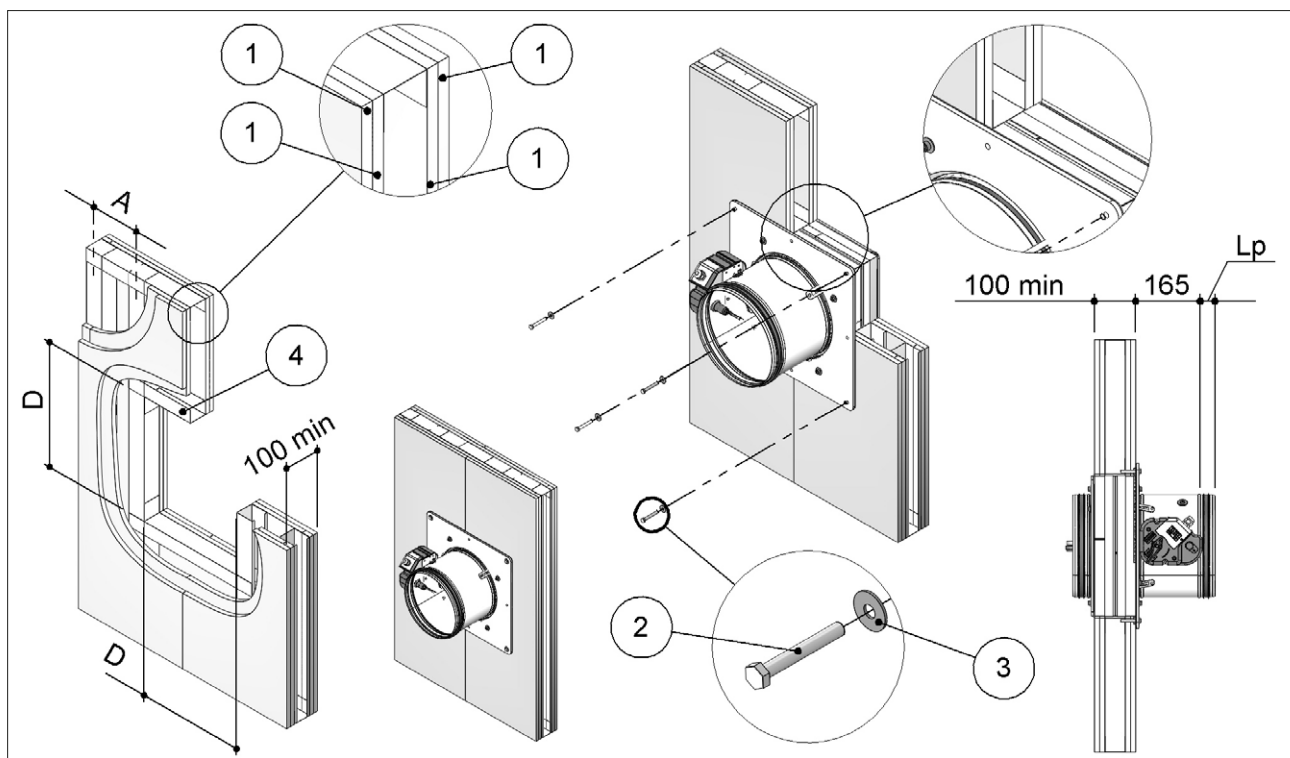
It is not necessary to insert any material between construction support and damper.

Sealing with concrete is not allowed.

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

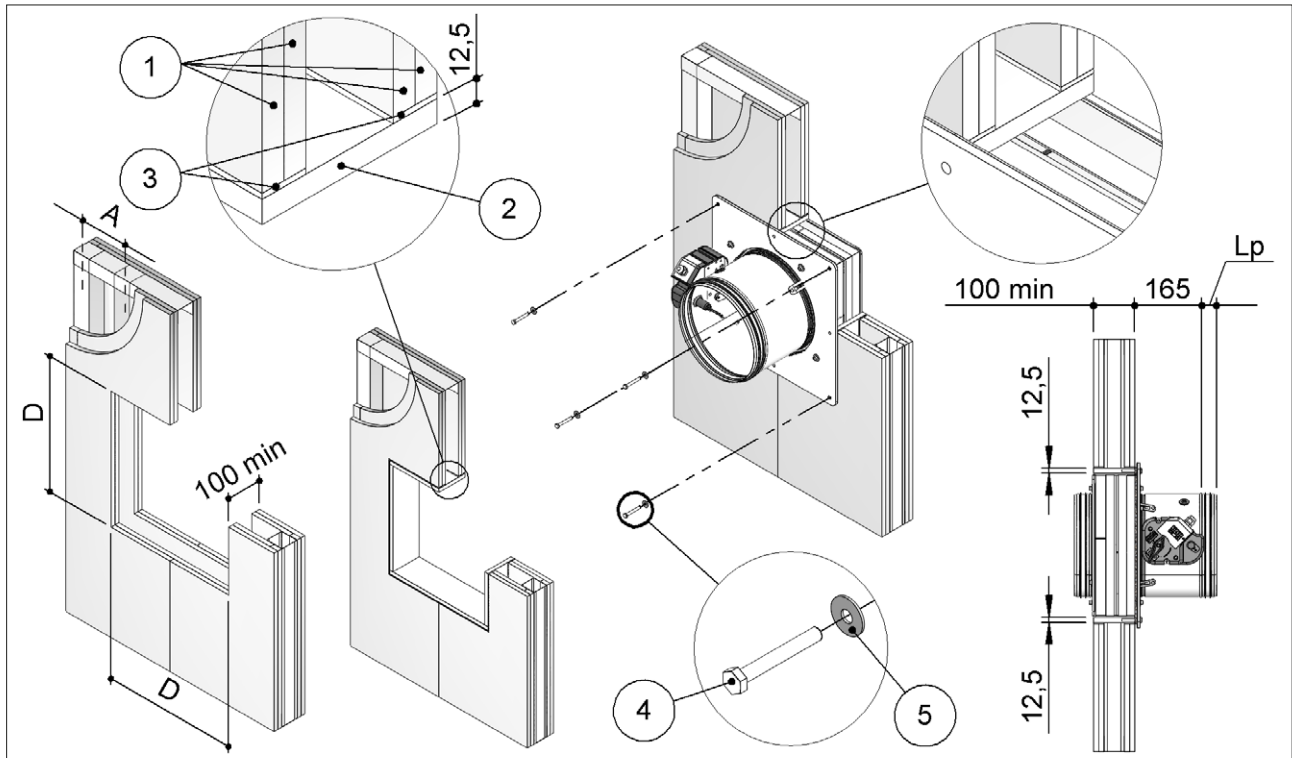
EI 120 S Installation within vertical light wall (plasterboard) with metal frame around the damper

1. Plasterboard thickness 12,5 mm
 2. Self-drilling screw $\varnothing 3,5 \times 45$ mm
 3. Washer
 4. Metal frame
- Lp Overlap length between fire damper and duct: see section Dimension [p.10](#)
 D Hole size: see table above
 A Distance between vertical profiles: 625 mm see section Light plasterboard vertical walls [p.17](#) or 312,5 mm see section Light plasterboard vertical walls with steel reinforcement [p.18](#)



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 $\varnothing 3,5 \times 45$ mm
 5. Washer
- Lp Overlap length between fire damper and duct: see section Dimension [p.10](#)
D Hole size: see table above
A Distance between vertical profiles: 625 mm see section Light plasterboard vertical walls [p.17](#) or 312,5 mm see section Light plasterboard vertical walls with steel reinforcement [p.18](#)



3.11. Installation within vertical light wall (gypsum blocks wall)

Refer to the section Construction supports characteristics [p.17](#) for further information.

Comply with the minimum distances indicated on section Minimum distances [p.15](#).

Before and after installation please perform a functional test. Refer to section Mechanism type for further information [p.7](#).

3.11.1. Wall opening

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

3.11.2. 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.

3.11.3. Filling

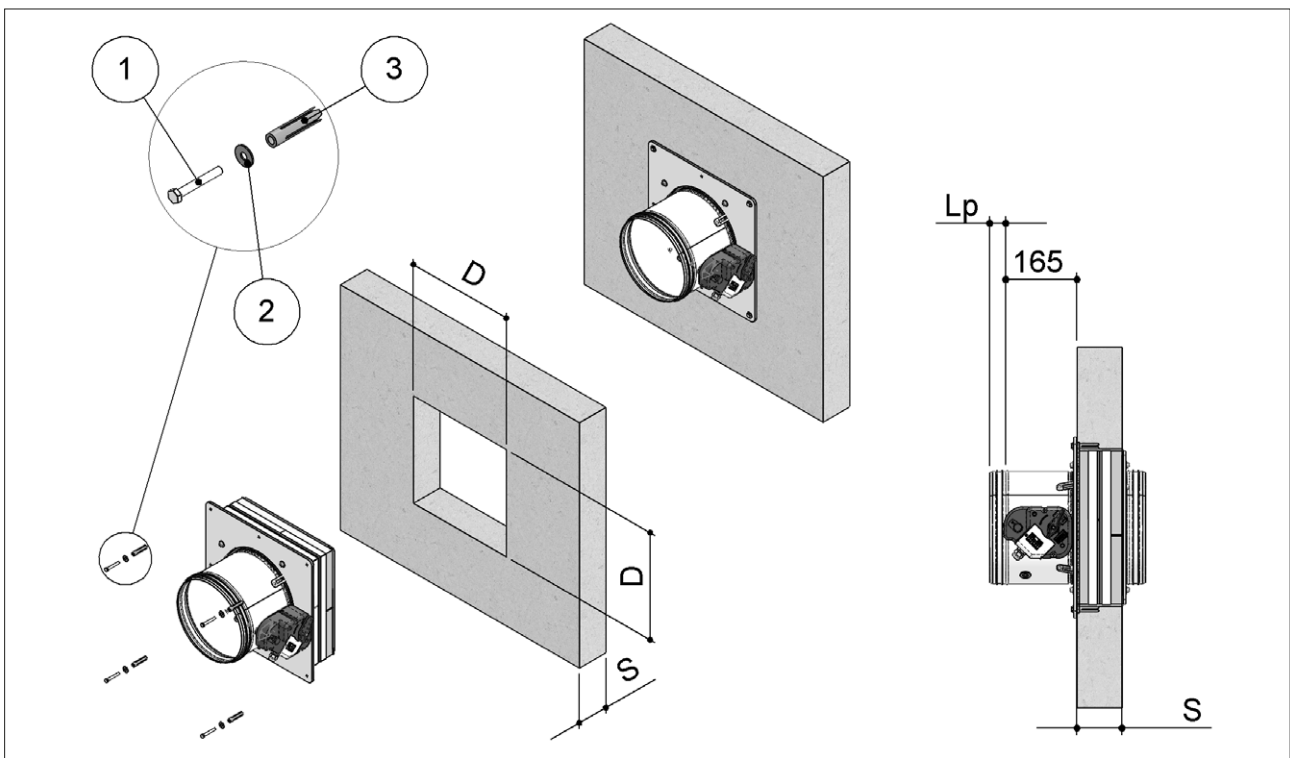
It is not necessary to insert any material between construction support and damper.

Sealing with concrete is not allowed.

	Fire resistance classification	"D" hole size [mm]	Wall minimum thickness "S" [mm]
EI 120 S Installation within vertical light wall (gypsum blocks wall)			
Wall minimum density 995 kg/m ³	EI 120 S (500 Pa)	(Ø + 100) x (Ø + 100) (square hole)	70
EI 90 S Installation within vertical light wall (gypsum blocks wall)			
Wall minimum density 995 kg/m ³	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 [p.10](#)

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



3.12. Installations within floor

Refer to the section Construction supports characteristics [p.17](#) for further information.

Comply with the minimum distances indicated on section Minimum distances [p.15](#).

Before and after installation please perform a functional test. Refer to section Mechanism type for further information [p.7](#).

3.12.1. Floor opening

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

3.12.2. 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.

3.12.3. Filling

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

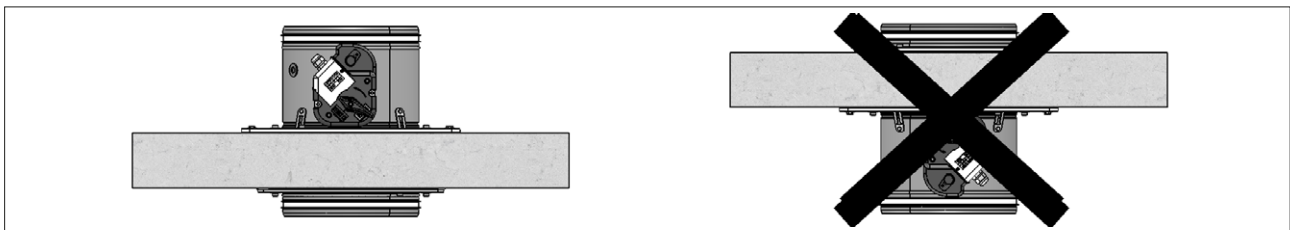
Sealing with concrete is not allowed.

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

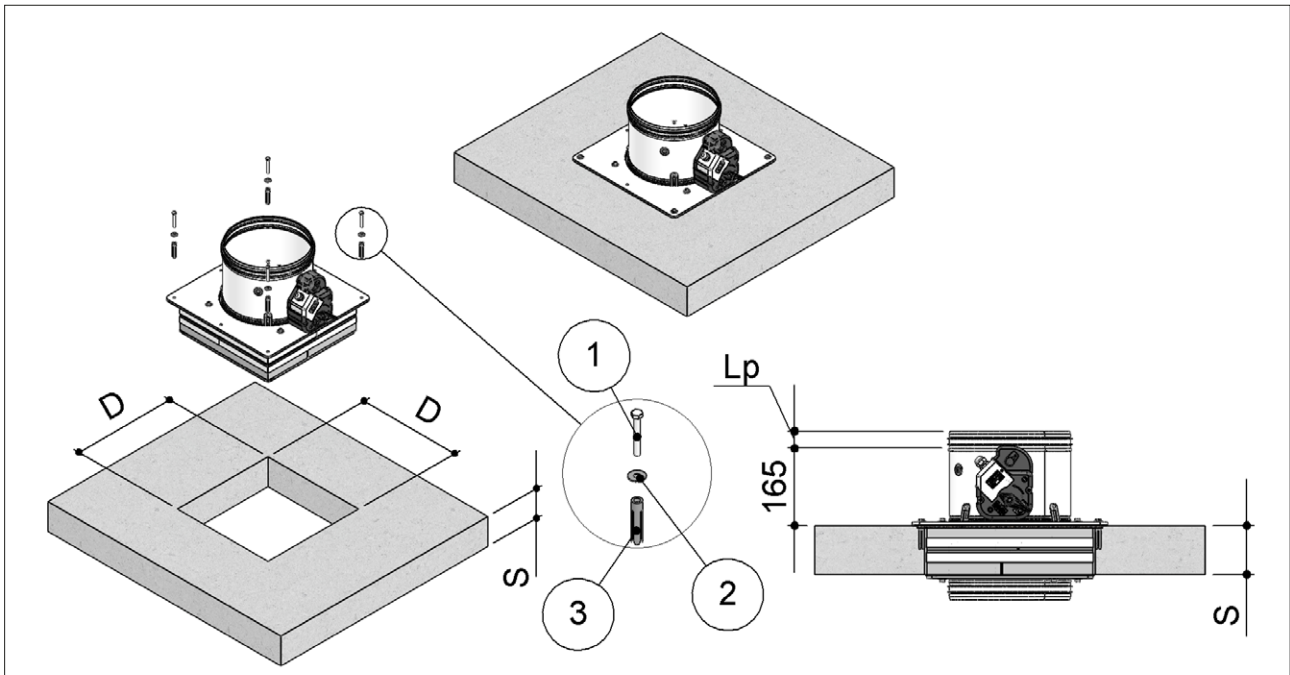
1. Floor

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 p. 10

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



3.13. Installations within vertical wall with Fire Batt (Weichschott) sealing

Refer to the section Construction supports characteristics [p.17](#) for further information.

Comply with the minimum distances indicated on section Minimum distances [p.15](#).

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 [p.7](#).

3.13.1. Wall opening

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

3.13.2. 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.

3.13.3. 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.

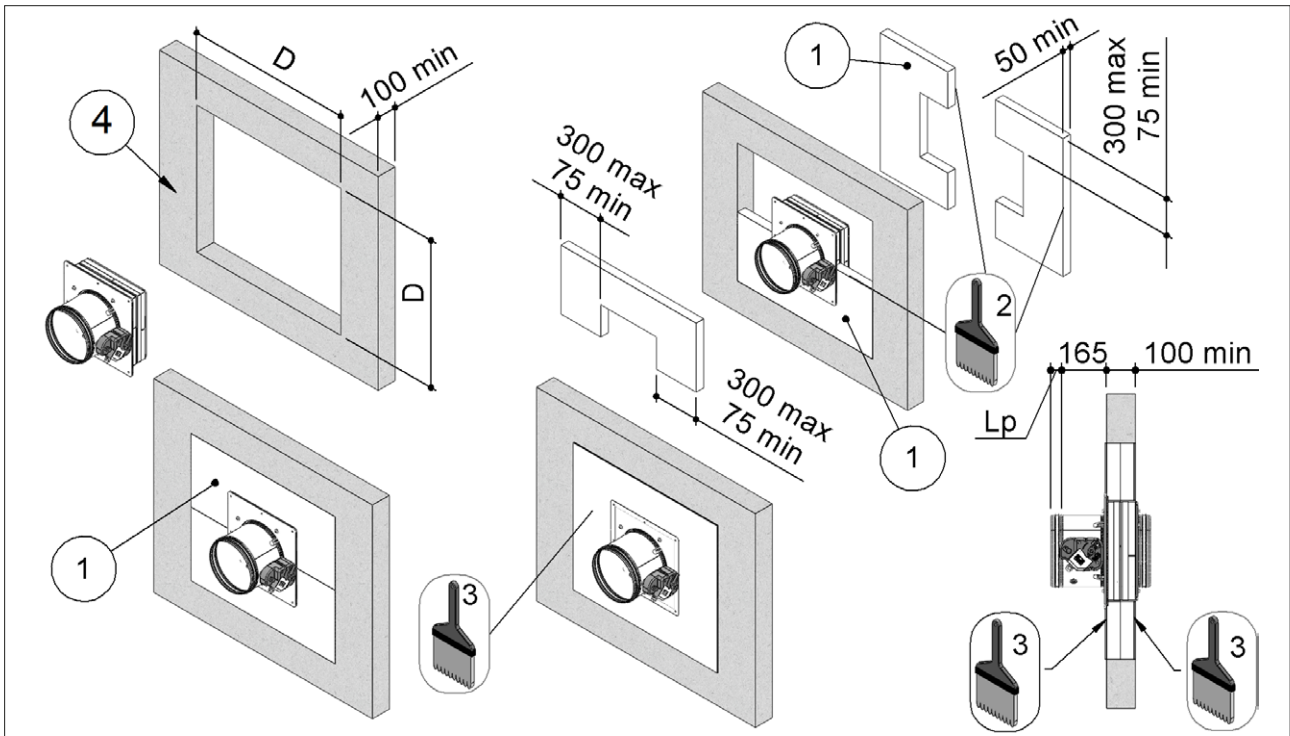
The panels must be covered on both faces of the wall with endothermic varnish type PROMASTOP E PASTE or HILTI CFS-CT (minimum thickness of 1 mm) and with an internal perimeter sealant type PROMASTOP E PASTE or HILTI CFS-S ACR (minimum thickness of 1 mm).

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/m ³	EI 120 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	100
Flexible wall	EI 120 S Installation within vertical light wall (plasterboard) with Fire Batt (Weichschott) sealing			
	Wall rock wool density up to 80 kg/m ³ (optional)	EI 120 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	100
Flexible wall	EI 120 S Installation within vertical light wall (gypsum blocks wall) with Fire Batt (Weichschott) sealing			
	Wall minimum density 995 kg/m ³	EI 120 S (300 Pa)	(Ø + 600 max) x (Ø + 600 max) (rectangular hole)	100

1. Rock wool panel 50 mm thick with 140 kg/m³ 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 p.10
 D Hole size: see table above
 S Wall minimum thickness: see table above



3.14. Installation within floor with Fire Batt (Weichschott) sealing

Refer to the section Construction supports characteristics p.17 for further information.

Comply with the minimum distances indicated on section Minimum distances p.15.

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 p.7.

3.14.1. Floor opening

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

3.14.2. 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.

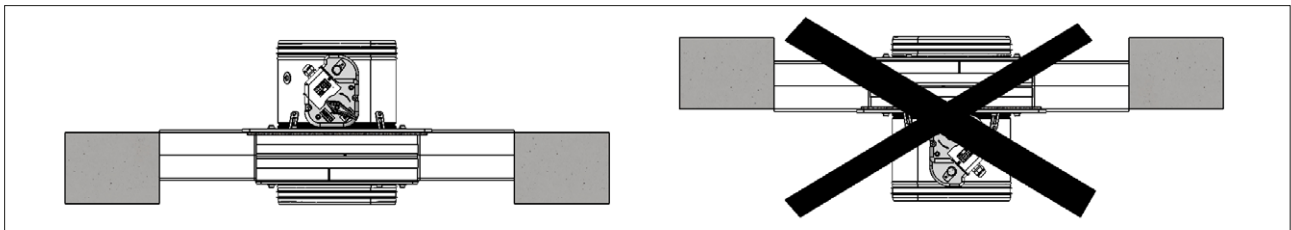
3.14.3. Filling

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/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).

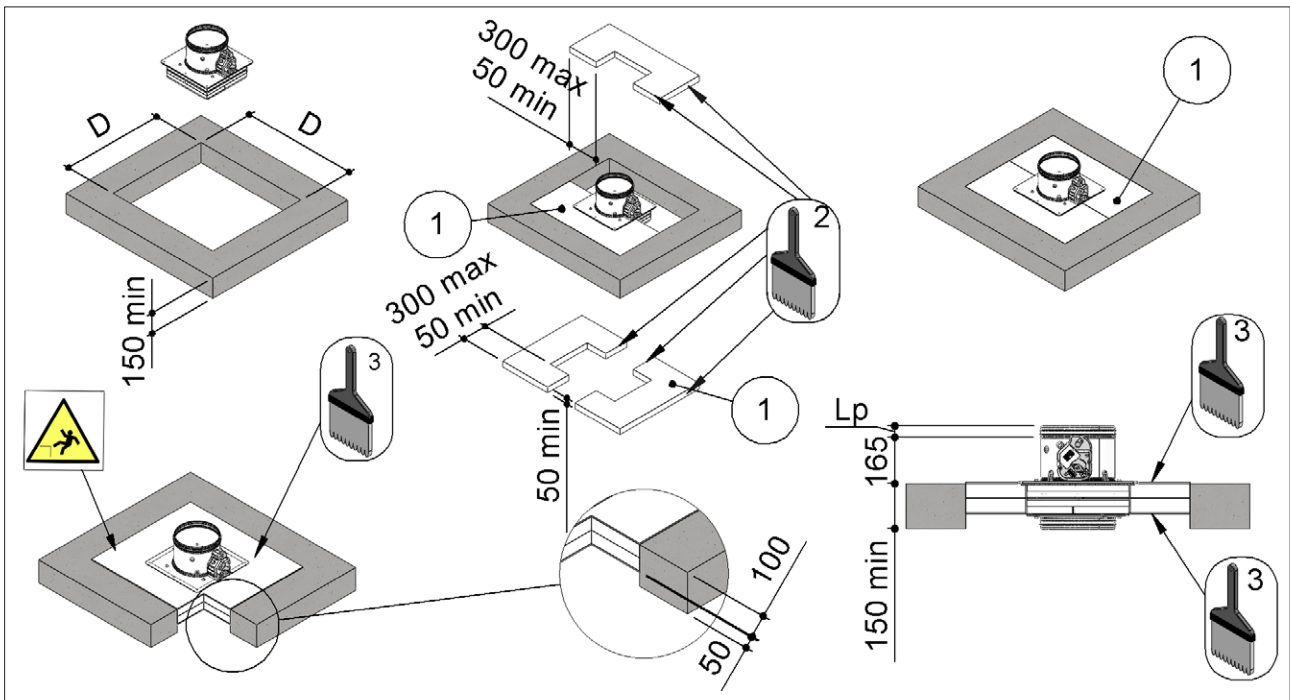
Don't use fixing screws

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



1. Rock wool panel 50 mm thick with 140 kg/m³ 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 p.10
 D Hole size: see table above
 S Floor minimum thickness: see table above



3.15. Installation within vertical light wall (Shaft wall)

Refer to the section Construction supports characteristics [p.17](#) for further information.

Comply with the minimum distances indicated on section Minimum distances [p.15](#).

Before and after installation please perform a functional test. Refer to section Mechanism type for further information [p.7](#).

3.15.1. Wall opening

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

3.15.2. 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.

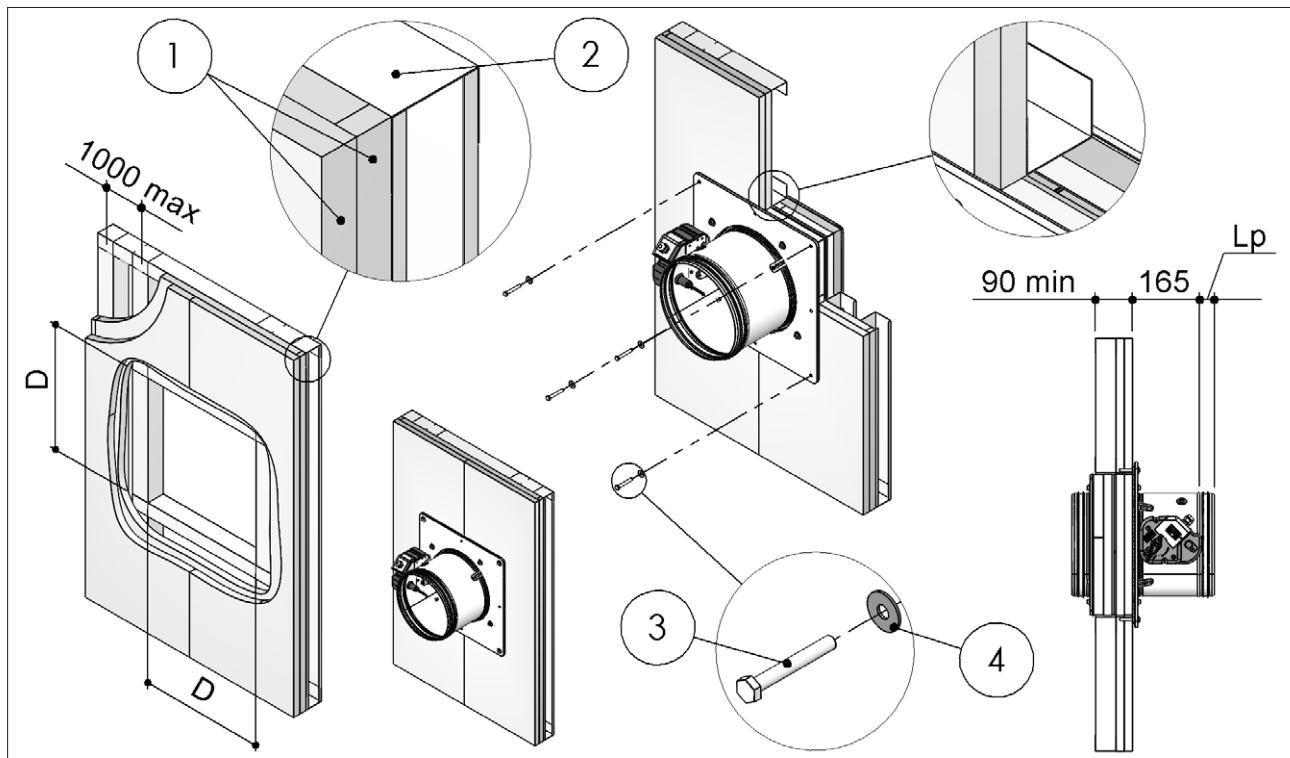
3.15.3. Filling

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)	($\emptyset + 100$) x ($\emptyset + 100$) (square hole)	90

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



4. ELECTRICAL CONNECTIONS

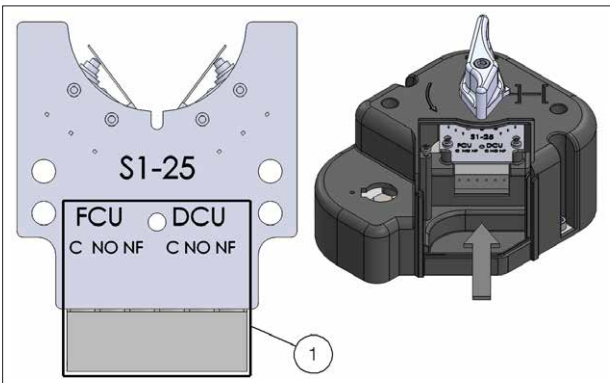
4.1. Electrical wiring

Electrical connections must be done by qualified and trained people.

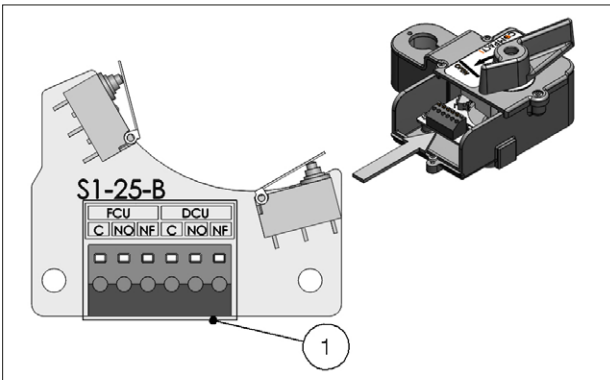
Switch off the power supply before starting any work on the electric elements. Never switch on the power supply during electrical connections.

4.1.1. Manual and compact manual

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



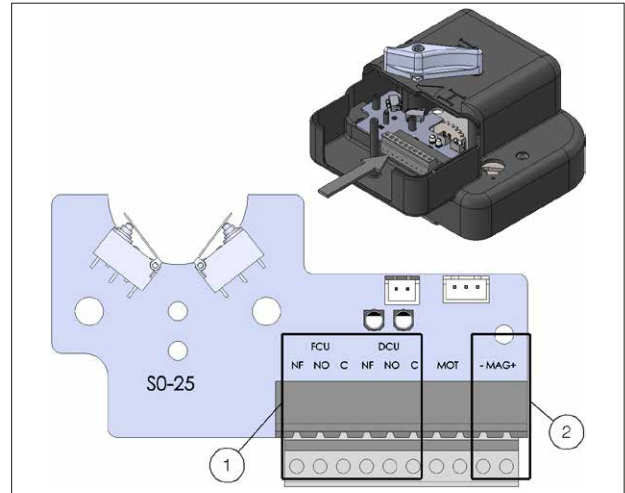
S1-25-B electric board (S2 optional) for blade position microswitches (compact manual)



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

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

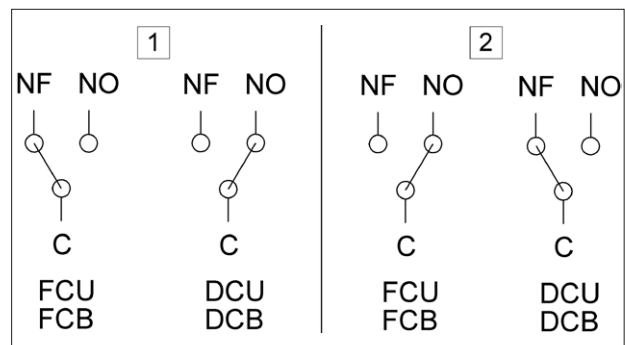
S0-25 electronic board (S2 optional) for 24V DC / 48V DC power supply. Blade position microswitches included



- 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

4.1.3. S2 microswitches position for manual control and magnetic control

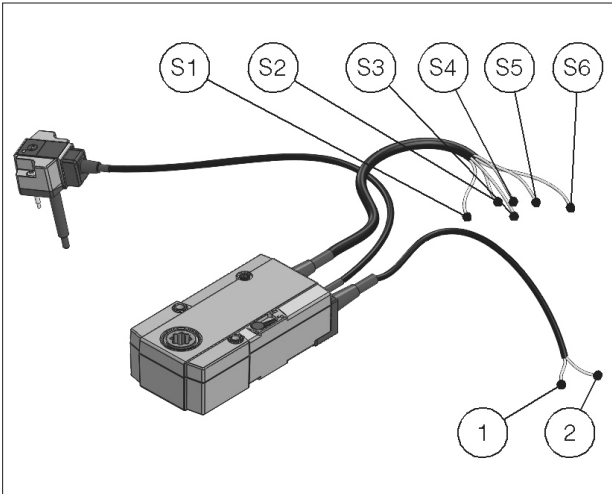


- 1. The fire damper's blade is open (the air flow is allowed)
- 2. The fire damper's blade is closed (the air flow is not allowed)
- FCU Closed blade contact
- DCU Open blade contact
- NO Normally open
- C Common
- NF Normally closed

4.1.4. Motorized version

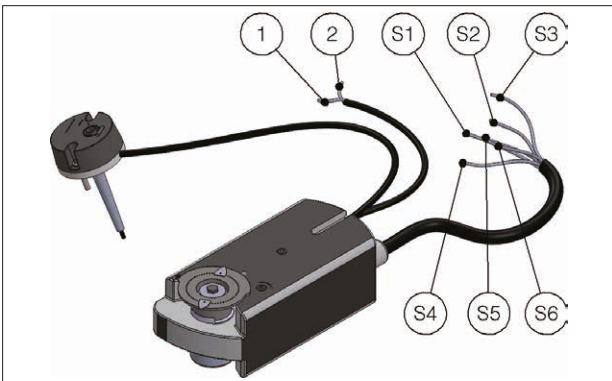
Belimo servomotor:

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



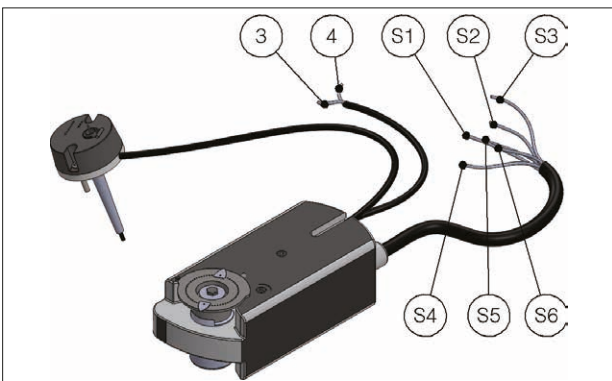
Siemens servomotor:

GRA126, GNA126, GGA126.



Siemens servomotor:

GRA326, GNA326, GGA326.

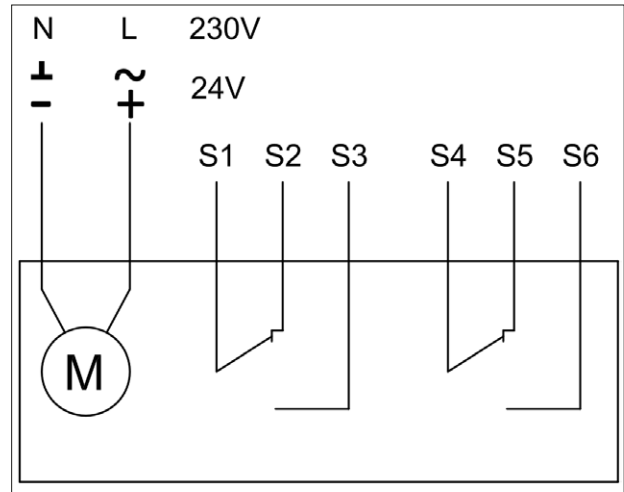


Motorized fire dampers electrical wiring

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

4.2. Electrical specifications

	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 S0-25 electric board for 24 V magnet) <hr/> Power interruption magnet (MR): P = 1,6 W Power input magnet (MI): P = 3,4 W <hr/> Motor 24 V AC/DC (WHS25VSB): Belimo BFL24T Opening: 2,5 W In stand-by: 0,8 W <hr/> Motor 24 V AC/DC (WHS25VSS): Siemens GRA126 Opening: 3,5 W In stand-by: 2 W <hr/> Motor 230 V AC (WHS25DSB): Belimo BFL230T: Opening: 3,5 W In stand-by: 1,1 W <hr/> Motor 230 V AC (WHS25DSS): Siemens GRA326 Opening: 4,5 W In stand-by: 3,5 W
Microswitches position contacts	Manual control version: 12 V DC / 2 A 125 V AC / 0,1 A	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

5. 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.

5.1. 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.

5.2. 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.

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.

5.3. 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.

6. SELECTION

6.1. Air flow rates in relation to the diameter

Maximum frontal air speed = 12 m/s

\emptyset mm	Front section m ²	Net section m ²	Maximum air flow m ³ /h
100	0,008	0,006	350
125	0,012	0,009	550
140	0,015	0,012	650
150	0,018	0,014	750
160	0,020	0,016	850
180	0,025	0,021	1100
200	0,031	0,027	1350
224	0,039	0,034	1700
250	0,049	0,043	2100
280	0,062	0,055	2650
300	0,071	0,063	3050
315	0,078	0,070	3350

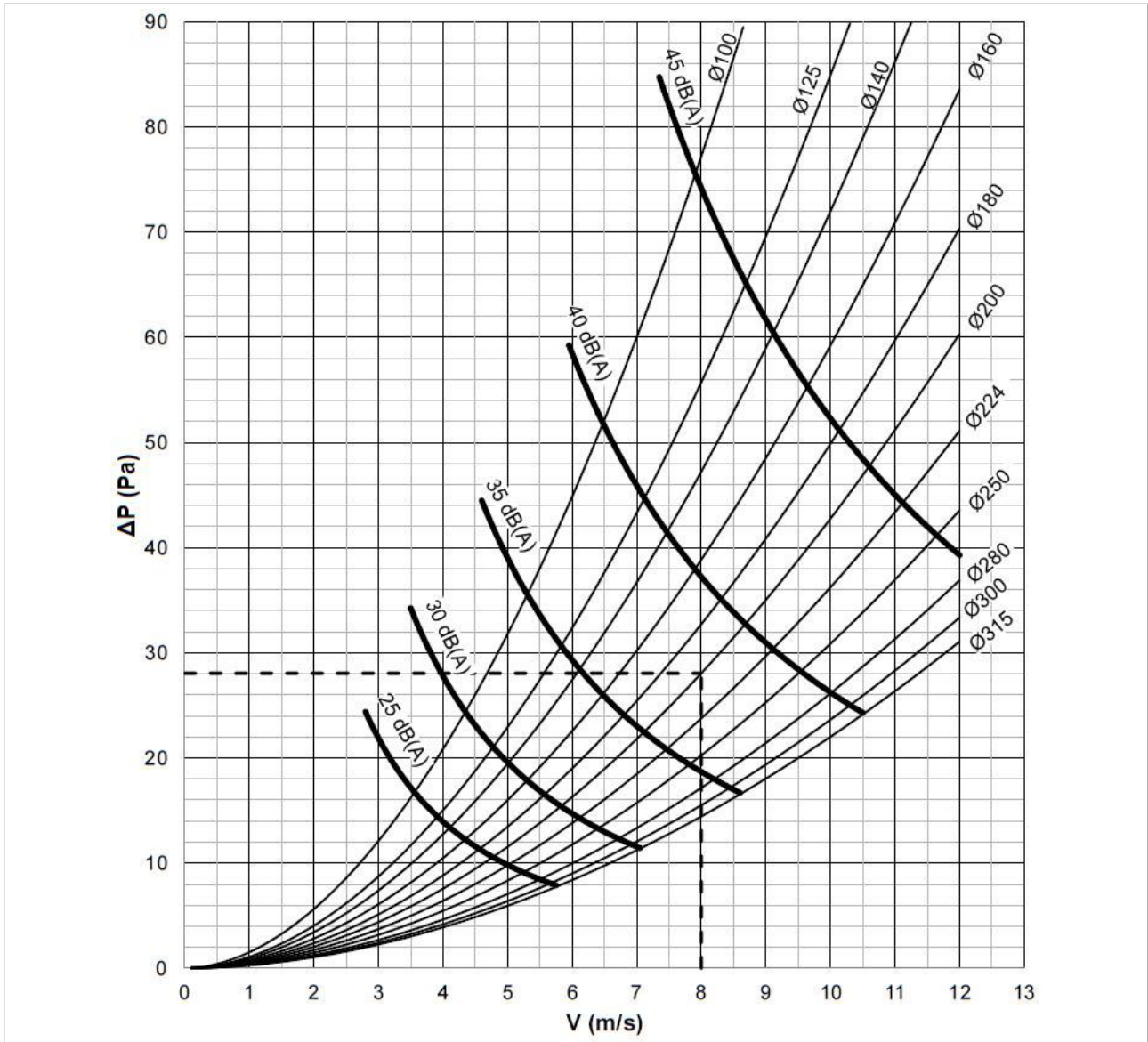
6.2. Air flow rates as a function of the pressure drop

\emptyset mm	ΔP 20 Pa		ΔP 30 Pa		ΔP 40 Pa	
	Q m ³ /h	Lw dB(A)	Q m ³ /h	Lw dB(A)	Q m ³ /h	Lw dB(A)
100	111	27,5	137	32,7	160	36,6
125	205	29,3	254	34,7	296	38,5
140	281	30,3	348	35,7	406	39,5
150	340	30,9	422	36,3	491	40,1
160	407	31,5	505	36,9	588	40,7
180	564	32,5	700	37,9	815	41,7
200	756	33,5	937	38,8	1091	42,7
224	1035	34,5	1283	39,8	1494	43,6
250	1404	35,4	1740	40,8	2026	44,6
280	1922	36,4	2382	41,8	>Qmax	--
300	2328	37,0	2885	42,4	>Qmax	--
315	2665	37,5	3303	42,8	>Qmax	--

6.3. Air flow rates as a function of generated sound levels

\emptyset mm	Lw 30 dB(A)		Lw 35 dB(A)		Lw 40 dB(A)	
	Q m ³ /h	ΔP Pa	Q m ³ /h	ΔP Pa	Q m ³ /h	ΔP Pa
100	123	24,5	150	35,6	183	51,8
125	211	21,1	258	30,8	314	44,6
140	278	19,6	339	28,5	414	41,6
150	328	18,6	401	27,3	489	39,6
160	384	17,9	468	26,0	572	38,0
180	510	16,5	623	24,1	761	35,2
200	659	15,4	804	22,5	982	32,8
224	867	14,3	1058	20,8	1292	30,4
250	1131	13,3	1381	19,4	1686	28,3
280	1489	12,3	1817	18,0	2219	26,2
300	1759	11,8	2148	17,2	2623	25,1
315	1980	11,4	2418	16,6	2952	24,3

6.4. Pressure drop and sound level graph



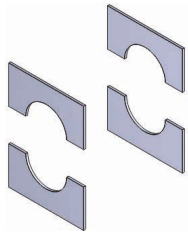
Example

Ø = Diameter [mm]	Ø = 200 mm
Q = Air flow [m ³ /h]	Q = 900 m ³ /h
V1 = Frontal air speed [m/s]	V1 = 8 m/s
ΔP = Pressure drop [Pa]	From graph: ΔP = 28 Pa
Lw = Sound level [dB(A)]	From graph: Lw = 38 dB(A)

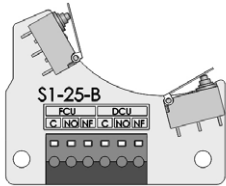
6.5. Sound spectrum table

Correction used to estimate the octave band spectrum (Values to be added to the noise levels in dB(A))								
Frontal speed	Frequency Hz							
m/s	63	125	250	500	1000	2000	4000	8000
6	15	7	4	-4	-9	-10	-15	-22
9	17	8	5	-4	-9	-10	-19	-20
12	20	9	5	-4	-9	-15	-16	-12

7. ACCESSORIES AND SPARE PARTS



Kit 4 x plasterboard shaped sealing panels for WH25 from $\varnothing 100$ to $\varnothing 315$ (thickness 12.5 mm): not used for TAMP-WH25- \emptyset installation within vertical light wall (Shaft wall)
Not used for WHS25 fire damper



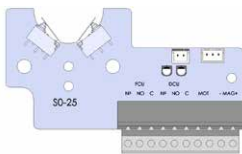
Kit microswitch S1-25-B board + 2 fixing screws, 25/23 series (compact manual)

WHKS125C



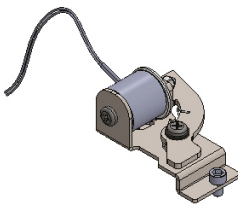
Kit microswitch S1-25 board + 2 fixing screws, 25/23 series

WHKS125



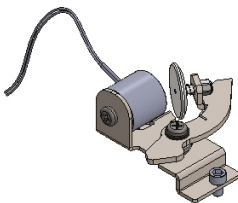
Kit microswitch S0-25 board + 2 fixing screws for manual magnetic control 25/23 series and magnet power supply 24 V DC or 48 V DC

WHKS025



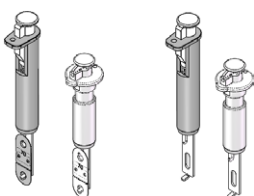
Kit power supply input magnet only + 2 screws for manual magnetic mechanism, 25/23 series

WHKMAG125



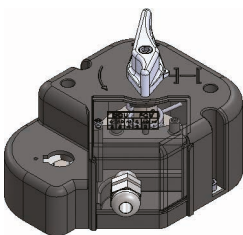
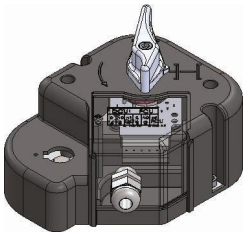
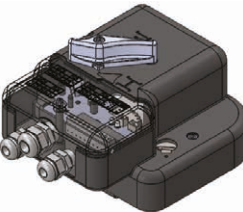
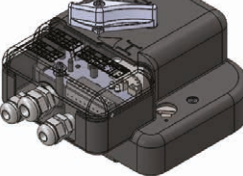
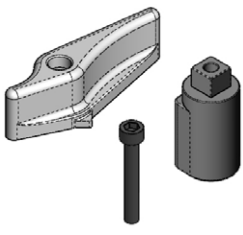
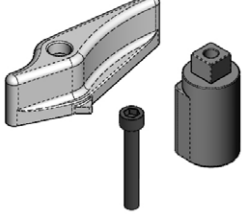
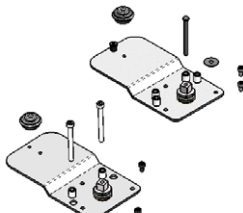
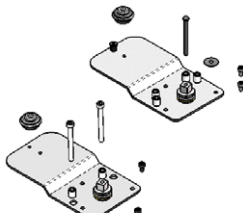
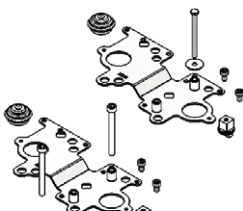
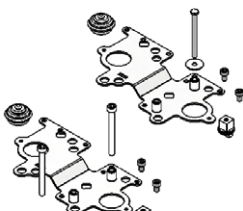
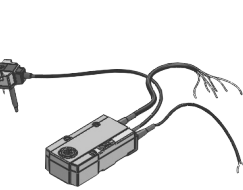
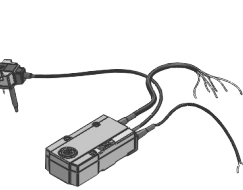
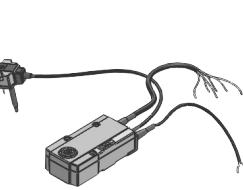
Kit power supply interruption magnet only + 2 screws for manual magnetic mechanism 25/23 series

WHKMAGR25

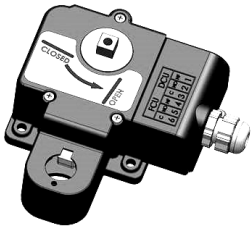


Red fuseholder group 25 series with fuse WK70
 Red fuseholder group 25 series with fuse WK70 (compact manual)
 Blue fuseholder group 25 series with fuse WK70
 Blue fuseholder group 25 series with fuse WK70 (compact manual)
 Red fuseholder group 25 series without fuse
 Red fuseholder group 25 series without fuse (compact manual)
 Blue fuseholder group 25 series without fuse
 Blue fuseholder group 25 series without fuse (compact manual)

WHKDISR
 WHKDISCR
 WHKDISB
 WHKDISCB
 3WHKDISR
 FMWHK044
 3WHKDISB
 FMWHK028

	<p>Kit mechanism manual 25 series + carter + cam and lever + 2 fixing screws (without fuseholder group) WHK25MANB</p>
	<p>Kit mechanism manual 25 series + carter + cam and lever + elect. board S1-25 + 2 fixing screws (without fuseholder group) WHK25MANBS2</p>
	<p>Manual mechanism for 25 series + elect. board S0-25 + interr. magnet 24 V DC or 48 V DC+ carter and screws (without fuseholder group) WHK25MANMMR</p>
	<p>Manual mechanism for 25 series + elect. board S0-25 + input magnet 24 V DC or 48 V DC+ carter and screws (without fuseholder group) WHK25MANMMI</p>
	<p>Red reset lever for WH/WK25 (spare part for manual mechanism) WHK25PLSLEVA</p>
	<p>Blue reset lever for WH/WK25 (spare part for manual mechanism) WHK23PLSLEVA</p>
	<p>Motorized plate WH25/23 for Siemens GRA + fixing screws (motor not included) WH25MTS</p>
	<p>Motorized plate WH25/23 for Belimo BFL + fixing screws (motor not included) WH25SMB</p>
	<p>Motorized plate WH25/23 (compact) for Siemens GRA + fixing screws (motor not included) WH25CMTS</p>
	<p>Motorized plate WH25/23 (compact) for Belimo BFL + fixing screws (motor not included) WH25CSMB</p>
	<p>Belimo motor for dampers predisposed for use with BFL24T, 24 V AC/DC power supply, thermofuse 72 °C BFL24T</p>
	<p>Belimo motor for dampers predisposed for use with BFL24T-ST, 24 V AC/DC power supply, thermofuse 72 °C with connection plugs for control and monitoring systems BFL24T-ST</p>
	<p>Belimo motor for dampers predisposed for use with BFL230T, 230 V AC power supply, thermofuse 72 °C BFL230T</p>

	<p>Siemens motor for dampers predisposed for use with GRA126, 24 V AC/DC power supply thermofuse 72 °C GRA126 Siemens motor for dampers predisposed for use with GRA326, 230 V AC power supply, thermofuse 72 °C GRA326</p>	
	<p>Copper mechanical thermofuse 70 °C for manual mechanism WK70 Copper mechanical thermofuse 95 °C for manual mechanism WK95 Thermofuse 72 °C for Belimo motor BFL and BFN (spare part) WWEZBAT72 Thermofuse 95 °C for Belimo motor BFL and BFN (accessory) WWEZBAT95 Thermofuse 72 °C for Siemens motors GRA, GNA and GGA (spare part) MT-FUSASK79.4 Thermofuse 95 °C for Siemens motors GRA, GNA and GGA (accessory) MT-FUSASK79.5</p>	
	<p>Matt black epoxy powder painting for WHS25 fire damper casing Attention: Lindab Safe connectors can't be painted.</p> <ul style="list-style-type: none"> • Corrosion resistance: Excellent • Heat resistance: Very good • Resistance direct impact: ≥2Kg 5cm ISO 6272 • Resistance reverse impact: ≥2Kg 5cm ISO 6272 • Resistance umidity chamber: after 500 hrs noy blistering ISO 6270 • Resistance salt spray test: after 500 hrs creeping at cross-cut <1mm ISO 9227 	<p>WHS25PAINT[Ø]</p>
	<p>Communication and control unit BKS24-1B to control and monitor 1 fire damper with Belimo motor</p>	<p>WHBKS241B</p>
	<p>Communication and control unit BKS24-9A to control and monitor up to 9 fire dampers with Belimo motor</p>	<p>WHBKS249A</p>
	<p>Communication and power supply unit: BKN230-24 for Belimo motors BFL24T-ST, BFN24T-ST e BF24T-ST Modbus Communication and power supply unit: BKN230-24MOD for Belimo motors BFL24T-ST, BFN24T-ST and BF24T-ST Communication and power supply unit MPBUS for BKS24-9A or gateways Belimo UK24MOD and UK24BAC: BKN230-24-C-MP for Belimo motors BFL24T-ST, BFN24T-ST and BF24T-ST Modbus Communication and power supply unit: BKN230MOD for Belimo motors BFL230T, BFN230T and BF230T</p>	<p>WHBKN23024 WHKBKN230-24MOD WHKBKN230-24-C-MP WHKBKN230MOD</p>
	<p>Gateway UK24BAC Belimo for BACnet communication</p>	<p>WHKUK24BAC</p>



Spare part blue manual compact mechanism (without fuseholder group, reset lever and fixing screws)	FMWHK042V00
Spare part grey manual compact mechanism (without fuseholder group, reset lever and fixing screws)	FMWHK042V01
Spare part red manual compact mechanism (without fuseholder group, reset lever and fixing screws)	FMWHK042V02



Reset lever for WH/WK25 (spare part for manual compact mechanism) blue	PL-PS-WHK25CLEVA
Reset lever for WH/WK25 (spare part for manual compact mechanism) red	PL-PS-WHK25CLEVAR

(1) Is recommended to install the position microswitches for the manual fire dampers with magnet.

8. HOW TO ORDER

8.1. Motorized fire dampers

Code		
Type	WHS	Circular fire damper
Series	25	Blade thickness 25 mm - 500 Pa air sealing
Motor type	VSS	Siemens motor GRA126 (24V)
	DSS	Siemens motor GRA326 (230V)
	VSB	Belimo motor BFL24T (24V)
	DSB	Belimo motor BFL230T (230V)
	TSB	Belimo motor BFL24T-ST (24V) with connection plugs for integration in control and monitoring systems
Dimension	XYZ	Nominal diameter (mm)

8.2. Fire damper with manual control

Code		
Type	WHS	Circular fire damper
Series	25	Blade thickness 25 mm - 500 Pa air sealing
Command type	B	Manual command
	C	Compact manual command
	M	Manual command with magnet
Position indication microswitches	S0	Without position microswitch
	S2	With two position microswitches (always for MR/MI versions)
Magnet	M0	Without magnet (only for command type "B")
	MR	With power supply interruption magnet through electric board 24 V DC or 48 V DC and with two position microswitches
	MI	With power supply input magnet through electric board 24 V DC or 48 V DC and with two position microswitches
Dimension	XYZ	Nominal diameter (mm)

Examples	Code
WHS25 fire damper with manual control, Ø 200	WHS25B-S0-M0-200
WHS25 fire damper with manual control and microswitches, Ø 160	WHS25B-S2-M0-160
WHS25 fire damper with manual control, power input magnet through electric board (24 V DC or 48 V DC), Ø 100	WHS25M-S2-MI-100
WHS25 Siemens motorized 230V fire damper, Ø 250	WHS25DSS-250

8.3. Electric motor driven actuators

Motor type	Diameters											
	100	125	140	150	160	180	200	224	250	280	300	315
Belimo	S	S	S	S	S	S	S	S	S	S	S	S
Siemens	S	S	S	S	S	S	S	S	S	S	S	S

	Belimo		Siemens	
	24 V	230V	24 V	230V
S	BFL24T	BFL230T	GRA126	GRA326

9. SPECIFICATION TEXT

9.1. Series WHS25 compact circular fire dampers

Description

WHS25 circular fire damper tested for fire resistance and smoke seal with 500 Pa depression (300 Pa for Weichschott sealing installations) as per EN 1366-2, classified according to EN 13501-3 and CE marked according to European Regulation UE 305/2011 and EN 15650 standard.

Allows maximum safety for fire protection inside buildings providing perfect heat insulation and cold and hot smokes tightness. Can be connected to fire protection alarm system or smokes detection to anticipate blade closure before fire, prevents indirect damages caused by smokes generated by combustion.

Technical characteristics

- Available diameters from 100 to 315 mm
- Case made from galvanized sheet steel, with a total length of 350 mm, with "thermal labyrinth" insulation system, equipped with duct connection gaskets.
- Closing mechanism built according to UNI 10365, with thermal fuse certified to ISO 10294-4, a test button to check the correct working of the damper, a release system to block the damper in closed position and a visual signal "open/closed". The closing mechanism can be easily interchanged and substituted:
 - with mechanical release and manual rearming
 - with mechanical release and manual rearming, can be released remotely via a magnet and electric and signal
 - with electric release and rearming, via and integrated Siemens or Belimo system tested according to EN 15650, composed by an electric thermal fuse and remote controlled servomotor via an electrical signal
- Blade damper made from calcium silicate insulating material, rotating on steel gudgeon pins, complete with silicon lip gasket for the air seal of cold smoke, as per EN 1366-2
- Thermal, expanding graphite gasket
- Thermal fuse with melting point certified ISO 10294-4 at 70 °C or 95 °C (version with mechanical release) or at 72 °C (version with servo motor)
- Absence of thermal bridge between the wall of installation and the ducts before and after
- Resistance to salt spray, tested with severity 2, according to EN 60068-2-52
- Casing leakage Class C according to EN 1751

Installation

- Installation within vertical rigid walls made from aerated concrete blocks, standard concrete or masonry with a minimum thickness of 100 mm and minimum density of 550 kg/m³ (EI 120 S)
- Installation within light plasterboard walls with minimum thickness of 100 mm
- Installation within light walls made with gypsum blocks 100 mm thick and minimum density 995 kg/m³ (EI 120 S) or minimum thickness of 70 mm and minimum density 995 kg/m³ (EI 90 S)
- Installation within concrete floors with a minimum thickness of 150 mm and minimum density of 650 kg/m³ (EI

120 S) or aerated concrete with minimum thickness 100 mm (EI 90 S) and minimum density 650 kg/m³

- Installation with Fire Batt (Weichschott) sealing within vertical rigid walls made from aerated concrete blocks, standard concrete or masonry with minimum thickness 100 mm and minimum density 550 kg/m³, within light plasterboard walls with minimum thickness of 100 mm, within gypsum blocks light walls with minimum thickness 100 mm and minimum density 995 kg/m³ (EI 120 S)
- Installation with Fire Batt (Weichschott) sealing within concrete floors or aerated concrete with minimum thickness 150 mm and minimum density 650 kg/m³ (EI 90 S)
- EI 90 S Installation within vertical light wall (Shaft wall)
- Fire resistance characteristics independent from direction of the source of the fire according to EN 1366-2 article 6.2
- Installation possible with damper blade placed horizontally or vertically, with the mechanism placed in left/right or above/below

Accessories

- Motorised version with 24 V or 230 V servomotor installed on the damper
- Set of microswitches with three NO/NC position detecting connectors for open and closed damper, as per standard UNI 10365
- Immission and Interruption magnet 24/48 V DC
- Power supply and communication unit MP-Bus, Modbus, Bacnet

10. REVISION INDEX

Revision n°	Date of issue	Description
18/03	2018/03	First issue
		Added section: <ul style="list-style-type: none"> • Installation of flexible connectors in order to balance out the ventilation ducts expansion p. 11 • Transfer Application (application not connected to air ducts on one or both sides) p. 13 Updated section: <ul style="list-style-type: none"> • Available dimensions p. 4 • Installation p. 11 • Not allowed uses p. 11 • Blade rotation axis positioning p. 11 • Minimum distances p. 15 • Light plasterboard vertical walls p. 17 • Maintenance and inspections p. 34 General improvements
19/05	2019/05	
20/10	2020/10	Updated section: <ul style="list-style-type: none"> • Installation of flexible connectors in order to balance out the ventilation ducts expansion p. 11 • Not allowed uses p. 11 • Transfer Application (application not connected to air ducts on one or both sides) p. 13 • Mechanism type p. 7 • Installation p. 11 • Minimum distances p. 15 • Periodic inspection and cleaning p. 34 General improvements

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

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.



Good Thinking

At Lindab, good thinking is a philosophy that guides us in everything we do. We have made it our mission to create a healthy indoor climate – and to simplify the construction of sustainable buildings. We do that by designing innovative products and solutions that are easy to use, as well as offering efficient availability and logistics. We are also working on ways to reduce our impact on our environment and climate. We do that by developing methods to produce our solutions using a minimum of energy and natural resources, and by reducing negative effects on the environment. We use steel in our products. It's one of few materials that can be recycled an infinite number of times without losing any of its properties. That means less carbon emissions in nature and less energy wasted.

We simplify construction



1MTLWHS25SEN-LIND rev 20-10