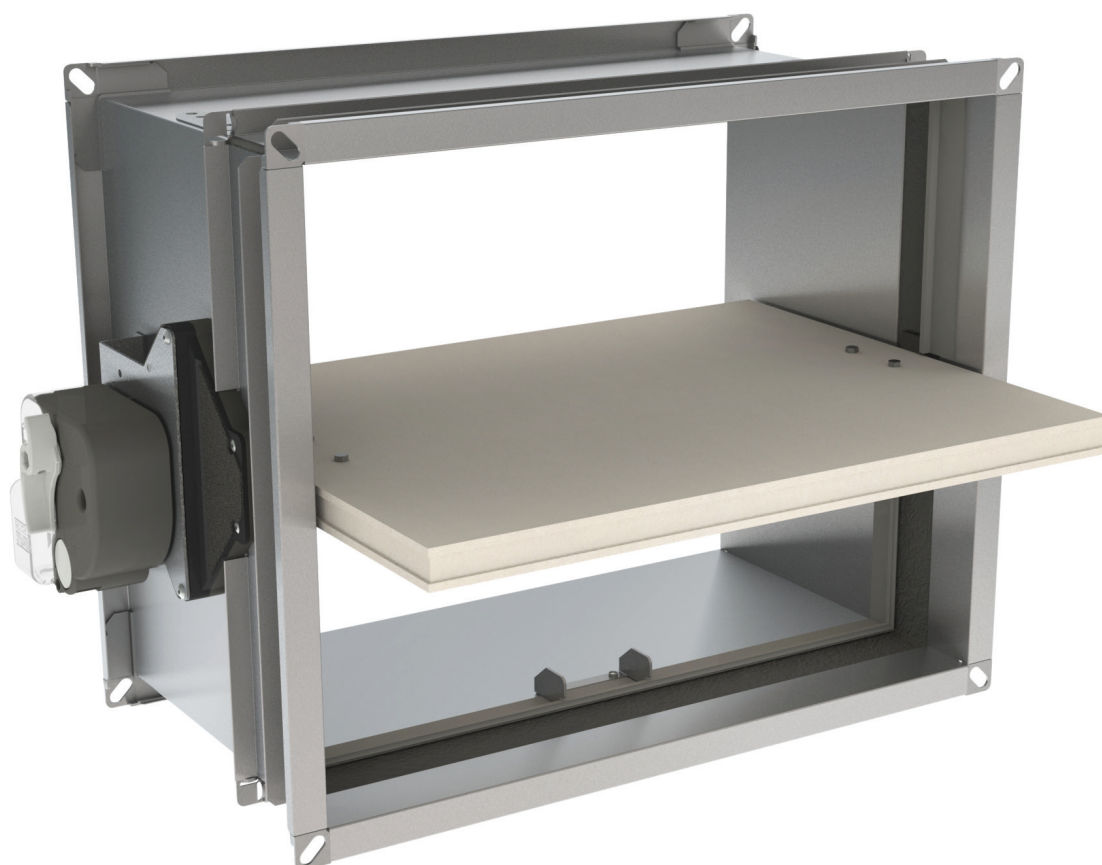


CU-LT

Optimised rectangular fire damper up to 120'



CE
0749



UK
CA



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Explanation of the abbreviations and pictograms

Wn = nominal width	E.TELE = power supply magnet	Sn = free air passage
Hn = nominal height	E.ALIM = power supply motor	ζ [-] = pressure loss coefficient
Dn = nominal diameter	V = volt	Q = airflow
E = integrity	W = watt	ΔP = static pressure drop
I = thermal insulation	Auto = automatic	v = air speed in the duct
S = smoke leakage	Tele = remote controlled	Lwa = A-weighted sound power level
Pa = pascal	Pnom = nominal capacity	Lw oct = sound power level per octave
ve = vertical wall penetration	Pmax = maximum capacity	midband
ho = horizontal floor penetration	GKB (type A) / GKF (type F): "GKB"	dB(A) = A-weighted decibel value
o -> i = meets the criteria from the outside	stands for standard plasterboards (type A according to EN 520) while "GKF"	ΔL = correction factor
(o) to the inside (i)	plasterboards offer a higher fire resistance	
i <-> o = fire side not important	for a similar plate thickness (type F according to EN 520)	
V AC = Volt alternating current	Cal-Sil = calcium silicate	
V DC = Volt direct current	OP = option (delivered with the product)	
	KIT = kit (delivered separately for repair or upgrade)	
	PG = connection flange to the duct	

	air-tightness class ATC 3 according to EN1751 (formerly C)		higher net building volume through compact size
	optimal acoustic performance		optimal free air passage and minimal pressure loss
	Hygiene certificate (www.HYG.de)		suitable for built-in installation
	suitable for installation remote from the wall		intermediate dimensions on request
	minimal distance allowed		sealing with fire resistant stone wool boards allowed, also for asymmetric opening

UKCA DoP Rf-t C3 EN ■ M-01/10/2024

[illegible]

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:
Duchan Laplace, R&D Manager

Duchan Laplace, R&D Manager

20

7/10/2024



Oosterzele, 01/10/2024

Product presentation CU-LT

Optimised rectangular fire damper with a fire resistance up to 120 minutes. A minimal pressure loss is guaranteed thanks to the thin blade and the transmission located outside the tunnel. The damper is available in small dimensions (starting from 100 mm height). A galvanised steel tunnel contributes to the light weight of the damper.

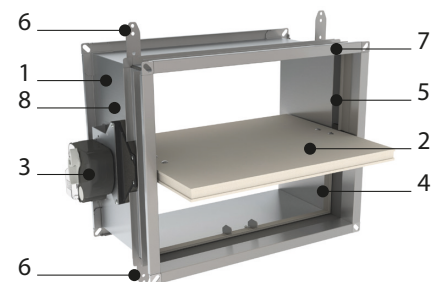
Fire dampers are installed where air ducts penetrate fire-resistant compartment walls. Their role is to restore the fire resistance grade of the penetrated wall and to prevent smoke propagation. Fire dampers are distinguished by their degree of fire resistance, by their aerodynamic properties as well as by their installation ease. Rf-Technologies' fire dampers are all CE marked. They can be equipped with various types of mechanisms depending on the specific needs linked to the project or to the local regulations.

- ✓ easy to install
- ✓ optimal free air passage and minimal pressure loss
- ✓ optimal acoustic performance
- ✓ higher net building volume through compact size
- ✓ air-tightness class ATC 3 according to EN1751 (formerly C)



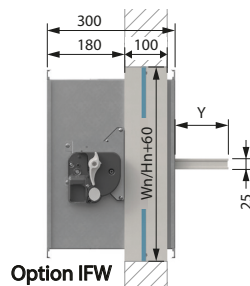
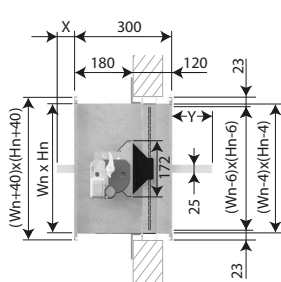
- Hygiene certificate (www.HYG.de)
- suitable for built-in installation
- suitable for installation remote from the wall
- minimal distance allowed
- suitable for installation in rigid wall, rigid floor, flexible wall, flexible shaft wall (metal stud gypsum plasterboard wall) and CLT wall
- sealing with fire resistant stone wool boards allowed, also for asymmetric opening
- tested according to EN 1366-2 up to 500 Pa
- operating mechanism outside the wall
- maintenance-free
- for indoor use
- intermediate dimensions on request
- operating temperature: max. 50°C

1. casing in galvanised steel
2. damper blade
3. operating mechanism
4. sealing cold smoke
5. intumescent strip
6. positioning plate
7. connection flange PG20
8. product identification



Range and dimensions CU-LT

	≥	≤
(W x H) mm	200x100	800x600



Transmission and mechanism exceed if $H_n \leq 150$ mm
Exceeding blade: X = on the mechanism side, Y = on the wall side

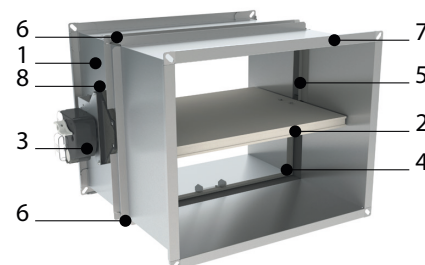
Hn (mm)	150	200	250	300	350	400	450	500	550	600
x	-	-	-	-	-	-	-	17	42	67
y	2	27	52	77	102	127	152	177	202	227

Variant CU-LT-L500

Variant CU-LT-L500

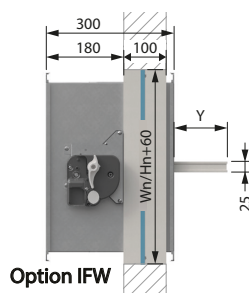
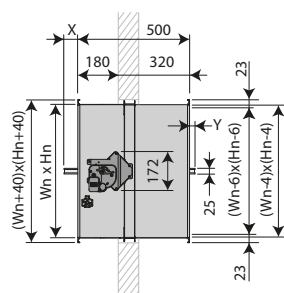
CU-LT damper with a tunnel casing extension at the wall side to facilitate the connection to the duct when the supporting construction is thicker than 100 mm. This version also ensures that the damper blade doesn't exceed the casing at the wall side (up to a height of 550 mm), which allows to connect a grill or a bend directly on the damper flange or to use a circular connection.

1. casing in galvanised steel
2. damper blade
3. operating mechanism
4. sealing cold smoke
5. intumescent strip
6. positioning plate
7. connection flange PG20
8. product identification



Range and dimensions CU-LT-L500

	≥	≤
(W x H) mm	200x100	800x600

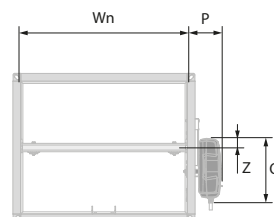
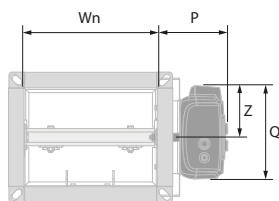


Transmission and mechanism exceed if $H_n \leq 150$ mm
Exceeding blade: X = on the mechanism side, Y = on the wall side

H_n (mm)	500	550	600
x	17	42	67
y	-	2	27

$H_n < 400$ mm

$H_n \geq 400$ mm



	MFUSP	ONE (X)	BFL(T)		MFUSP	ONE (X)	BFL(T)
P	101	97	81	P	101	97	81
Q	122	136	80	Q	123	191	80
Z	61	75	40	Z	28	27	40

Evolution - kits



KIT MFUSP

Automatic unlocking mechanism with fusible link



KIT ONE T 24 FDCB

Spring return actuator ONE 24V (with fusible link T) + bipolar beginning- and end-of-range switch



KIT ONE T 24 FDCU

Spring return actuator ONE 24V (with fusible link T) + unipolar beginning- and end-of-range switch



KIT ONE T 24 FDCU ST

Spring return actuator ONE 24V (with fusible link T) + unipolar beginning- and end-of-range switch + plug (ST)



KIT ONE T 230 FDCB

Spring return actuator ONE 230V (with fusible link T) + bipolar beginning- and end-of-range switch



KIT ONE T 230 FDCU

Spring return actuator ONE 230V (with fusible link T) + unipolar beginning- and end-of-range switch



KIT ONE T 230 FDCU ST

Spring return actuator ONE 230V (with fusible link T) + unipolar beginning- and end-of-range switch + plug (ST)



KIT ONE-X 24

Spring return actuator ONE-X 24V (with fusible link T)



KIT ONE-X 230

Spring return actuator ONE-X 230V (with fusible link T)



KIT BFL24

Spring return actuator BFL 24V



KIT BFL24-ST

Spring return actuator BFL 24V with plug (ST)



KIT BFL230

Spring return actuator BFL 230V



KIT BFLT24

Spring return actuator BFL 24V with thermo-electric fuse (T)



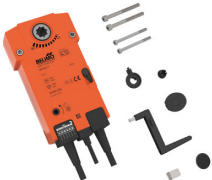
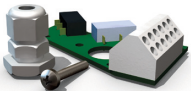
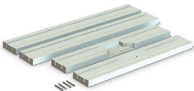
KIT BFLT24-ST

Spring return actuator BFL 24V with thermo-electric fuse (T) and plug (ST)



KIT BFLT230

Spring return actuator BFL 230V with thermo-electric fuse (T)

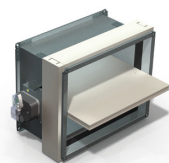
	KIT BFLT230-ST	Spring return actuator BFL 230V with thermo-electric fuse (T)
	KIT BFN24	Spring return actuator BFN 24V (BFN kits must be used instead of BFL kits for fire dampers produced before 1/7/2015)
	KIT FDCU MFUS(P)	Limit switch 'open/closed'
	KIT SN2 BFL/BFN	Auxiliary limit switch 'open/closed'
	KIT ZBAT 72	Black spare part for thermo-electric fuse for BFLT/BFNT
	KIT FUS 72 MFUS(P)	Fusible link 72°C
	FUS72 ONE	Fusible link 72°C
	MECT	Testbox for mechanisms 24/48 V (magnet, motor, beginning and end of range switches)
	IFW CU-LT	Installation block for CU-LT (supplied in separate parts, in size 800 x 600 mm, can be cut to size)



KIT UG8

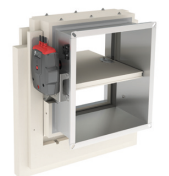
The UG8 optical smoke detector is a standalone unit for duct mounting. It samples air in the ventilation duct via the venturi-tube and analyses it in the housing situated outside of the duct. The UG8 is CE-marked product, certified according to EN54-27. It can be connected directly with a fire damper: in the event of smoke detection, the UG8 shuts off the power to the fire damper actuator and closes the damper.The UG8 is fitted with LEDs showing normal operation, smoke alarm, contamination and service alarms. The status can also be checked remotely via relay outputs.

Options - at the time of order



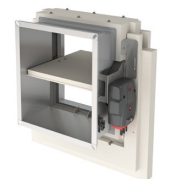
IFW CU-LT

Pre-assembled installation block



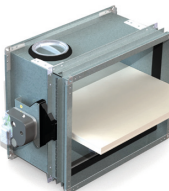
GDA_L

Mounting option, which guarantees the fire resistance of the fire damper after possible deflection of the floor slab above due to high loads or large spans (allows for a deflection of 40 mm). The GDA allows fast, simple and secure mounting between 0 and 75 mm from the ceiling. On the GDA-L, the mechanism is located on the left side of the product.



GDA_R

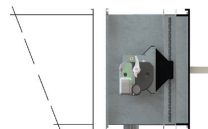
Mounting option, which guarantees the fire resistance of the fire damper after possible deflection of the floor slab above due to high loads or large spans (allows for a deflection of 40 mm). The GDA allows fast, simple and secure mounting between 0 and 75 mm from the ceiling. On the GDA-R, the mechanism is located on the right side of the product.



UL

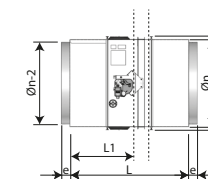
Inspection shutter (set of 2)

Flange types - at the time of order



PG20

Connection to ducts with 20 mm flanges (either with sliding profile or with bolts). Elliptical holes $\varnothing$ 9,5 x 20 mm.



PRJ

Circular connection with rubber sealing ring on a rectangular damper with PG20 flange.

Storage and handling

As this product is a safety element, it should be stored and handled with care.

Avoid:

- any kind of impact or damage
- contact with water
- deformation of the casing

It is recommended:

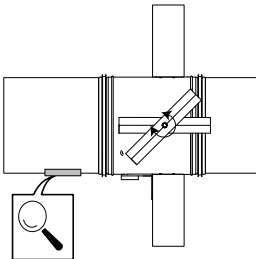
- to unload in a dry area
- not to flip or roll the product to move it
- not to use the damper as a scaffold, working table, etc.
- not to store smaller dampers inside larger ones

Installation

General points

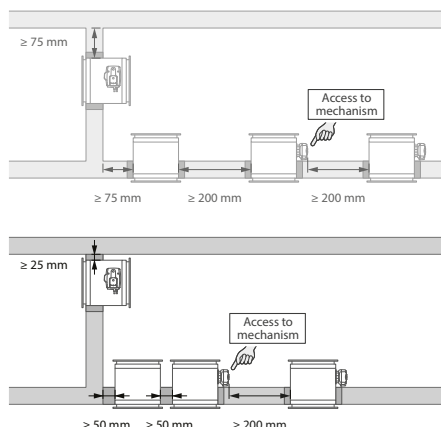
- The installation must comply with the installation manual and the classification report.
- Axis orientation: see the declaration of performance.
- Avoid obstruction of adjoining ducts.
- Product installation: always with closed damper blade.
- Verify if the blade can move freely.
- Please observe safety distances with respect to other construction elements. The operating mechanism must also remain accessible: allow for a clearance of 200 mm around the housing.
- The air tightness class will be maintained if the damper is installed according to the installation manual.
- Rf-t fire dampers are always tested in standardised constructions according to EN 1366-2. The achieved results are valid for similar supporting constructions with a fire resistance, thickness and density equal or superior to the supporting construction used during the test.
- If the wall thickness exceeds the minimum thickness specified in our installation instructions, the following conditions apply to the sealing depth:
 - For flexible walls and sandwich panel system walls, the seal must always be applied over the full depth of the wall.
 - With rigid walls, rigid floors and plaster block walls, the minimum sealing depth as indicated in our installation instructions (often equal to the minimum wall thickness) is sufficient. Apply the seal at the height of the damper blade (from the wall limit indication).
- When installing a fire damper in a flexible metal stud wall, some installation methods do not require reinforcing profiles around the wall opening from a fire protection point of view (see below). Always follow the general instructions of the manufacturer of these wall systems when building this type of wall.
- The damper must remain accessible for inspection and maintenance.
- Schedule at least 2 visual checks each year.

 TEST		
2023	☒	☒
2024	☒	☐
2025	☐	☐
2026	☐	☐
2027	☐	☐



Installation at a minimal distance from another damper or from an adjacent supporting construction

1



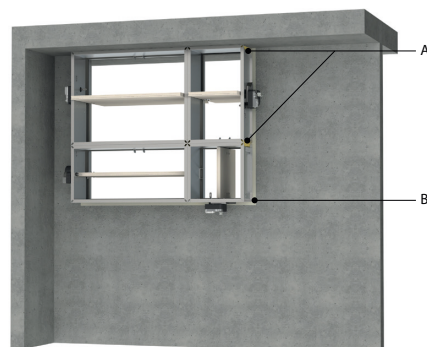
1. Principle

According to the European test standard EN 1366-2, a fire damper must be installed at a minimum distance of 75 mm from an adjacent supporting construction (wall/floor) and 200 mm from another damper, unless the solution was tested at a shorter distance.

This range of Rf-t fire dampers has been successfully tested and can be installed in a vertical or horizontal supporting construction, at a distance below the minimum set by the standard.

For rectangular dampers, the minimal distance is set to 50 mm between 2 dampers or between a damper and a vertical wall, and to 25 mm between a damper and a floor/ceiling.

2



2. Certified solution

For the Rf-t fire dampers, the solution consists of the following elements: A: Universal sealing for minimal distance; B: Sealing compliant with existing classifications (Declaration of Performance).

- A. Sealing of the opening at the side with minimal distances between damper and wall/ceiling or another fire damper: rigid stone wool panels (150 kg/m^3) are applied to a depth of min. 400 mm, of which 150 mm on the mechanism side of the wall. On the non-mechanism side of the wall, the stone wool panels must be at least flush with the wall. This sealing is applied over the whole width/height of the damper(s).

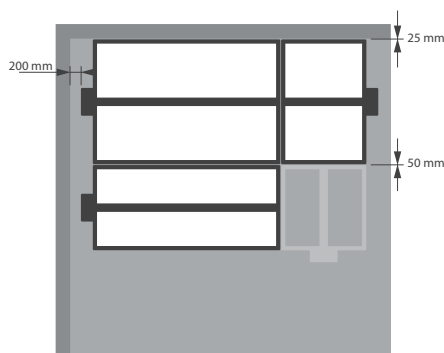
When the damper is installed at a distance of 25 mm from a floor/ceiling, the rigid high-density stone wool panels (A) may be replaced with standard 40 kg/m^3 stone wool, compressed by at least 40%.

- B. Sealing of the rest of the opening according to the existing classifications for the fire damper (Declaration of Performance).

Detailed information for each wall/sealing combination can be found in the respective installation methods.

The installer may choose the direction of the blade axis freely: horizontal or vertical axis.

3



3. Restrictions

A maximum of 2 rectangular dampers can be installed at a minimum distance from one another, both vertically and horizontally (maximum cluster of 4 dampers).

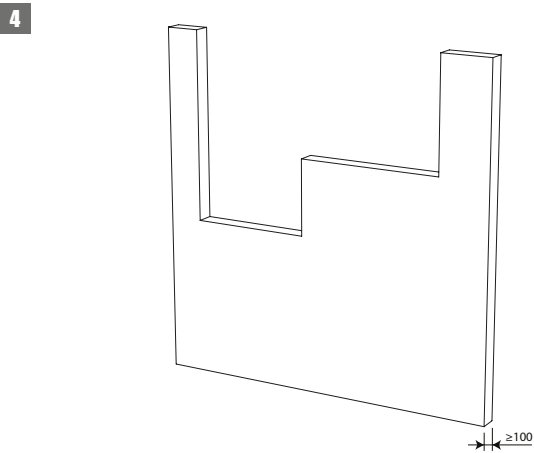
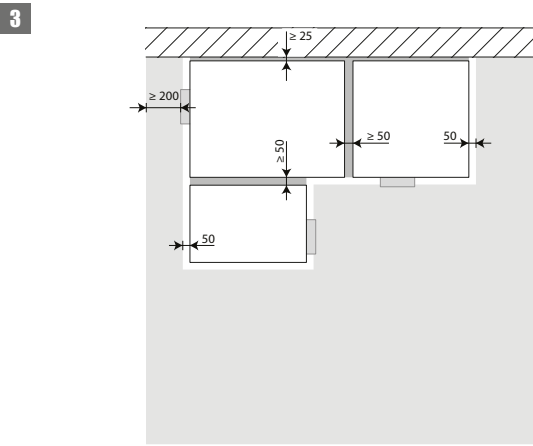
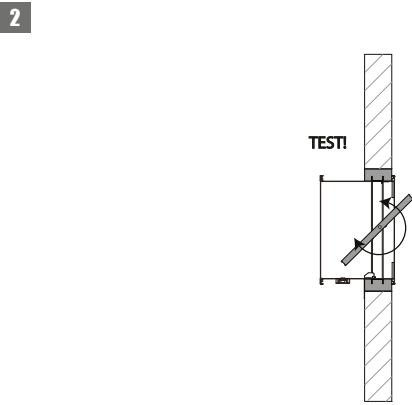
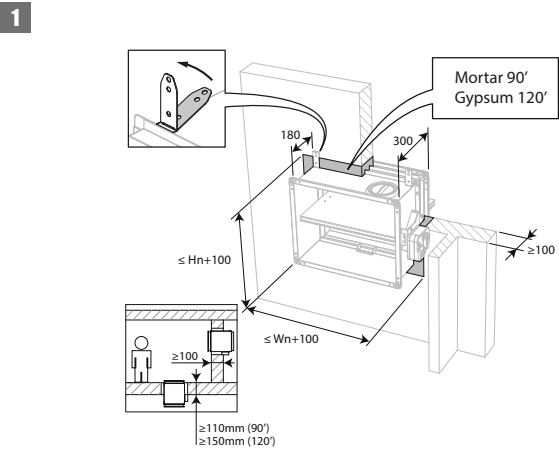
Note: when sealing the opening with panels of fire resistant stone wool, the maximum number of dampers also depends on the maximum "blank seal" allowed for the selected sealing material. Please refer to the manufacturer's instructions for this information.

Note: separate conditions apply for installation in flexible shaft wall and CLT wall. Detailed information can be found in the relevant installation methods.

Installation in rigid wall and floor

The product was tested and approved in:

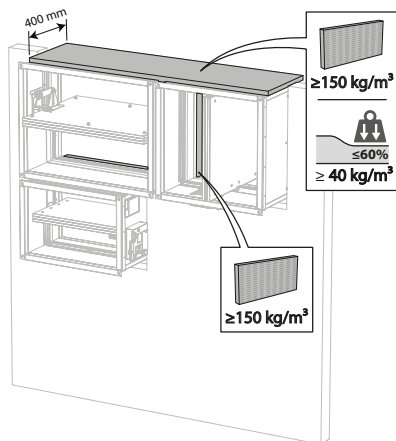
Range	Wall type		Sealing	Classification
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Mortar	El 90 (v _e i ↔ o) S - (500 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Gypsum	El 120 (v _e i ↔ o) S - (500 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid floor	Reinforced concrete ≥ 110 mm	Mortar	El 90 (h _o i ↔ o) S - (500 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid floor	Reinforced concrete ≥ 150 mm	Gypsum	El 120 (h _o i ↔ o) S - (500 Pa)



3. The dampers can be installed at a minimum distance from an adjacent floor/ceiling (≥ 25 mm), from an adjacent wall or from another damper (≥ 50 mm).

4. Make the necessary openings $(W_n + 100 \text{ mm}) \times (H_n + 100 \text{ mm})$ in the wall.

5



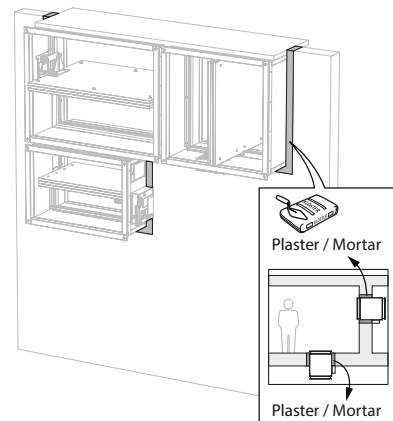
5. Mount the dampers in the opening.

Apply rigid stone wool panels ($\geq 150 \text{ kg/m}^3$) to a depth of 400 mm (150 mm on the mechanism side of the wall) to seal the opening at the side with minimal distances.

This sealing is applied over the whole width/height of the damper(s).

When the damper is installed at a distance of 25 mm from a floor/ceiling, the rigid high-density stone wool panels may be replaced with standard $\geq 40 \text{ kg/m}^3$ stone wool (e.g. Rockfit 431), compressed by at least 40%.

6

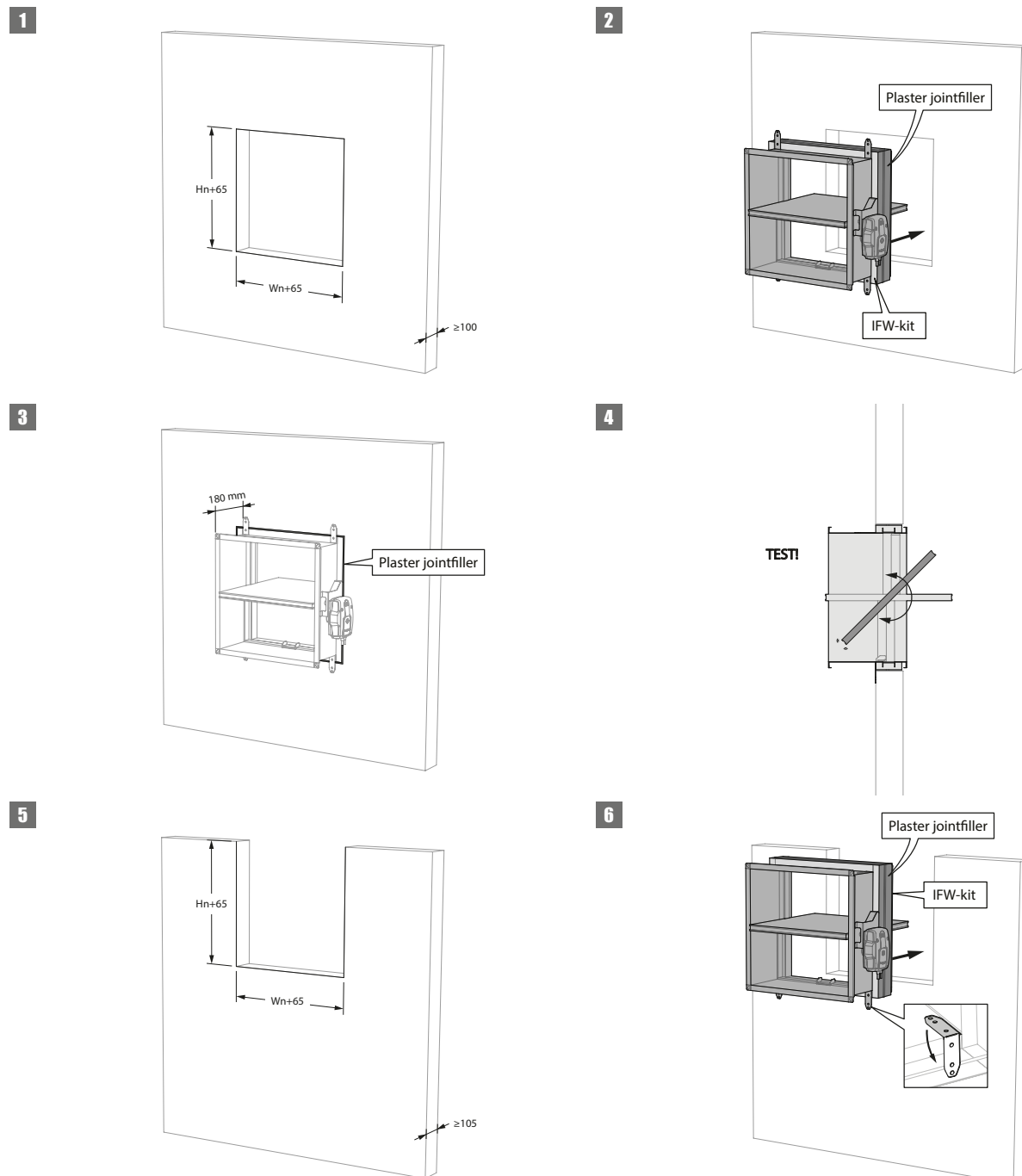


6. Seal the rest of the opening with standard mortar or gypsum.

Installation in rigid wall with IFW installation kit

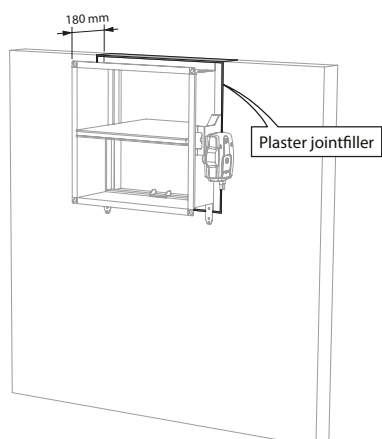
The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Rigid wall	Aerated concrete $\geq 105 \text{ mm}$	Installation kit IFW
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Installation kit IFW

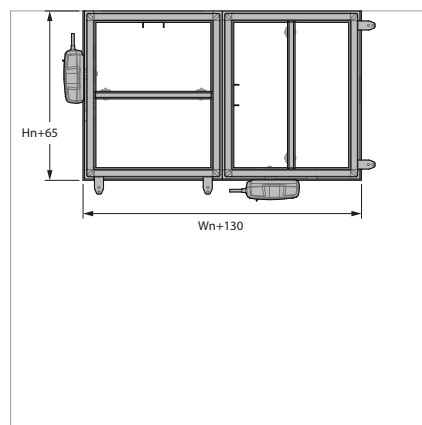


5. If the wall is $\geq 105 \text{ mm}$ thick, the fire damper may be placed at minimum distance from the ceiling/floor slab.

7



8

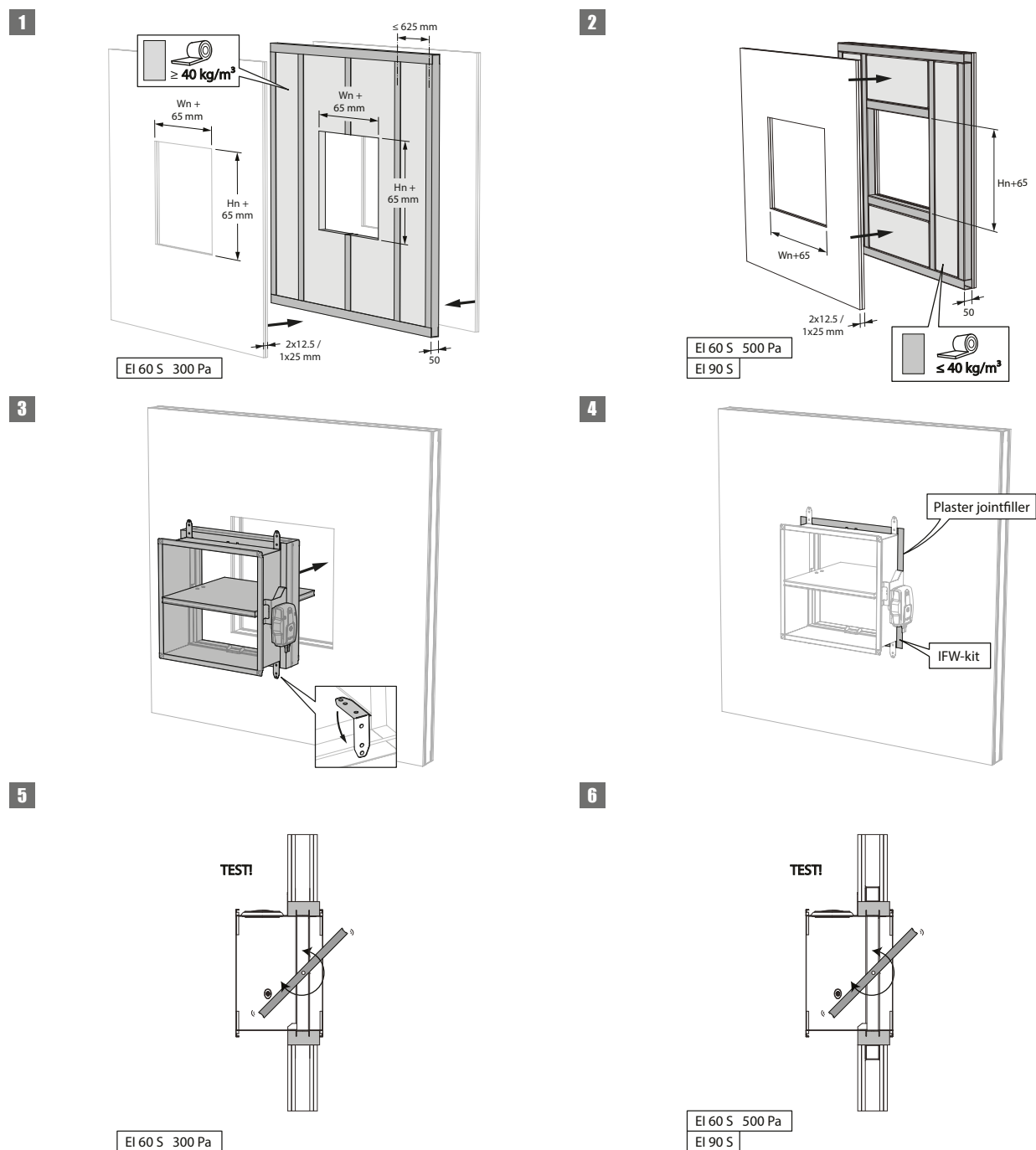


8. If the wall is ≥ 105 mm thick, the fire dampers may be placed at a minimum distance from each other and from the ceiling/floor slab.

Installation in flexible wall (metal stud gypsum plasterboard wall) with IFW installation kit

The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) $\geq 100 \text{ mm}$	Installation kit IFW
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100 \text{ mm}$	Installation kit IFW

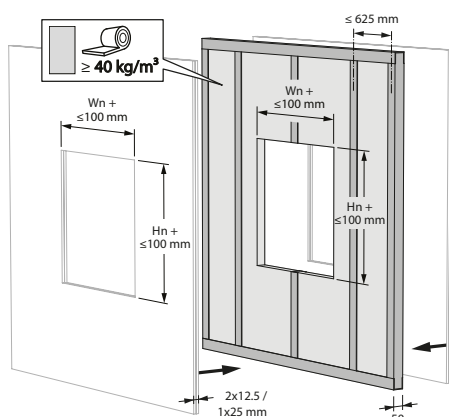


Installation in flexible wall (metal stud gypsum plasterboard wall), sealing with gypsum

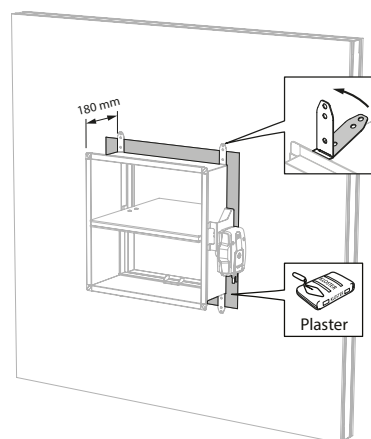
The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Flexible wall	Gypsum	El 60 ($v_e i \leftrightarrow o$) S - (500 Pa)
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Flexible wall	Gypsum	El 90 ($v_e i \leftrightarrow o$) S - (500 Pa)

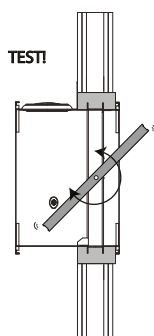
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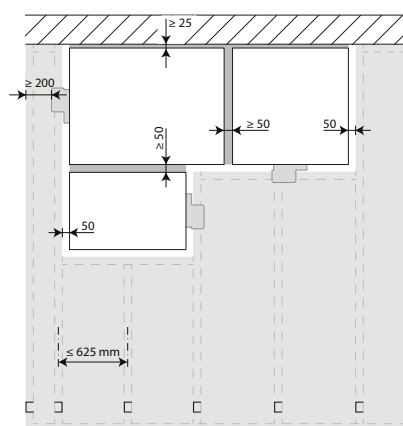
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3

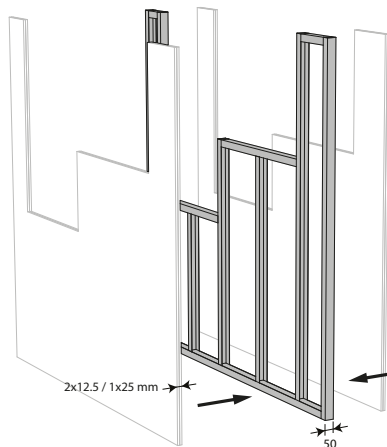


4



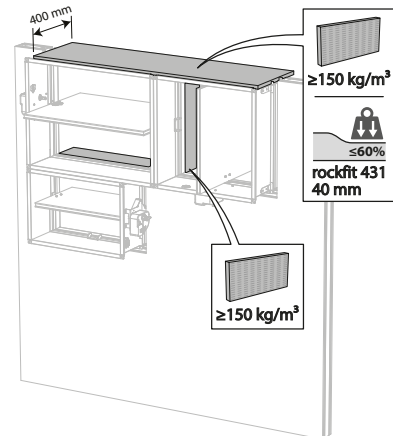
4. The dampers can be installed at a minimum distance from an adjacent floor/ceiling ($\geq 25 \text{ mm}$), from an adjacent wall or from another damper ($\geq 50 \text{ mm}$).

5



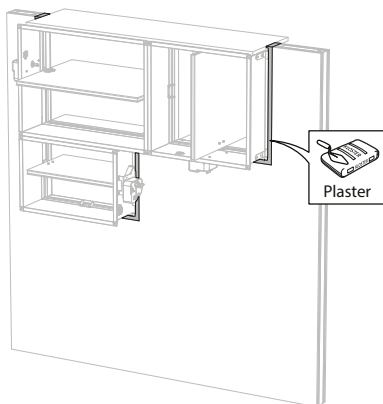
5. Build the drywall and mount horizontal and vertical studs around the opening.
When installing a single fire damper at a minimum distance from the ceiling, it is not necessary, from a fire technical point of view, to provide studs around the opening.

6



6. Mount the dampers in the opening.
Apply rigid stone wool panels ($\geq 150 \text{ kg/m}^3$) to a depth of 400 mm (150 mm on the mechanism side of the wall) to seal the opening at the side with minimal distances.
This sealing is applied over the whole width/height of the damper(s).
When the damper is installed at a distance of 25 mm from a floor/ceiling, the rigid high-density stone wool panels may be replaced with standard $\geq 40 \text{ kg/m}^3$ stone wool (e.g. Rockfit 431), compressed by at least 40%.

7



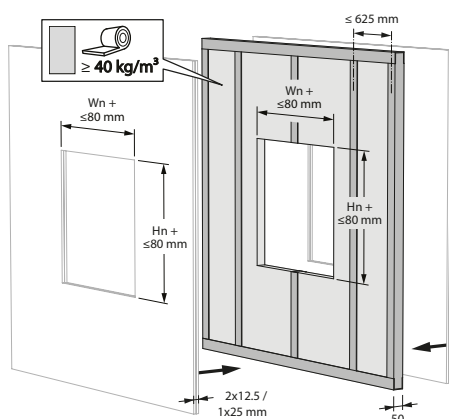
7. Seal the rest of the opening (50 mm) with standard gypsum across the entire wall thickness.

Installation in flexible wall (metal stud gypsum plasterboard wall), sealing with mortar

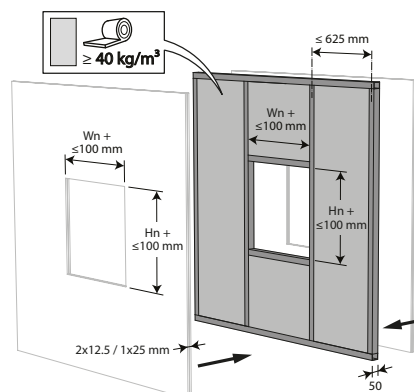
The product was tested and approved in:

Range	Wall type		Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) $\geq 100 \text{ mm}$	Mortar	El 60 (v_e i $\leftrightarrow$ o) S - (300 Pa)
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100 \text{ mm}$	Mortar	El 90 (v_e i $\leftrightarrow$ o) S - (300 Pa)

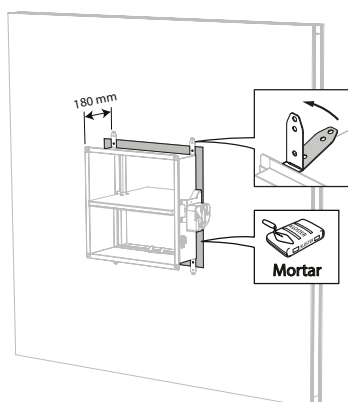
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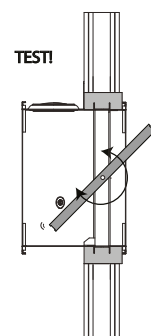
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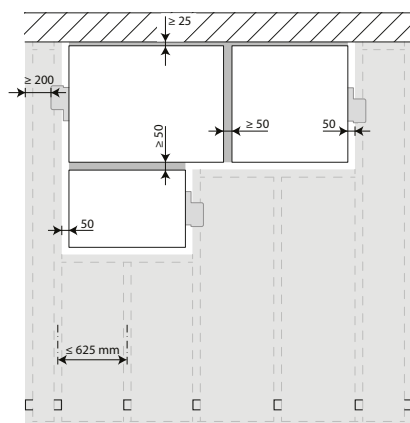
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4

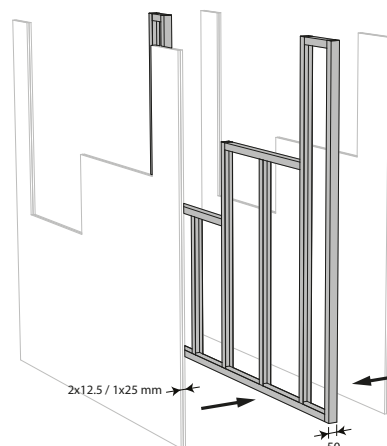


5



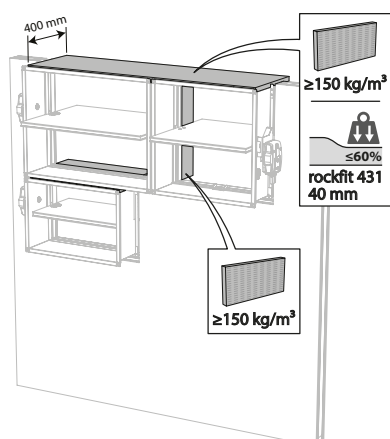
5. The dampers can be installed at a minimum distance from an adjacent floor/ceiling (≥ 25 mm), from an adjacent wall or from another damper (≥ 50 mm).

6



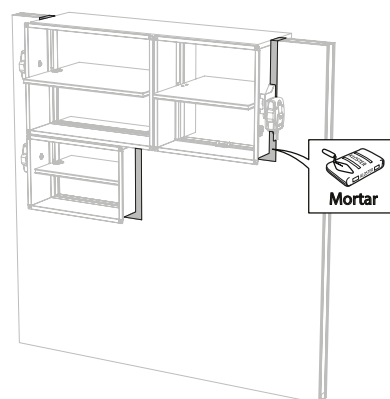
6. Build the drywall and mount horizontal and vertical studs around the opening.
When installing a single fire damper at a minimum distance from the ceiling, it is not necessary, from a fire technical point of view, to provide studs around the opening.

7



7. Mount the dampers in the opening.
Apply rigid stone wool panels (≥ 150 kg/m³) to a depth of 400 mm (150 mm on the mechanism side of the wall) to seal the opening at the side with minimal distances.
This sealing is applied over the whole width/height of the damper(s).
When the damper is installed at a distance of 25 mm from a floor/ceiling, the rigid high-density stone wool panels may be replaced with standard ≥ 40 kg/m³ stone wool (e.g. Rockfit 431), compressed by at least 40%.

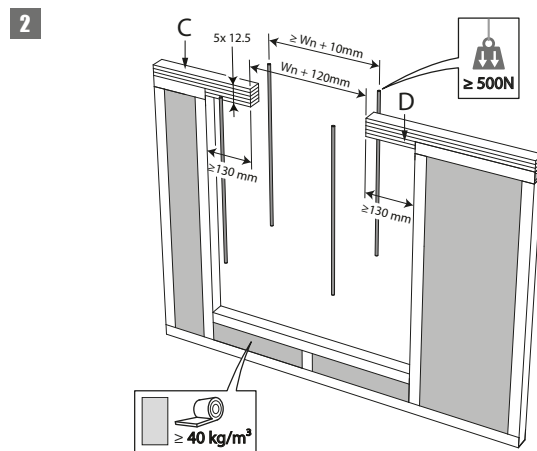
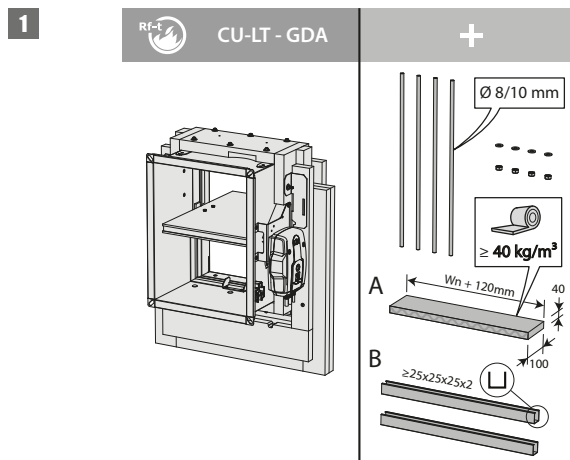
8



8. Seal the rest of the opening (50 mm) with standard mortar across the entire wall thickness.

Installation in flexible wall with solution for slab deflection (GDA)

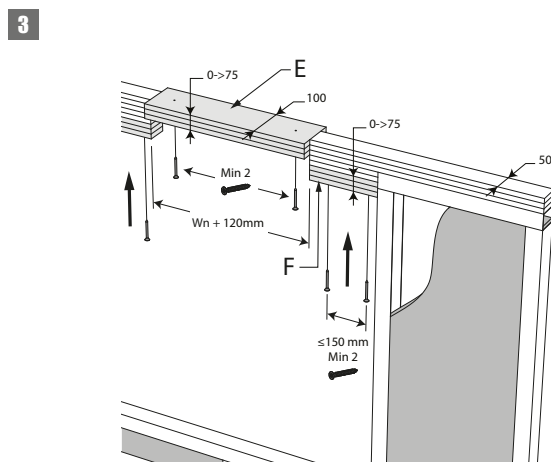
The product was tested and approved in:



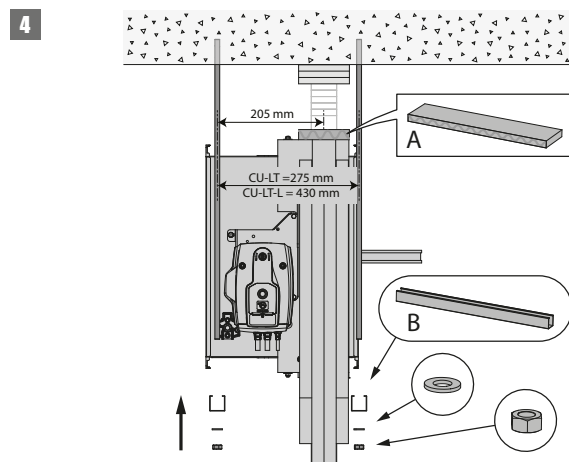
2. Interrupt the sliding connection (C) of the wall on a length of $W_n + 120 \text{ mm}$.

In the remaining width of the opening, add gypsum plasterboards to reach 5 layers of 12.5 mm (or a total of 60 mm) at both sides of the fire damper.

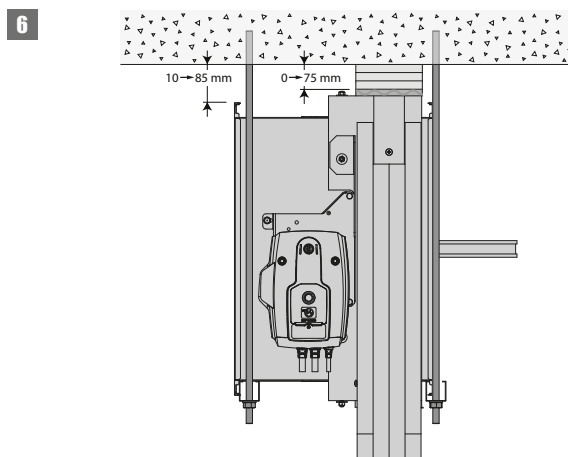
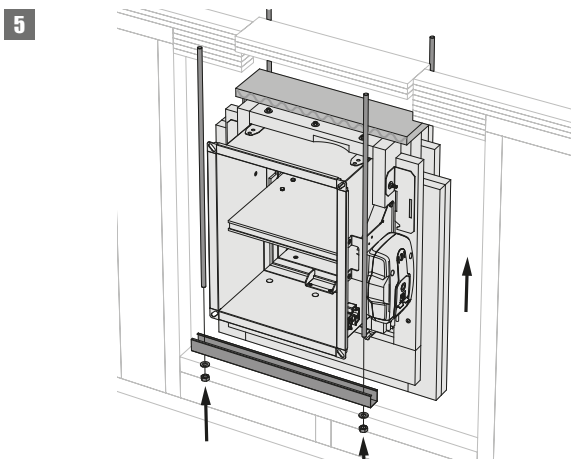
Attach 4 threaded rods (diameter ≥ 8 mm) to the ceiling at a distance of $W_n + 10$ mm. The distance between the rods and the wall is mentioned on picture 4.



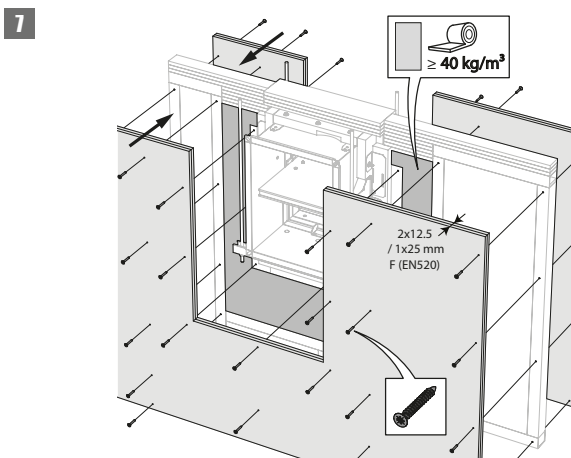
3. If the fire damper with GDA is mounted at a distance from the ceiling, add layers of fire-resistant gypsum plasterboards (type F) to reach a maximum distance of 75 mm from the ceiling: 'E' boards in the opening, with a width of 100 mm, and 'F' boards in the remaining width of the opening, with a width of 50 mm.



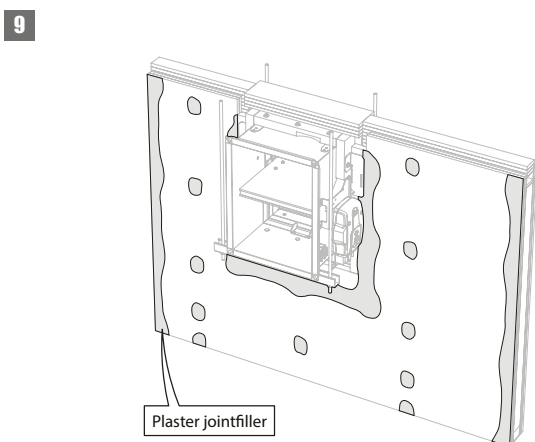
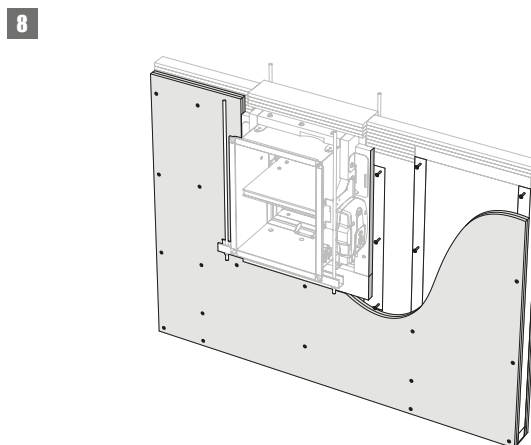
4. Lay a strip of stone wool (40 kg/m³) 'A' with dimensions 40 x 100 x (W_n + 120) mm on top of the GDA. Suspend the fire damper to the rods that hang from the ceiling by means of nuts and U-shaped suspension profiles (B).



6. Tighten the nuts until the GDA comes up to the ceiling.



7. Prepare gypsum plasterboards that come to the edge of the GDA and fasten them with screws to the flange on 3 sides of the GDA. Fasten the plasterboards to the wall with screws, in compliance with the specifications of the wall system manufacturer.

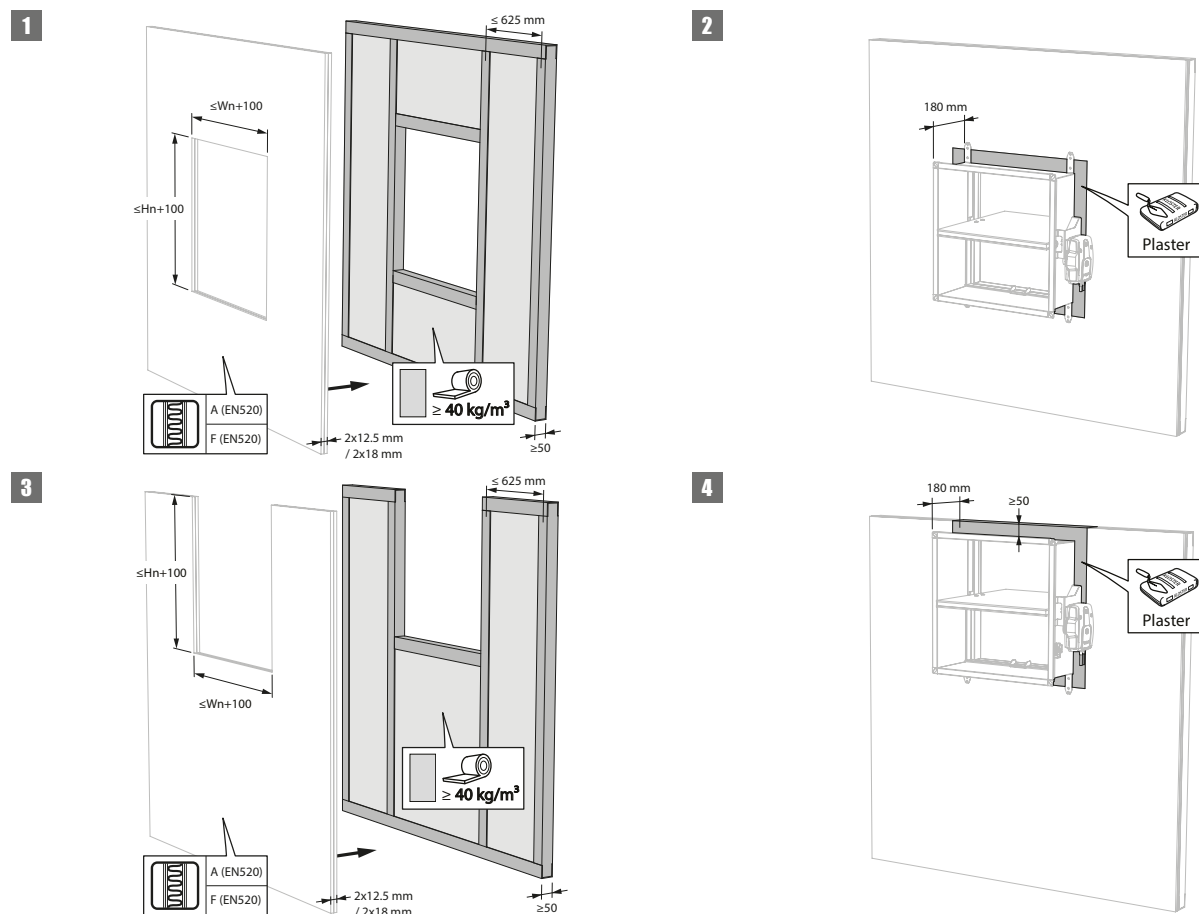


9. Use the sealing material specified by the wall manufacturer to seal the connection between the fire damper and the wall.

Installation in shaft wall, sealing with gypsum

The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Asymmetrical flexible wall (shaft wall)	Gypsum	El 30 ($v_e i \leftrightarrow o$) S - (500 Pa)

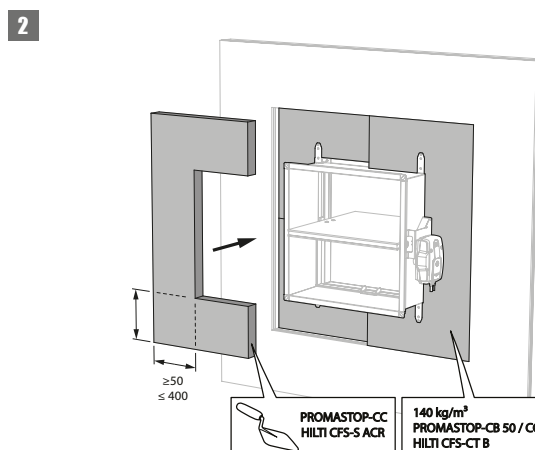
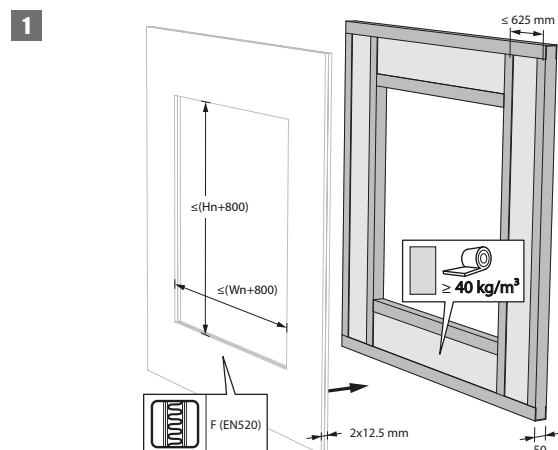


3. The dampers can be installed at a minimum distance ($\geq 50 \text{ mm}$) from a ceiling or floor slab.

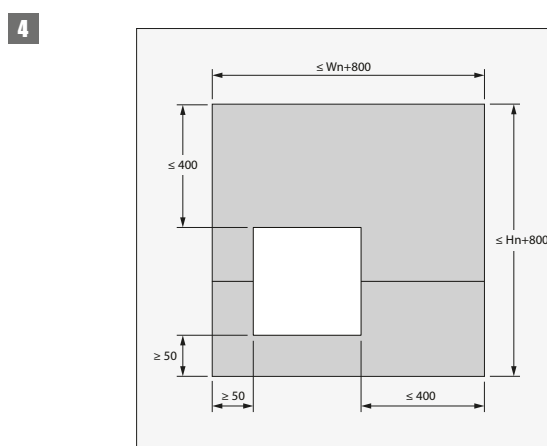
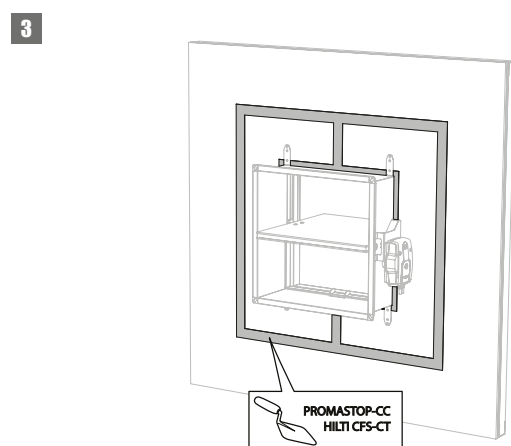
Installation in shaft wall, sealing with rigid rock wool boards with coating

The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Asymmetrical flexible wall (shaft wall)	Metal studs gypsum plasterboard Type F (EN 520) $\geq 75 \text{ mm}$	Stone wool + coating $\geq 140 \text{ kg/m}^3$
			El 30 ($v_e i \leftrightarrow o$) S - (300 Pa)

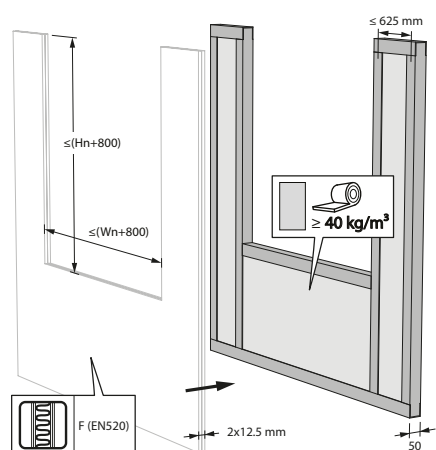


2. The opening around the damper is sealed with 2 hard rock wool slabs of 50 mm. These boards should be placed in a slanted position and the joints should be covered all around with filling paste.



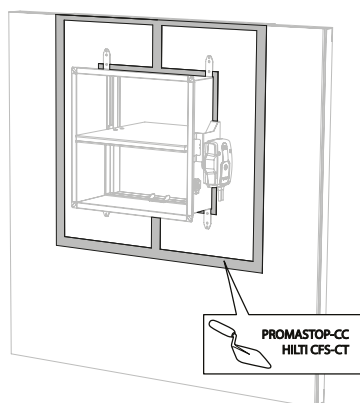
4. The damper does not need to be centered in the opening (with max dimensions $W_n \times H_n$ fire damper + 800 mm). The maximal distance between the damper and the edge of the opening is 400 mm.

5

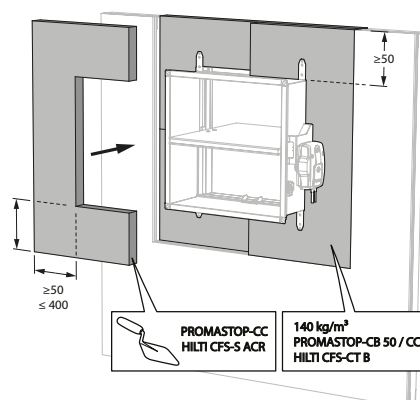


5. The dampers can be installed at a minimum distance (≥ 50 mm) from a ceiling or floor slab.

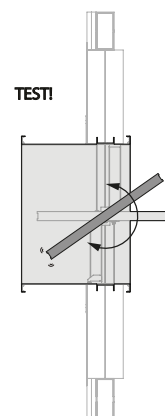
7



6



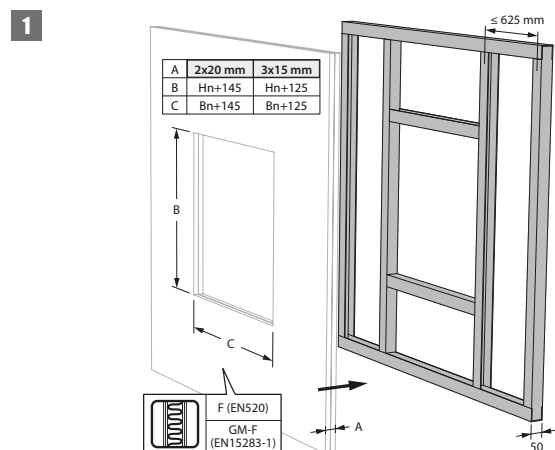
8



Installation in shaft wall with IFW installation kit

The product was tested and approved in:

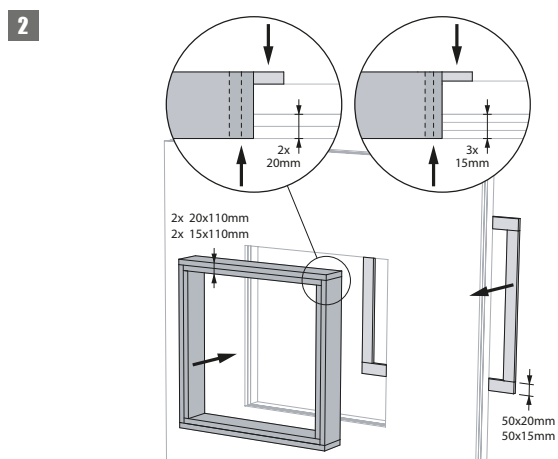
Range	Wall type	Sealing	Classification
200x100 mm ≤ CU-LT ≤ 800x600 mm	Asymmetrical flexible wall (shaft wall)	Metal studs gypsum plasterboard Type F (EN 520) ≥ 90 mm	Installation kit IFW
			El 90 (v _e i ↔ o) S - (300 Pa)



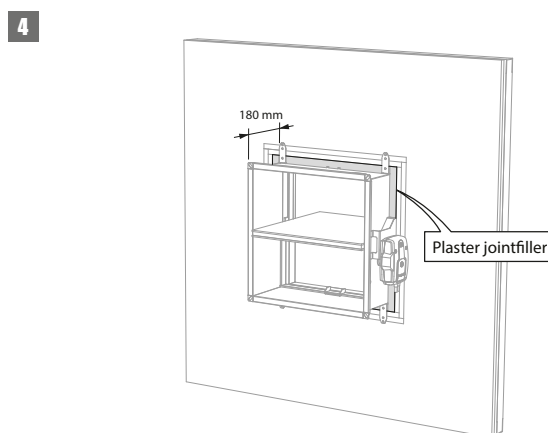
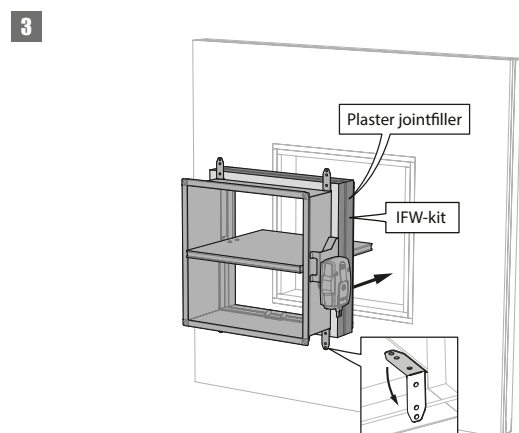
1. Depending on the shaft wall system, the cladding is 15 or 20mm thick.

Suitable for installation in shaft walls with cementitious fibreboards and calcium silicate boards.

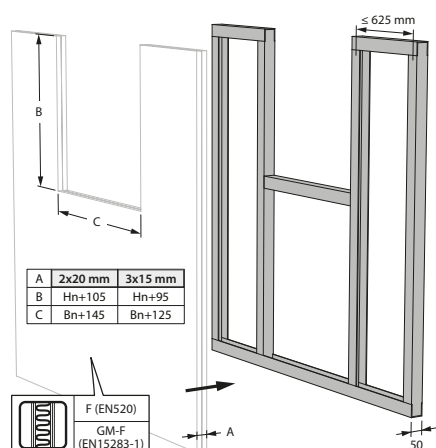
See manufacturer's instructions for EI90 walls.



2. Alternatively, the aperture framing can also be stepped.

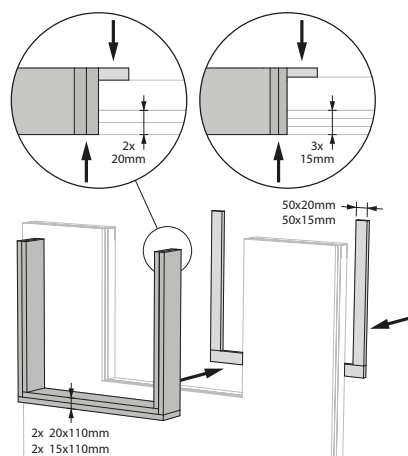


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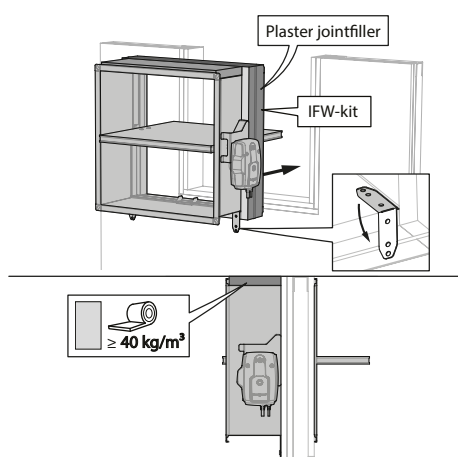
5. The fire damper may be placed at minimum distance from the ceiling/floor slab.

6



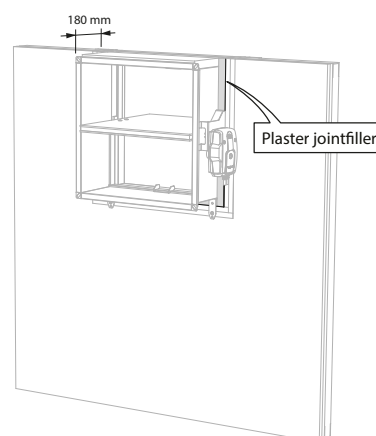
6. Alternatively, the aperture framing can also be stepped.

7

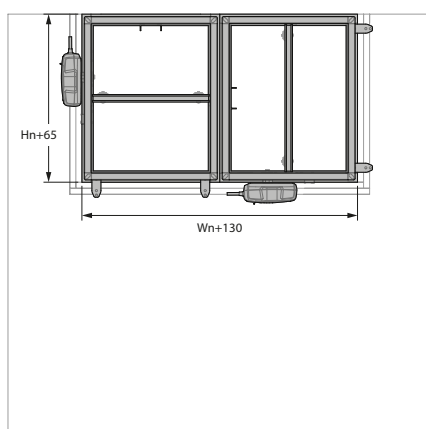


7. Fill the gap between the top of the damper and the floor slab with mineral wool.

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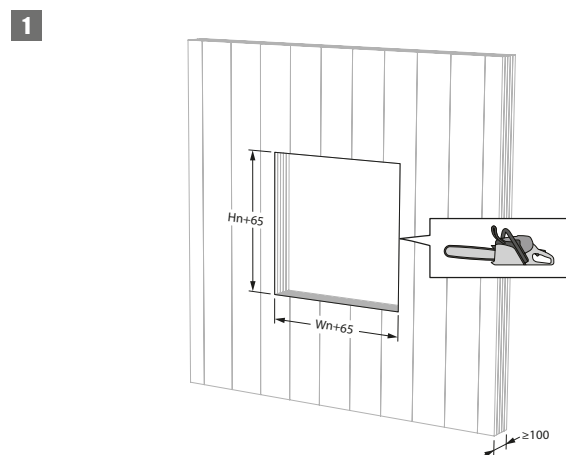


9. The fire dampers may be placed at minimum distance from each other and from the ceiling/floor slab.

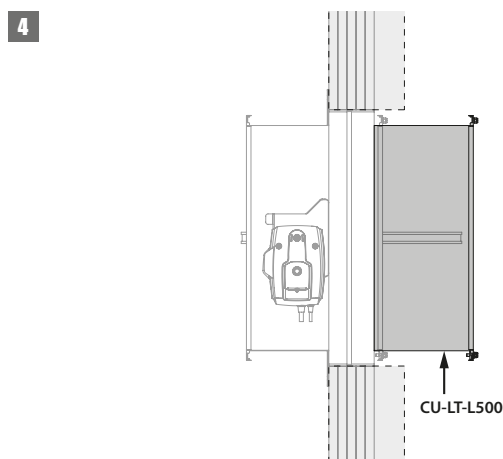
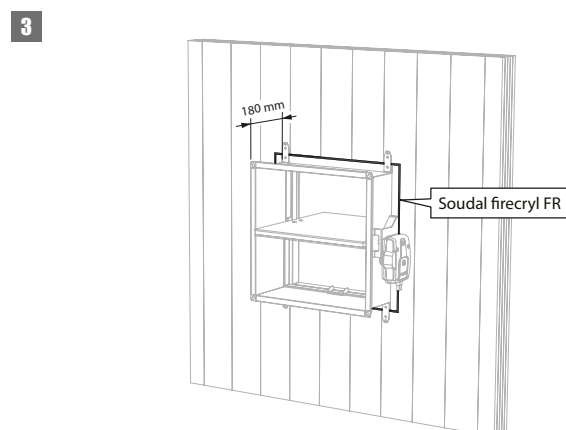
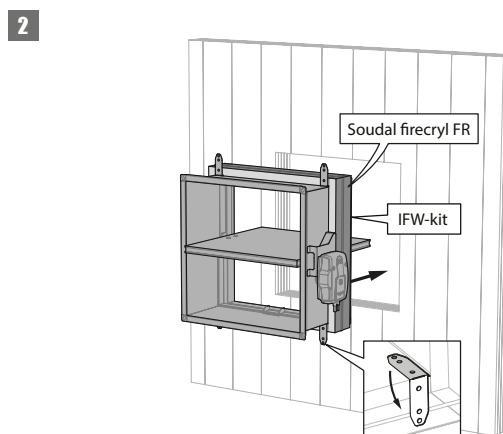
Installation in CLT wall with IFW installation kit

The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	CLT wall	Cross-laminated timber $\geq 100 \text{ mm}$	Installation kit IFW

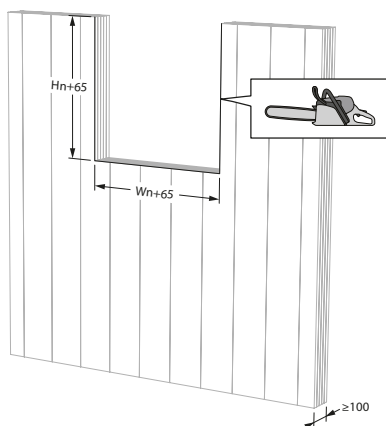


1. Saw out the installation opening on site if not provided.



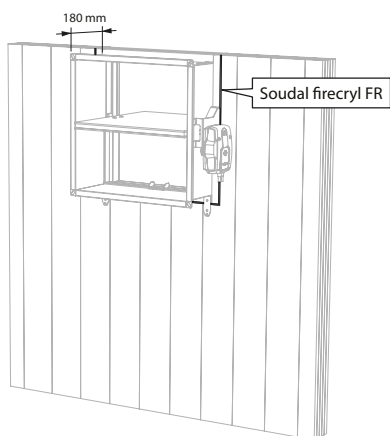
4. For a wall thickness $> 100 \text{ mm}$, it is recommended to provide a longer version of the fire damper (CU-LT-L500). The installation method remains unchanged.

5

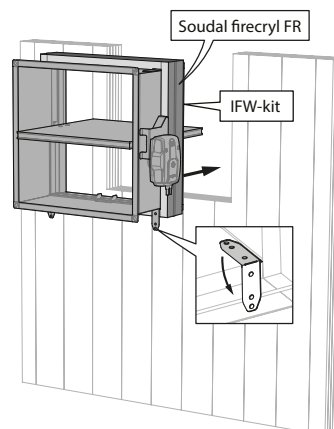


5. The fire damper may be placed at minimum distance from the ceiling/floor slab.

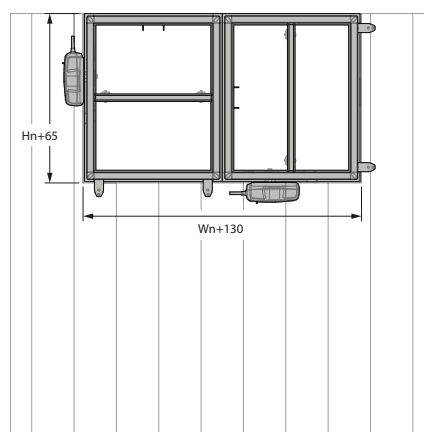
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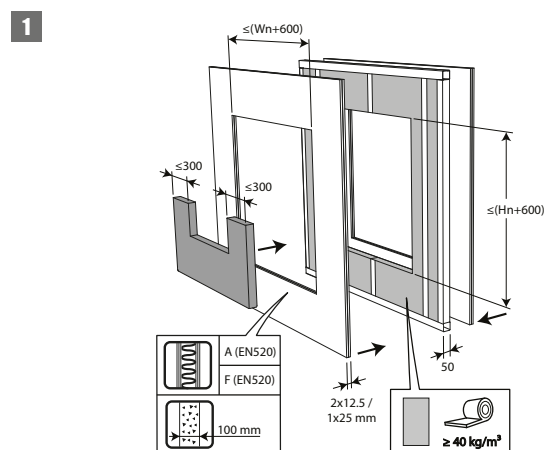


8. The fire dampers may be placed at minimum distance from each other and from the ceiling/floor slab.

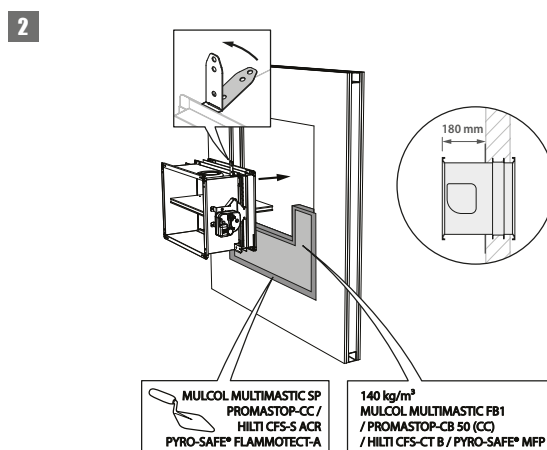
Installation in flexible and rigid wall, sealing with rigid rock wool boards with coating

The product was tested and approved in:

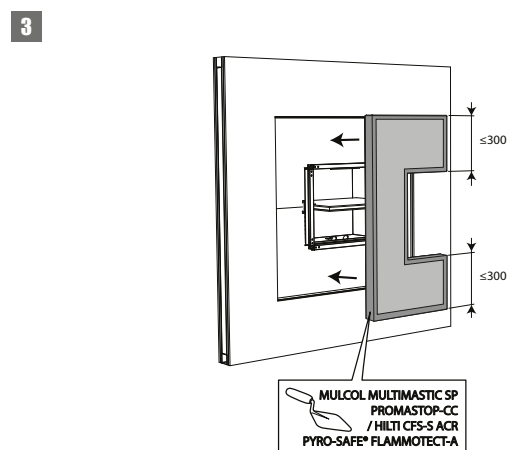
Range	Wall type		Sealing	Classification
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Stone wool + coating ≥ 140 kg/m³ + coated casing	El 120 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Stone wool + coating ≥ 140 kg/m³	El 90 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100 mm	Stone wool + coating ≥ 140 kg/m³	El 60 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100 mm	Stone wool + coating ≥ 140 kg/m³ + coated casing	El 120 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100 mm	Stone wool + coating ≥ 140 kg/m³	El 90 (v _e i ↔ o) S - (300 Pa)



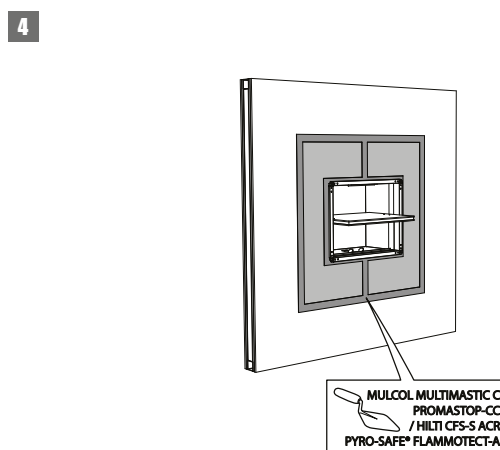
1. For a flexible wall, provide horizontal and vertical studs around the opening. Exception: for fire resistance EI60S and if sealing with Promastop or Hilti type boards, it is not necessary, from a fire technical point of view, to provide studs around the opening.



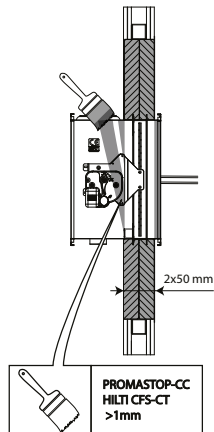
2. The opening around the damper is sealed with 2 layers of 50 mm-thick mineral wool panels with fire resistant coating on one side (type PROMASTOP-CB 50 / PROMASTOP-CB/CC 50 / HILTI CFS-CT B / Mulcol Multimastic FB1 / PYRO-SAFE® MFP). EI120S only possible with Hilti or Promat material.



3. The joints on these 2 layers must be installed staggered and covered all around the edge with coating (type PROMASTOP-CC / HILTI CFS-S-ACR / Mulcol Multimastic SP / PYRO-SAFE® FLAMMOTECT-A).



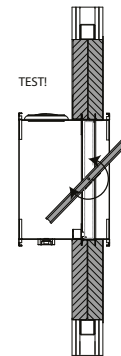
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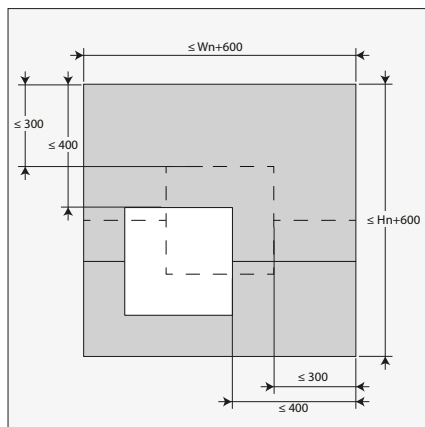
5. For EI 120 S, the casing of the fire damper must be covered with a layer (> 1 mm) of coating (type PROMASTOP-CC / HILTI CFS-CT).

Also apply this coating for EI 60 S if no metal stud profiles were provided around the opening.

6

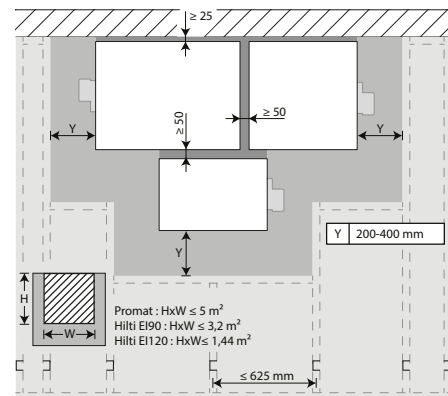


7



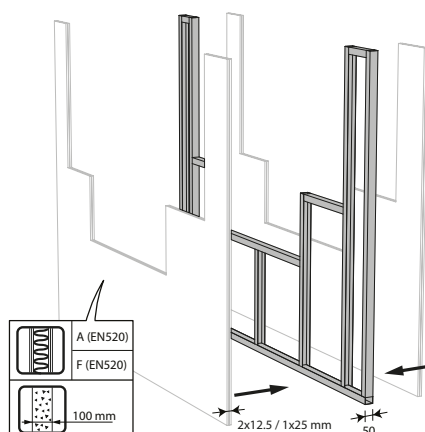
7. The damper does not need to be centered in the opening (with max dimensions fire damper + 600 mm). The maximal distance between the damper and the edge of the opening is 400 mm.

8



8. The dampers can be installed at a minimum distance from an adjacent floor/ceiling (≥ 25 mm), from an adjacent wall or from another damper (≥ 50 mm).

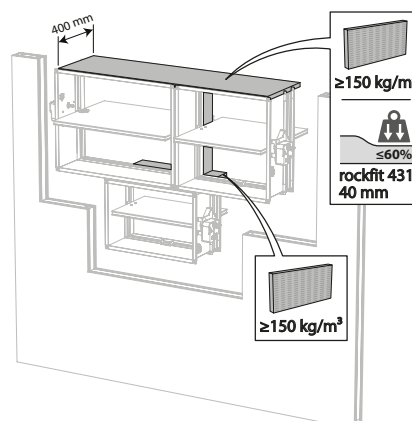
9



9. Build the drywall and mount horizontal and vertical studs around the opening.

When installing a single fire damper at a minimum distance from the ceiling, it is not necessary, from a fire technical point of view, to provide studs around the opening in case of desired fire resistance EI60S.

10



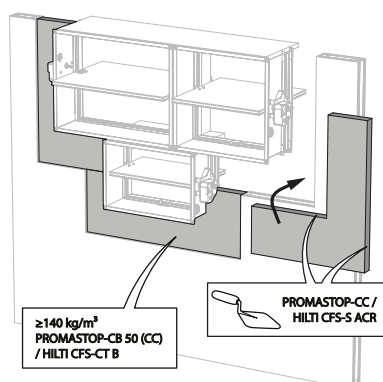
10. Mount the dampers in the opening.

Apply rigid stone wool panels ($\geq 150 \text{ kg/m}^3$) to a depth of 400 mm (150 mm on the mechanism side of the wall) to seal the opening at the side with minimal distances.

This sealing is applied over the whole width/height of the damper(s).

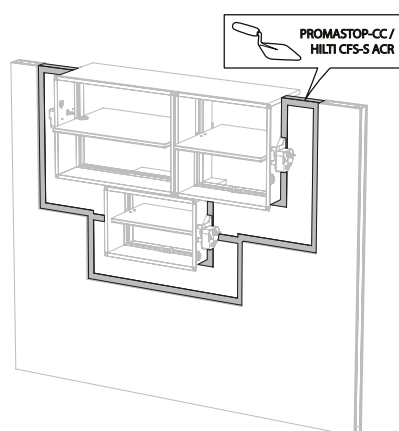
When the damper is installed at a distance of 25 mm from a floor/ceiling, the rigid high-density stone wool panels may be replaced with standard $\geq 40 \text{ kg/m}^3$ stone wool (e.g. Rockfit 431), compressed by at least 40%.

11



11. Seal the rest of the opening with 2 layers of 50 mm-thick coated rigid mineral wool panels (see above).

12



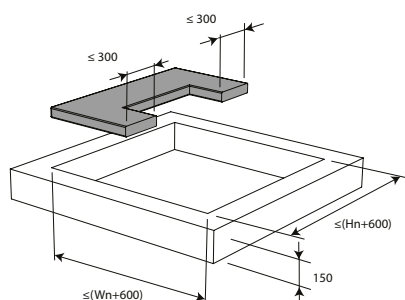
12. When installing a single fire damper at a minimum distance from the ceiling: for desired fire resistance EI60S and installation without studs around the opening: apply the coating also to the tunnel of the fire damper.

Installation in rigid floor, sealing with rigid rock wool boards with coating

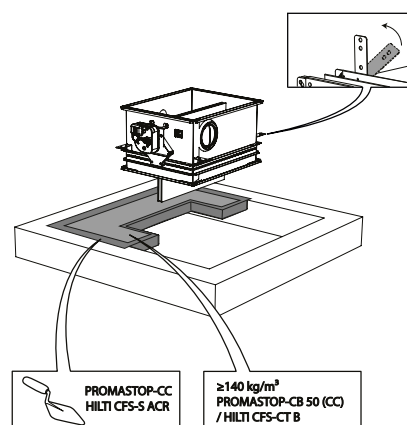
The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Rigid floor	Stone wool + coating $\geq 140 \text{ kg/m}^3$ + coated casing	El 120 ($h_o \text{ i} \leftrightarrow o$) S - (300 Pa)
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Rigid floor	Aerated concrete $\geq 150 \text{ mm}$	Stone wool + coating $\geq 140 \text{ kg/m}^3$
			El 90 ($h_o \text{ i} \leftrightarrow o$) S - (300 Pa)

1

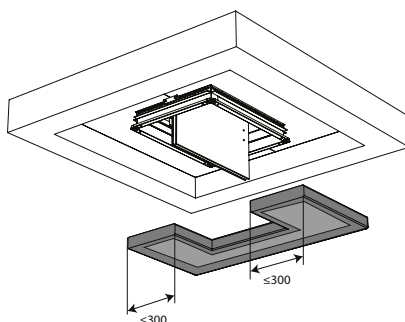


2

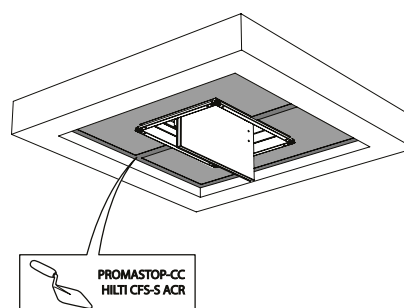


1. The opening around the damper is sealed with 2 layers of 50 mm-thick mineral wool panels with fire resistant coating on one side (type PROMASTOP-CB 50 / PROMASTOP-CB/CC 50 / HILTI CFS-CT B).

3

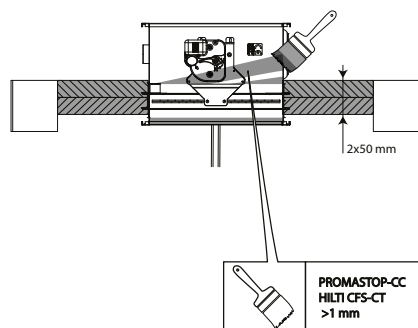


4



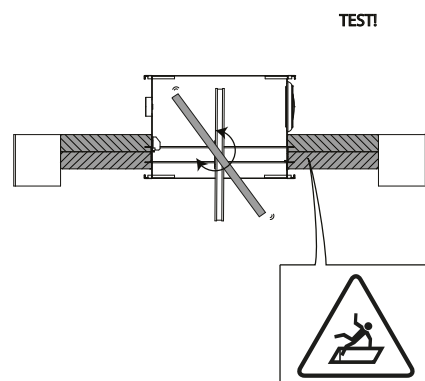
3. The joints on these 2 layers must be installed staggered and covered all around the edge with coating (type PROMASTOP-CC / HILTI CFS-S-ACR).

5

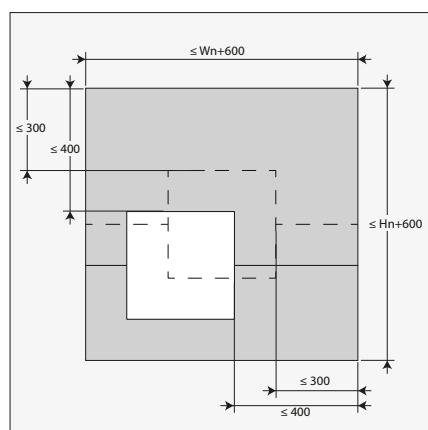


5. For EI 120 S, the casing of the fire damper must be covered with a layer (> 1 mm) of coating (type PROMASTOP-CC / HILTI CFS-CT).
(only for 120 minutes)

6

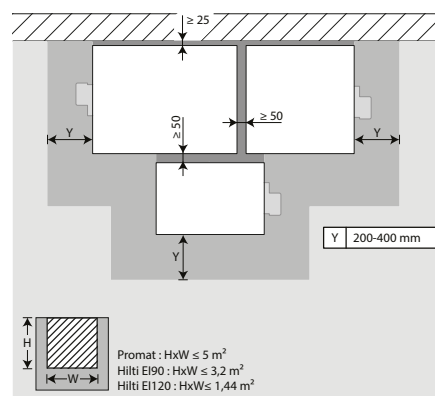


7



7. The damper does not need to be centered in the opening (with max dimensions fire damper + 600 mm). The maximal distance between the damper and the edge of the opening is 400 mm.

8

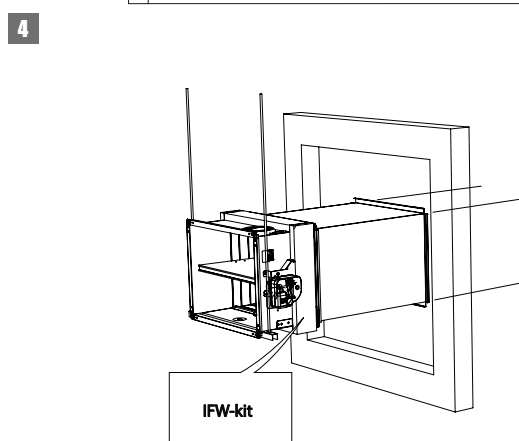
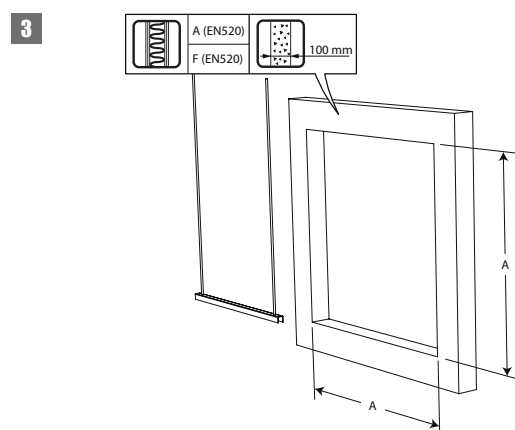
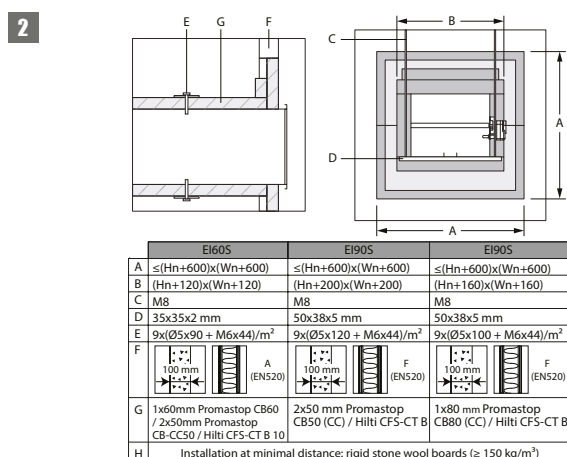
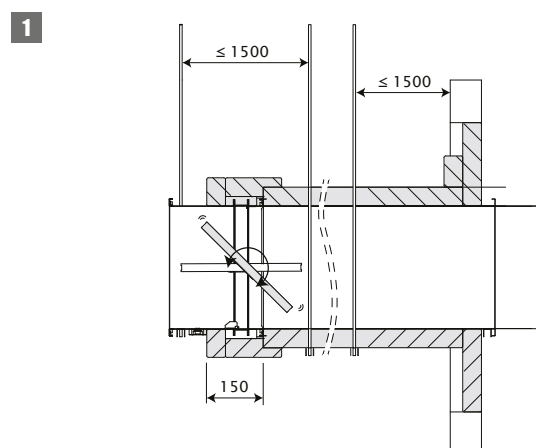


8. The dampers can be installed at a minimum distance from an adjacent wall or from another damper (≥ 50 mm).
For details, please refer to 'Installation in flexible and rigid wall, sealing with rigid rock wool boards with coating'

Installation remote from the wall, sealing and insulation with rigid rock wool boards with coating

The product was tested and approved in:

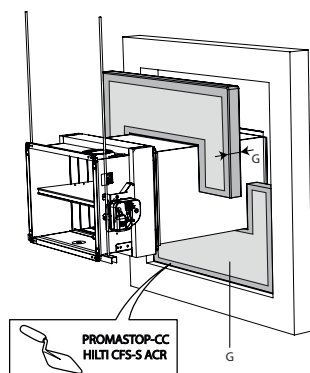
Range	Wall type		Sealing	Classification
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Galvanised duct + stone wool + coating ≥ 140 kg/m³ 1x60 mm + installation kit IFW	El 60 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Galvanised duct + stone wool + coating ≥ 140 kg/m³ 1x80 mm + IFW installation kit	El 90 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Rigid wall	Aerated concrete ≥ 100 mm	Galvanised duct + stone wool + coating ≥ 140 kg/m³ 2x50 mm + installation kit IFW	El 90 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100 mm	Galvanised duct + stone wool + coating ≥ 140 kg/m³ 1x60 mm + installation kit IFW	El 60 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100 mm	Galvanised duct + stone wool + coating ≥ 140 kg/m³ 2x50 mm + installation kit IFW	El 60 (v _e i ↔ o) S - (300 Pa)
200x100 mm ≤ CU-LT ≤ 800x600 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100 mm	Galvanised duct + stone wool + coating ≥ 140 kg/m³ 2x50 mm + installation kit IFW	El 90 (v _e i ↔ o) S - (300 Pa)



3. An opening with maximal dimensions "A" is made in the wall. For a light partition wall, follow the wall assembly under "Installation in flexible or rigid wall - Sealing with fire resistant rigid panels of stone wool".

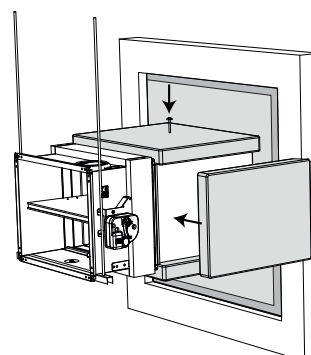
4. The fire damper is equipped with the IFW kit and mounted remote from the wall at the end of a metal duct. The duct is supported every 1500 mm as well as underneath the damper. The suspensions consist of threaded rods "C" and U-shaped steel profiles "D". A free space of maximum 25 mm is left between the threaded rods and the vertical walls of the stone wool casing "B".

5



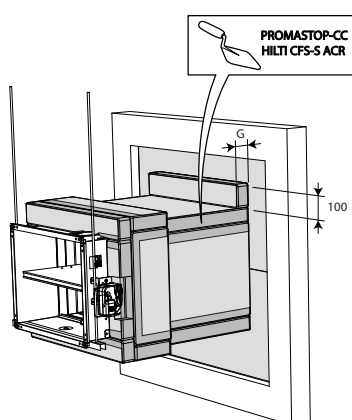
5. The opening around the duct is sealed with stone wool plates type Promastop CB/(CC) / Hilti CFS-CT B ("G"). The edges are sealed and maintained in place with PROMASTOP-CC / HILTI CFS-S ACR coating.

6



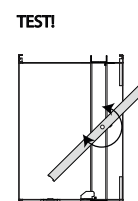
6. The duct is covered over its entire length with stone wool plates "G". To adhere to the duct, the plates are completely coated on one side with fire resistant coating and affixed to the duct with steel screws and washers "E". The damper casing is covered with stone wool plates "G" for 150 mm. A free space is left around the mechanism to allow access. The joints between the plates, between the wall and the plates as well as the screws and washers are filled with coating PROMASTOP-CC / HILTI CFS-S ACR.

7

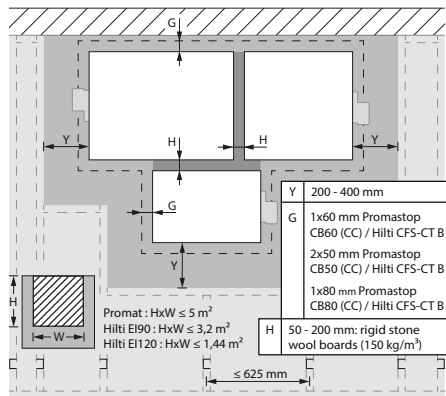


7. An additional mineral wool panel with width "B" and height 100 mm, coated with PROMASTOP-CC / HILTI CFS-S ACR, is applied where the stone wool casing meets the sealing of the wall opening.

8

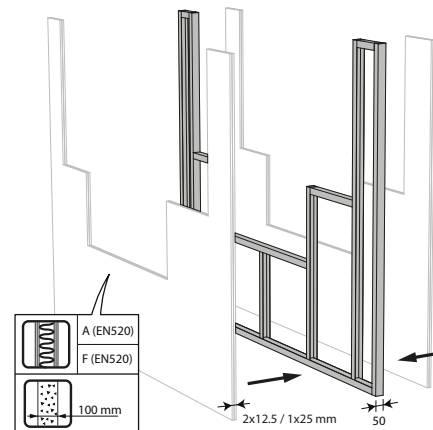


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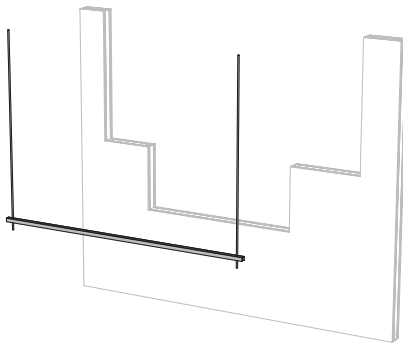


9. The dampers can be installed at a minimum distance from an adjacent floor/ceiling, from an adjacent wall or from another damper.

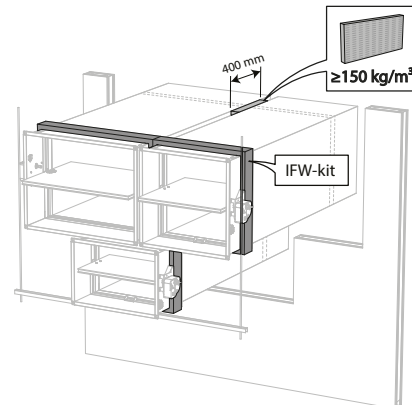
10



11

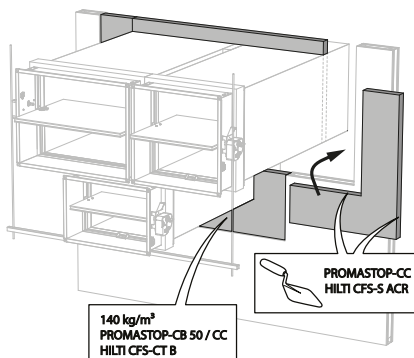


12

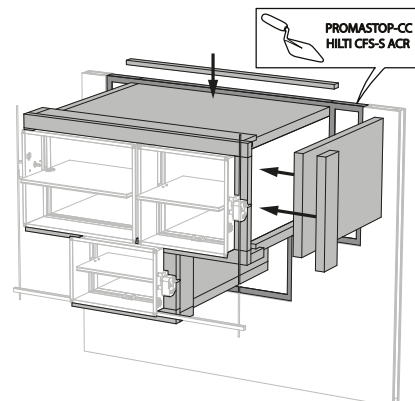


12. Apply rigid stone wool panels ($\geq 150 \text{ kg/m}^3$) to a depth of 400 mm (150 mm on the mechanism side of the wall) to seal the opening at the side with minimal distances. When the distance between the damper and the wall is greater than 75 mm, the sealing of the opening between the damper and the wall is carried out according to the pre-existing classification.

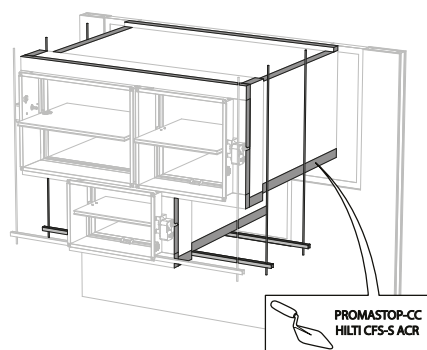
13



14



15

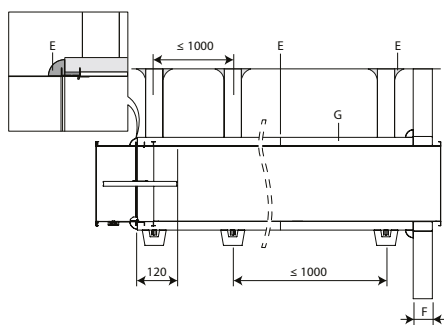


Installation remote from the wall + GEOFLAM

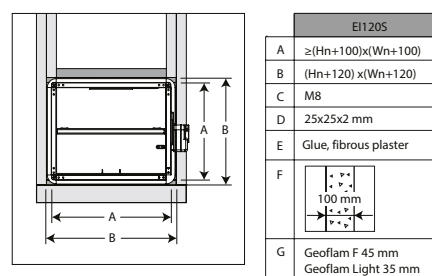
The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Galvanised duct + GEOFLAM® F 45 mm + mortar
$200 \times 100 \text{ mm} \leq \text{CU-LT} \leq 800 \times 600 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Galvanised duct + GEOFLAM® Light 35 mm + mortar

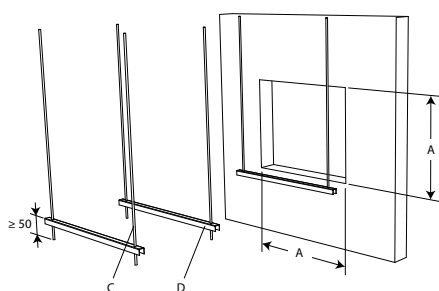
1



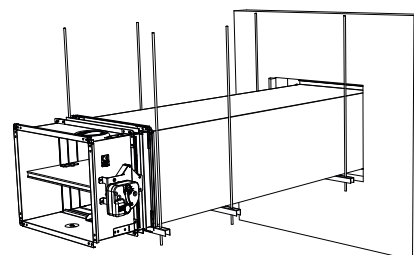
2



3



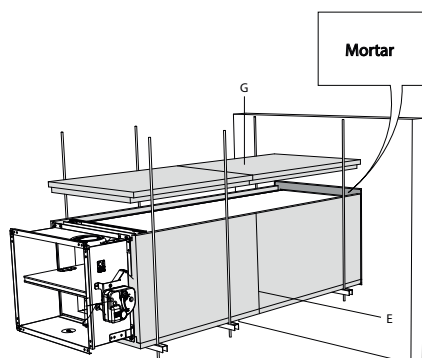
4



3. An opening with maximal dimensions "A" is made in the wall.

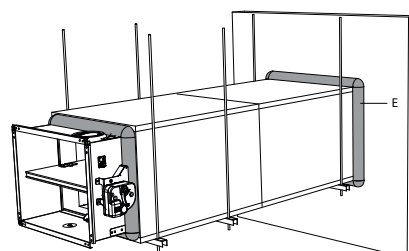
4. The fire damper is mounted remote from the wall at the end of a metal duct. The duct is supported every 1000 mm. The suspensions consist of threaded rods "C" and U-shaped steel profiles "D". A free space of maximum 25 mm is left between the threaded rods and the vertical walls of the casing "B".

5



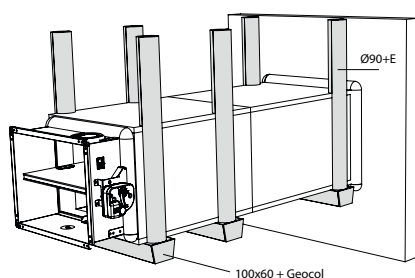
5. The opening around the duct is sealed with standard mortar. The duct is covered with 45 mm thick GEOFLAM F plates or 35 mm thick GEOFLAM Light plates "G". The plates adhere to each other with glue and fibrous plaster "E". The damper casing is also covered on a length of 120 mm.

6



6. The GEOFLAM F plates stop at a distance of 15 mm from the wall. The free space is filled with fibrous plaster. The same filling is applied to seal off the connection between the GEOFLAM F plates and the damper casing.

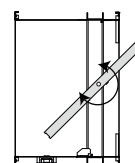
7



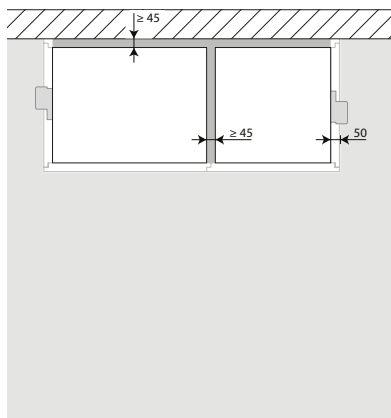
7. The threaded rods are covered with U-shaped plates of GEOFLAM (Ø 90 mm) and affixed with glue and fibrous plaster. The profiles are covered with U-shaped shells GEOFLAM 100 x 60 mm, which are affixed to the underside of the shaft with GEOCOL (GEOSTAFF) cement plaster.

8

TEST!

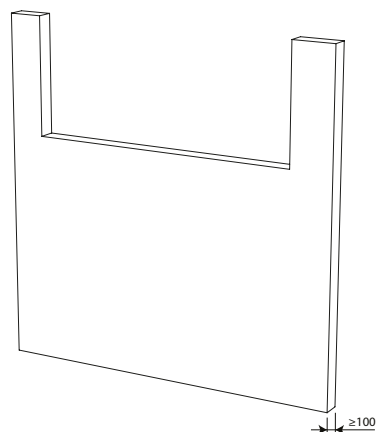


9

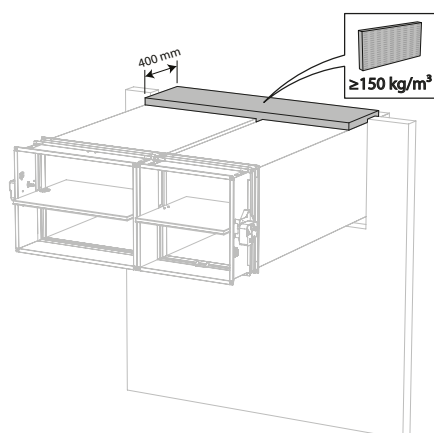


9. The dampers can be installed at a minimum distance from an adjacent floor/ceiling (≥ 25 mm), from an adjacent wall or from another damper (≥ 50 mm).

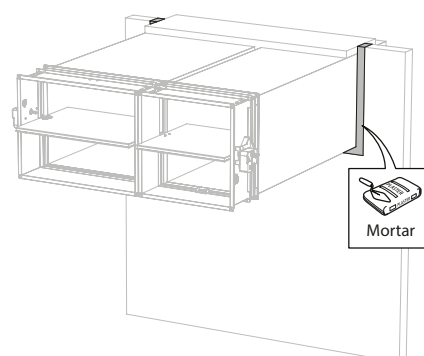
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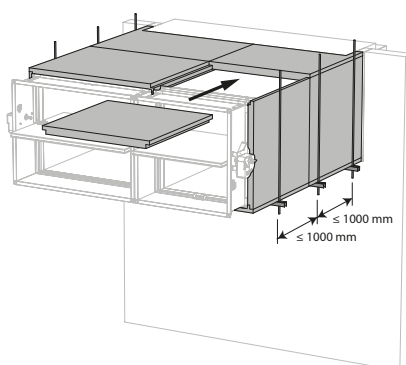


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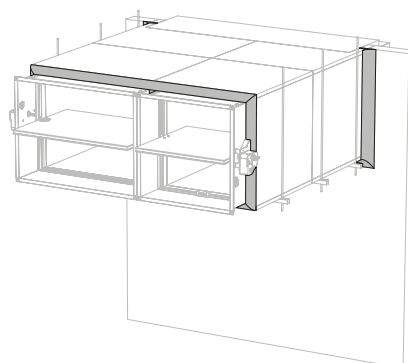


11. Apply rigid stone wool panels (≥ 150 kg/m³) to a depth of 400 mm (150 mm on the mechanism side of the wall) to seal the opening at the side with minimal distances.

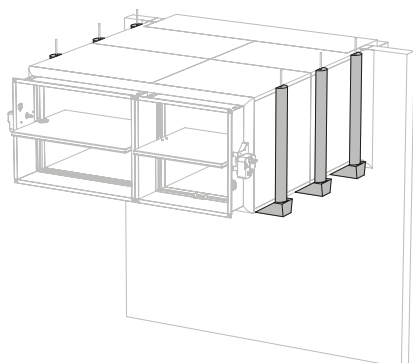
13



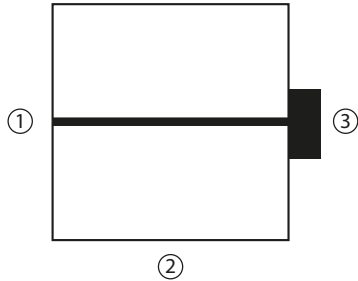
14



15



Position of the thermo-electric fuse (spring-return actuator BFLT)

1

1. Position of the thermo-electric fuse on the damper casing:

1. on opposite side of mechanism if $H < 250$ mm and $W < 250$ mm;
2. at the bottom if $H < 250$ mm and $W \geq 250$ mm;
3. on mechanism side if $H \geq 250$ mm.

Maintenance

- No specific maintenance required.
- Schedule at least 2 visual checks each year.
- Remove dust and all other particles before use.
- Follow local maintenance regulations (i.e. BS9999 Annex V; NF S 61-933) and EN13306.
- Read the maintenance instructions on our website:
https://www.rft.eu/assets//PIM/DOCUMENTS/BROCHURE%20KITS/BRO_K139_MAINTENANCE_C.pdf
- Use the damper at up to 95% humidity, non-condensing.
- The fire damper can be cleaned with a dry or slightly damp cloth. It is forbidden to use abrasive cleaners or mechanical cleaning techniques (brush).

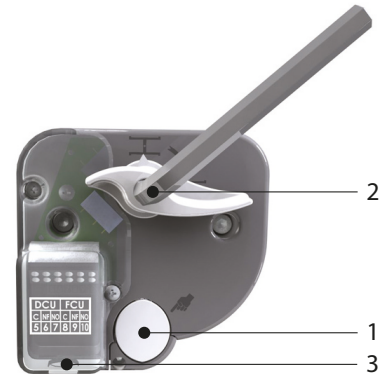
Operation and mechanisms



MFUS(P) Mechanism with fusible link

The operating mechanism MFUS(P) automatically unlocks the blade when the temperature in the duct exceeds 72°C. The damper can also be unlocked and reset manually.

1. unlocking button
2. resetting handle
3. cable entrance



Options - at the time of order

FDCU

Limit switch 'open/closed'

Unlocking

- **manual unlocking:** press the unlocking button (1).
- **automatic unlocking:** the fusible link melts when the temperature reaches 72°C in the duct.
- **remote unlocking:** n/a

Resetting

- **manual resetting:** turn the resetting handle (2) 90° clockwise (or use a 10 mm hex key).
- **motorised resetting:** n/a

Caution:

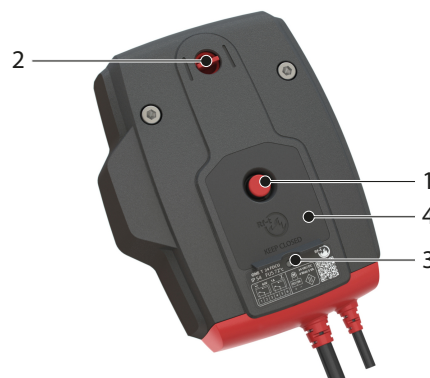
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.



ONE Spring return actuator for remote control

The spring-return actuator ONE is designed to easily operate Rf-t fire dampers of all sizes, automatically or remotely. Six models are available, 24 or 230 volt, with FDCU or FDCB position switches; and optionally with plug (ST).

1. unlocking button
2. blade position indicator
3. LED
4. battery compartment to reset motor



Unlocking

- **manual unlocking:** shortly press the unlocking button (1) once.
- **automatic unlocking:** the fusible link reacts as soon as the temperature in the duct reaches 72°C.
- **remote unlocking:** by interrupting the power supply.

Resetting

- **manual resetting:** open the battery compartment (4) and press a 9V battery against the contact springs. Hold this position until the LED (3) emits a continuous light.
Check whether the indicator (2) shows that the damper blade is in the open position.
Remove the battery, the LED fades away.
Close the battery compartment.
- **motorised resetting:** switch off the power supply for at least 5 sec. Power the actuator (respect the prescribed voltage) for at least 75 sec. The resetting stops automatically when the end of range is reached (damper open).

Caution:

- ⚠ If the LED (3) flickers fast (3x/sec.), the battery is discharged: use a new battery.
- ⚠ If the LED (3) flickers slowly (1x/sec), the resetting is in progress.
- ⚠ If the LED (3) is continuously on, the resetting is complete and the motor is powered.
- ⚠ If the actuator detects voltage on the power cable, a brief contact of the battery is enough to start the resetting process.
- ⚠ The power supply of this actuator cannot be individually replaced. If the cable is damaged, the whole unit must be discarded and replaced.
- ⚠ The housing of the mechanism contains a temperature sensor. When the temperature in the housing exceeds 72°C, the mechanism unlocks. The LED flashes twice per second. When the temperature drops below 72°C, the mechanism can only be reset in a motorised manner after a manual reset (with a battery).
- ⚠ The end of range switches need 1 second after operation to adopt a stable position.
- ⚠ Make sure the thermal trigger device is present in the actuator. The actuator might not function properly if this is not the case.

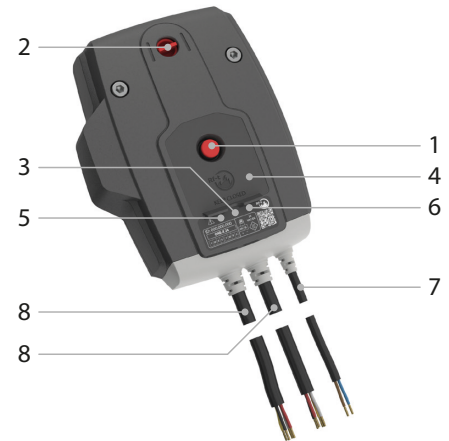
	prod. < 1/7/2015				prod. ≥ 1/7/2015			
	CR60(1s) CR120	CU-LT CU-LT-1s	CR2≤400 CU2≤1200	CR2>400 CU2>1200	CR60(1s) CR120(1s)	CU-LT CU-LT-1s	CR2≤400 CU2≤1200	CR2>400 CU2>1200
Kit ONE	●	●	●		●	●	●	●



ONE-X Spring return actuator with integrated communication module.

The ONE-X is a spring return actuator with integrated communication module designed to simply operate Rf-t fire dampers of all sizes, automatically or remotely. The ONE-X is available in two versions: 24 V and 230 V.

1. unlocking button
2. blade position indicator
3. LED red: status
4. battery compartment
5. LED blue: communication
6. LED orange: error message
7. supply
8. bus cable



Unlocking

- **manual unlocking:** shortly press the unlocking button (1) once.
- **automatic unlocking:** the fusible link reacts as soon as the temperature in the duct reaches 72°C.
- **remote unlocking:** via ZENiX controller

Resetting

- **manual resetting:** Open the battery compartment (4) and press a 9V battery against the contact springs. Hold this position until the red LED (3) emits a continuous light. Control whether the indicator (2) indicates that the damper blade is open. Remove the battery. Close the battery compartment.
- **motorised resetting:** via ZENiX controller. By applying voltage during first use.

Caution:

- ⚠ If the ONE-X detects voltage on the power cable, a brief contact of the battery is enough to start the resetting process, provided the ZENiX controller has sent the damper to open position or the ONE-X is being operated for the first time.
- ⚠ The power supply of this actuator cannot be individually replaced. If the cable is damaged, the whole unit must be discarded and replaced.
- ⚠ The housing of the mechanism contains a temperature sensor. When the temperature in the housing exceeds 72°C, the mechanism unlocks. The LED flashes twice per second. When the temperature drops below 72°C, the mechanism can only be reset in a motorised manner after a manual reset (with a battery).
- ⚠ The end of range switches need 1 second after operation to adopt a stable position.

Safety regulations:

- ⚠ Do not use the ONE-X for any application other than the specified applications, in particular not in aircraft or other airborne vehicles.
- ⚠ The company that purchases and/or installs the ONE-X is fully responsible for the correct operation of the entire system. Only authorised specialists may perform the installation. All rules and regulations, including statutory regulations, must be observed during installation.
- ⚠ This device contains electrical or electronic components and must not be disposed of as household waste. All locally applicable regulations and requirements must be strictly observed.



BFL(T) Remotely controlled spring return actuator

The spring return actuator BFL(T) is especially designed to operate fire dampers remotely. The BFL(T) variant is intended for fire dampers with smaller dimensions (CR60, CR120, CR2 with $\varnothing \leq 400$ mm, CRS60 with $\varnothing \leq 315$ mm, CU2 / CU2-15 / CU4 with $W+H \leq 1200$ mm or for CU-LT and CU-LT-1s). For Markage FD with $H = 200$ mm or $H = 2200$ mm (in combination with BFT motor).

1. locking button
2. plug (ST)
3. access for manual resetting
4. thermo-electric tripping device (T)



Options - at the time of order

SN2 BFL/BFN

Auxiliary limit switch 'open/closed'

Unlocking

- **manual unlocking:** place the locking button on "unlock". (In case of BFLT: the damper can alternatively be unlocked by pushing the "test" button on the thermo-electric fuse)
- **automatic unlocking:** the thermo-electric fuse reacts as soon as the temperature reaches 72°C (type BFLT).
- **remote unlocking:** by interrupting the power supply.

Caution:

- ⚠ The thermo-electric fuse will not move the damper into its safety position (when the temperature reaches 72°C) if the motor is not powered.

Resetting

- **manual resetting:** turn the enclosed handle anti-clockwise. To block the motor, place the locking button on "lock"
- **motorised resetting:** switch off the power supply for at least 10 seconds. Supply the actuator (respect the prescribed voltage) for at least 75 seconds. The resetting stops automatically when the end of range is reached (damper open) - it takes about 60 seconds to reset the damper - or when the power supply is interrupted.

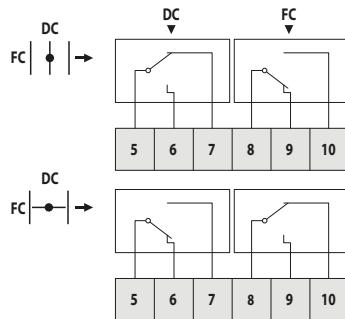
Caution:

- ⚠ Do not use a drill or powered screwdriver.
- ⚠ Stop as soon as the motor is completely rearmed (end of range).

	prod. < 1/7/2015				prod. ≥ 1/7/2015			
	CR60(1s) CR120	CU-LT CU-LT-1S	CR2≤400 CU2≤1200	CR2>400 CU2>1200	CR60(1s) CR120 (1s)	CU-LT CU-LT-1S	CR2≤400 CU2≤1200	CR2>400 CU2>1200
Kit BFL					•	•	•	
Kit BFN	•	•	•					•
Kit BF				•				

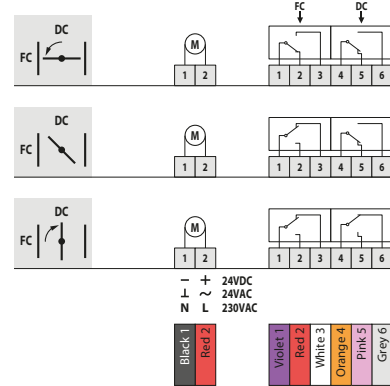
Electrical connection

MFUS(P)



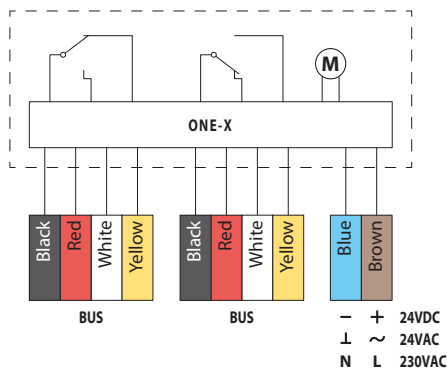
DC: Switch open position fire damper
FC: Switch closed position fire damper

ONE



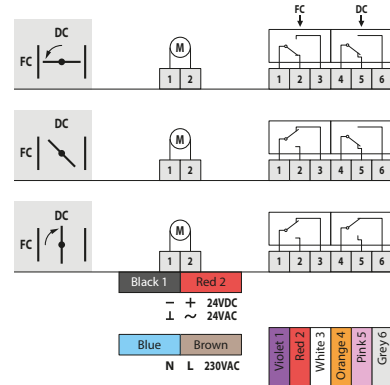
DC: Switch open position fire damper
FC: Switch closed position fire damper

ONE-X



DC: Switch open position fire damper
FC: Switch closed position fire damper

BFL(T)



DC: Switch open position fire damper
FC: Switch closed position fire damper

MEC	Nominal voltage motor	Nominal voltage magnet	Power consumption (stand-by)	Power consumption (operating)	Standard switches	Resetting time motor
MFUSP	N/A	N/A	N/A	N/A	1mA...1A, DC 5V...AC 48V	N/A
ONET 24 FDCU	24 V AC/DC (-10/+20%)	N/A	0,28 W	4,2 W	1mA...1A 60V	< 75 s (cabled) / <85 s (battery)
ONET 24 FDCU ST	24 V AC/DC (-10/+20%)	N/A	0,28 W	4,2 W	1mA...1A 60V	< 75 s (cabled) / <85 s (battery)
ONET 230 FDCU	230 V AC (-15/+15%)	N/A	0,57 W	4,2 W	1mA...100mA 230V	< 75 s (cabled) / <85 s (battery)
ONET 230 FDCU ST	230 V AC (-15/+15%)	N/A	0,57 W	4,2 W	1mA...100mA 230V	< 75 s (cabled) / <85 s (battery)
ONET 24 FDCB	24 V AC/DC (-10/+20%)	N/A	0,28 W	4,2 W	1mA...1A 60V	< 75 s (cabled) / <85 s (battery)
ONET 230 FDCB	230 V AC (-15/+15%)	N/A	0,57 W	4,2 W	1mA...1A 60V	< 75 s (cabled) / <85 s (battery)
ONE-X 24	24 V AC/DC (-10/+20%)	N/A	0,28 W	4,2 W		< 75 s (cabled) / <85 s (battery)
ONE-X 230	230 V AC (-15/+15%)	N/A	0,57 W	4,2 W		< 75 s (cabled) / <85 s (battery)
BFL24	24 V AC/DC	N/A	0,7 W	2,5 W	1mA...3A, AC 250V	< 60 s
BFL24-ST	24 V AC/DC	N/A	0,7 W	2,5 W	1mA...3A, AC 250V	< 60 s
BFL230	230 V AC	N/A	0,9 W	3 W	1mA...3A, AC 250V	< 60 s
BFLT24	24 V AC/DC	N/A	0,8 W	2,5 W	1mA...3A, AC 250V	< 60 s
BFLT24-ST	24 V AC/DC	N/A	0,8 W	2,5 W	1mA...3A, AC 250V	< 60 s
BFLT230	230 V AC	N/A	1,1 W	3,5 W	1mA...3A, AC 250V	< 60 s
BFLT230-ST	230 V AC	N/A	1,1 W	3,5 W	1mA...3A, AC 250V	< 60 s

MEC	Running time spring	Noise level motor	Noise level spring	Cable supply / control	Cable auxiliary switch	Protection class
MFUSP	1 s	N/A	N/A			IP 42
ONET 24 FDCU	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
ONET 24 FDCU ST	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
ONET 230 FDCU	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
ONET 230 FDCU ST	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
ONET 24 FDCB	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	(2x) 1 m, 6 x 0,75 mm ² (halogen-free)	IP 54
ONET 230 FDCB	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	(2x) 1 m, 6 x 0,75 mm ² (halogen-free)	IP 54
ONE-X 24	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	bus cable: (2x) 1 m, 4 x 0,75 mm ² (halogen-free)	IP 54
ONE-X 230	< 30 s	< 64 dB (A)	< 67 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	bus cable: (2x) 1 m, 4 x 0,75 mm ² (halogen-free)	IP 54
BFL24	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BFL24-ST	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BFL230	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BFLT24	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BFLT24-ST	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BFLT230	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BFLT230-ST	20 s	< 43 dB (A)	< 62 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54

Weights

CU-LT + MFUSP

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	3,6	4,0	4,4	4,7	5,1	5,5	5,9	6,2	6,6	7,0	7,3	7,7	8,1		
150	kg	4,1	4,5	5,0	5,4	5,8	6,2	6,7	7,1	7,5	8,0	8,4	8,8	9,2		
200	kg	4,6	5,1	5,6	6,0	6,5	7,0	7,5	8,0	8,5	8,9	9,4	9,9	10,4		
250	kg	5,1	5,6	6,1	6,7	7,2	7,8	8,3	8,8	9,4	9,9	10,5	11,0	11,5		
300	kg	5,6	6,1	6,7	7,3	7,9	8,5	9,1	9,7	10,3	10,9	11,5	12,1	12,7		
350	kg	6,0	6,7	7,3	8,0	8,6	9,3	9,9	10,6	11,2	11,9	12,5	13,2	13,8		
400	kg	6,5	7,2	7,9	8,6	9,3	10,1	10,8	11,5	12,2	12,9	13,6	14,3	15,0		
450	kg	7,0	7,8	8,5	9,3	10,1	10,8	11,6	12,3	13,1	13,9	14,6	15,4	16,2		
500	kg	7,5	8,3	9,1	9,9	10,8	11,6	12,4	13,2	14,0	14,8	15,7	16,5	17,3		
550	kg	8,0	8,8	9,7	10,6	11,5	12,3	13,2	14,1	15,0	15,8	16,7	17,6	18,5		
600	kg	8,5	9,4	10,3	11,2	12,2	13,1	14,0	15,0	15,9	16,8	17,7	18,7	19,6		

CU-LT + ONE

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	4,8	5,2	5,6	5,9	6,3	6,7	7,1	7,4	7,8	8,2	8,5	8,9	9,3		
150	kg	5,3	5,7	6,2	6,6	7,0	7,4	7,9	8,3	8,7	9,2	9,6	10,0	10,4		
200	kg	5,8	6,3	6,8	7,2	7,7	8,2	8,7	9,2	9,7	10,1	10,6	11,1	11,6		
250	kg	6,3	6,8	7,3	7,9	8,4	9,0	9,5	10,0	10,6	11,1	11,7	12,2	12,7		
300	kg	6,8	7,3	7,9	8,5	9,1	9,7	10,3	10,9	11,5	12,1	12,7	13,3	13,9		
350	kg	7,2	7,9	8,5	9,2	9,8	10,5	11,1	11,8	12,4	13,1	13,7	14,4	15,0		
400	kg	7,7	8,4	9,1	9,8	10,5	11,3	12,0	12,7	13,4	14,1	14,8	15,5	16,2		
450	kg	8,2	9,0	9,7	10,5	11,3	12,0	12,8	13,5	14,3	15,1	15,8	16,6	17,4		
500	kg	8,7	9,5	10,3	11,1	12,0	12,8	13,6	14,4	15,2	16,0	16,9	17,7	18,5		
550	kg	9,2	10,0	10,9	11,8	12,7	13,5	14,4	15,3	16,2	17,0	17,9	18,8	19,7		
600	kg	9,7	10,6	11,5	12,4	13,4	14,3	15,2	16,2	17,1	18,0	18,9	19,9	20,8		

CU-LT + BFL

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	4,3	4,7	5,1	5,4	5,8	6,2	6,6	6,9	7,3	7,7	8,0	8,4	8,8		
150	kg	4,8	5,2	5,7	6,1	6,5	6,9	7,4	7,8	8,2	8,7	9,1	9,5	9,9		
200	kg	5,3	5,8	6,3	6,7	7,2	7,7	8,2	8,7	9,2	9,6	10,1	10,6	11,1		
250	kg	5,8	6,3	6,8	7,4	7,9	8,5	9,0	9,5	10,1	10,6	11,2	11,7	12,2		
300	kg	6,3	6,8	7,4	8,0	8,6	9,2	9,8	10,4	11,0	11,6	12,2	12,8	13,4		
350	kg	6,7	7,4	8,0	8,7	9,3	10,0	10,6	11,3	11,9	12,6	13,2	13,9	14,5		
400	kg	7,2	7,9	8,6	9,3	10,0	10,8	11,5	12,2	12,9	13,6	14,3	15,0	15,7		
450	kg	7,7	8,5	9,2	10,0	10,8	11,5	12,3	13,0	13,8	14,6	15,3	16,1	16,9		
500	kg	8,2	9,0	9,8	10,6	11,5	12,3	13,1	13,9	14,7	15,5	16,4	17,2	18,0		
550	kg	8,7	9,5	10,4	11,3	12,2	13,0	13,9	14,8	15,7	16,5	17,4	18,3	19,2		
600	kg	9,2	10,1	11,0	11,9	12,9	13,8	14,7	15,7	16,6	17,5	18,4	19,4	20,3		

CU-LT + BFLT

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	4,4	4,8	5,2	5,5	5,9	6,3	6,7	7,0	7,4	7,8	8,1	8,5	8,9		
150	kg	4,9	5,3	5,8	6,2	6,6	7,0	7,5	7,9	8,3	8,8	9,2	9,6	10,0		
200	kg	5,4	5,9	6,4	6,8	7,3	7,8	8,3	8,8	9,3	9,7	10,2	10,7	11,2		
250	kg	5,9	6,4	6,9	7,5	8,0	8,6	9,1	9,6	10,2	10,7	11,3	11,8	12,3		
300	kg	6,4	6,9	7,5	8,1	8,7	9,3	9,9	10,5	11,1	11,7	12,3	12,9	13,5		
350	kg	6,8	7,5	8,1	8,8	9,4	10,1	10,7	11,4	12,0	12,7	13,3	14,0	14,6		
400	kg	7,3	8,0	8,7	9,4	10,1	10,9	11,6	12,3	13,0	13,7	14,4	15,1	15,8		
450	kg	7,8	8,6	9,3	10,1	10,9	11,6	12,4	13,1	13,9	14,7	15,4	16,2	17,0		
500	kg	8,3	9,1	9,9	10,7	11,6	12,4	13,2	14,0	14,8	15,6	16,5	17,3	18,1		
550	kg	8,8	9,6	10,5	11,4	12,3	13,1	14,0	14,9	15,8	16,6	17,5	18,4	19,3		
600	kg	9,3	10,2	11,1	12,0	13,0	13,9	14,8	15,8	16,7	17,6	18,5	19,5	20,4		

CU-LT-L500 + MFUSP

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	4,4	4,9	5,4	5,9	6,4	6,9	7,4	7,9	8,3	8,8	9,3	9,8	10,3		
150	kg	5,0	5,5	6,1	6,6	7,2	7,7	8,3	8,8	9,4	10,0	10,5	11,1	11,6		
200	kg	5,6	6,2	6,8	7,4	8,0	8,6	9,2	9,8	10,5	11,1	11,7	12,3	12,9		
250	kg	6,2	6,9	7,5	8,2	8,9	9,5	10,2	10,8	11,5	12,2	12,8	13,5	14,2		
300	kg	6,8	7,5	8,2	9,0	9,7	10,4	11,1	11,8	12,6	13,3	14,0	14,7	15,4		
350	kg	7,4	8,2	9,0	9,7	10,5	11,3	12,1	12,8	13,6	14,4	15,2	15,9	16,7		
400	kg	8,0	8,9	9,7	10,5	11,3	12,2	13,0	13,8	14,7	15,5	16,3	17,2	18,0		
450	kg	8,6	9,5	10,4	11,3	12,2	13,1	14,0	14,8	15,7	16,6	17,5	18,4	19,3		
500	kg	9,2	10,2	11,1	12,1	13,0	14,0	14,9	15,8	16,8	17,7	18,7	19,6	20,5		
550	kg	9,8	10,8	11,8	12,8	13,8	14,8	15,8	16,8	17,8	18,8	19,8	20,8	21,8		
600	kg	10,5	11,5	12,6	13,6	14,7	15,7	16,8	17,8	18,9	19,9	21,0	22,0	23,1		

CU-LT-L500 + ONE

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	5,6	6,1	6,6	7,1	7,6	8,1	8,6	9,1	9,5	10,0	10,5	11,0	11,5		
150	kg	6,2	6,7	7,3	7,8	8,4	8,9	9,5	10,0	10,6	11,2	11,7	12,3	12,8		
200	kg	6,8	7,4	8,0	8,6	9,2	9,8	10,4	11,0	11,7	12,3	12,9	13,5	14,1		
250	kg	7,4	8,1	8,7	9,4	10,1	10,7	11,4	12,0	12,7	13,4	14,0	14,7	15,4		
300	kg	8,0	8,7	9,4	10,2	10,9	11,6	12,3	13,0	13,8	14,5	15,2	15,9	16,6		
350	kg	8,6	9,4	10,2	10,9	11,7	12,5	13,3	14,0	14,8	15,6	16,4	17,1	17,9		
400	kg	9,2	10,1	10,9	11,7	12,5	13,4	14,2	15,0	15,9	16,7	17,5	18,4	19,2		
450	kg	9,8	10,7	11,6	12,5	13,4	14,3	15,2	16,0	16,9	17,8	18,7	19,6	20,5		
500	kg	10,4	11,4	12,3	13,3	14,2	15,2	16,1	17,0	18,0	18,9	19,9	20,8	21,7		
550	kg	11,0	12,0	13,0	14,0	15,0	16,0	17,0	18,0	19,0	20,0	21,0	22,0	23,0		
600	kg	11,7	12,7	13,8	14,8	15,9	16,9	18,0	19,0	20,1	21,1	22,2	23,2	24,3		

CU-LT-L500 + BFL

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	5,1	5,6	6,1	6,6	7,1	7,6	8,1	8,6	9,0	9,5	10,0	10,5	11,0		
150	kg	5,7	6,2	6,8	7,3	7,9	8,4	9,0	9,5	10,1	10,7	11,2	11,8	12,3		
200	kg	6,3	6,9	7,5	8,1	8,7	9,3	9,9	10,5	11,2	11,8	12,4	13,0	13,6		
250	kg	6,9	7,6	8,2	8,9	9,6	10,2	10,9	11,5	12,2	12,9	13,5	14,2	14,9		
300	kg	7,5	8,2	8,9	9,7	10,4	11,1	11,8	12,5	13,3	14,0	14,7	15,4	16,1		
350	kg	8,1	8,9	9,7	10,4	11,2	12,0	12,8	13,5	14,3	15,1	15,9	16,6	17,4		
400	kg	8,7	9,6	10,4	11,2	12,0	12,9	13,7	14,5	15,4	16,2	17,0	17,9	18,7		
450	kg	9,3	10,2	11,1	12,0	12,9	13,8	14,7	15,5	16,4	17,3	18,2	19,1	20,0		
500	kg	9,9	10,9	11,8	12,8	13,7	14,7	15,6	16,5	17,5	18,4	19,4	20,3	21,2		
550	kg	10,5	11,5	12,5	13,5	14,5	15,5	16,5	17,5	18,5	19,5	20,5	21,5	22,5		
600	kg	11,2	12,2	13,3	14,3	15,4	16,4	17,5	18,5	19,6	20,6	21,7	22,7	23,8		

CU-LT-L500 + BFLT

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	5,2	5,7	6,2	6,7	7,2	7,7	8,2	8,7	9,1	9,6	10,1	10,6	11,1		
150	kg	5,8	6,3	6,9	7,4	8,0	8,5	9,1	9,6	10,2	10,8	11,3	11,9	12,4		
200	kg	6,4	7,0	7,6	8,2	8,8	9,4	10,0	10,6	11,3	11,9	12,5	13,1	13,7		
250	kg	7,0	7,7	8,3	9,0	9,7	10,3	11,0	11,6	12,3	13,0	13,6	14,3	15,0		
300	kg	7,6	8,3	9,0	9,8	10,5	11,2	11,9	12,6	13,4	14,1	14,8	15,5	16,2		
350	kg	8,2	9,0	9,8	10,5	11,3	12,1	12,9	13,6	14,4	15,2	16,0	16,7	17,5		
400	kg	8,8	9,7	10,5	11,3	12,1	13,0	13,8	14,6	15,5	16,3	17,1	18,0	18,8		
450	kg	9,4	10,3	11,2	12,1	13,0	13,9	14,8	15,6	16,5	17,4	18,3	19,2	20,1		
500	kg	10,0	11,0	11,9	12,9	13,8	14,8	15,7	16,6	17,6	18,5	19,5	20,4	21,3		
550	kg	10,6	11,6	12,6	13,6	14,6	15,6	16,6	17,6	18,6	19,6	20,6	21,6	22,6		
600	kg	11,3	12,3	13,4	14,4	15,5	16,5	17,6	18,6	19,7	20,7	21,8	22,8	23,9		

GDA_L

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	14,0	15,2	16,3	17,5	18,7	19,8	21,0	22,4	23,7	25,1	26,5	27,8	29,2		
150	kg	15,3	16,6	17,8	19,1	20,4	21,6	22,9	24,3	25,7	27,1	28,5	30,0	31,4		
200	kg	16,6	18,0	19,3	20,7	22,1	23,4	24,8	26,2	27,6	29,0	30,4	31,8	33,2		
250	kg	17,9	19,4	20,8	22,3	23,8	25,2	26,7	28,1	29,6	31,0	32,5	33,9	35,4		
300	kg	19,2	20,8	22,3	23,9	25,5	27,0	28,6	30,1	31,7	33,2	34,8	36,3	37,8		
350	kg	20,5	22,2	23,8	25,5	27,2	28,8	30,5	32,1	33,7	35,3	36,8	38,4	40,0		
400	kg	22,0	23,7	25,4	27,1	28,9	30,6	32,3	33,9	35,5	37,1	38,8	40,4	42,0		
450	kg	23,5	25,3	27,0	28,8	30,5	32,3	34,1	35,7	37,4	39,0	40,7	42,3	44,0		
500	kg	25,0	26,8	28,6	30,4	32,2	34,0	35,8	37,5	39,2	40,9	42,6	44,3	46,0		
550	kg	26,5	28,4	30,2	32,1	33,9	35,8	37,6	39,4	41,1	42,8	44,5	46,3	48,0		
600	kg	28,0	29,9	31,8	33,7	35,6	37,5	39,4	41,2	42,9	44,7	46,5	48,2	50,0		

GDA_R

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	kg	14,0	15,2	16,3	17,5	18,7	19,8	21,0	22,4	23,7	25,1	26,5	27,8	29,2		
150	kg	15,3	16,6	17,8	19,1	20,4	21,6	22,9	24,3	25,7	27,1	28,5	30,0	31,4		
200	kg	16,6	18,0	19,3	20,7	22,1	23,4	24,8	22,4	23,7	25,1	26,5	27,8	33,5		
250	kg	17,9	19,4	20,8	22,3	23,8	25,2	26,7	22,4	23,7	25,1	26,5	27,8	35,7		
300	kg	19,2	20,8	22,3	23,9	25,5	27,0	28,6	22,4	23,7	25,1	26,5	27,8	37,8		
350	kg	20,5	22,2	23,8	25,5	27,2	28,8	30,5	32,1	33,7	35,3	36,8	38,4	40,0		
400	kg	22,0	23,7	25,4	27,1	28,9	30,6	32,3	33,9	35,5	37,1	38,8	40,4	42,0		
450	kg	23,5	25,3	27,0	28,8	30,5	32,3	34,1	35,7	37,4	39,0	40,7	42,3	44,0		
500	kg	25,0	26,8	28,6	30,4	32,2	34,0	35,8	37,5	39,2	40,9	42,6	44,3	46,0		
550	kg	26,5	28,4	30,2	32,1	33,9	35,8	37,6	39,4	41,1	42,8	44,5	46,3	48,0		
600	kg	28,0	29,9	31,8	33,7	35,6	37,5	39,4	41,2	42,9	44,7	46,5	48,2	50,0		

Selection data

$$\Delta p \text{ [Pa]} = \zeta \cdot v^2 \cdot 0,6$$

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800		
100	ζ [-]	1,69	1,65	1,62	1,60	1,59	1,58	1,57	1,56	1,55	1,55	1,54	1,54	1,54		
150	ζ [-]	0,98	0,93	0,89	0,87	0,85	0,83	0,82	0,81	0,80	0,80	0,79	0,79	0,78		
200	ζ [-]	0,69	0,63	0,60	0,57	0,55	0,54	0,52	0,51	0,51	0,50	0,49	0,49	0,49		
250	ζ [-]	0,54	0,48	0,44	0,42	0,40	0,39	0,37	0,37	0,36	0,35	0,35	0,34	0,34		
300	ζ [-]	0,45	0,39	0,35	0,33	0,31	0,30	0,29	0,28	0,27	0,26	0,26	0,26	0,25		
350	ζ [-]	0,39	0,33	0,30	0,27	0,25	0,24	0,23	0,22	0,22	0,21	0,21	0,20	0,20		
400	ζ [-]	0,34	0,29	0,26	0,23	0,22	0,20	0,19	0,18	0,18	0,17	0,17	0,16	0,16		
450	ζ [-]	0,31	0,26	0,23	0,20	0,19	0,17	0,16	0,16	0,15	0,15	0,14	0,14	0,13		
500	ζ [-]	0,29	0,24	0,20	0,18	0,17	0,15	0,14	0,14	0,13	0,13	0,12	0,12	0,12		
550	ζ [-]	0,27	0,22	0,19	0,16	0,15	0,14	0,13	0,12	0,12	0,11	0,11	0,10	0,10		
600	ζ [-]	0,25	0,20	0,17	0,15	0,14	0,12	0,12	0,11	0,10	0,10	0,10	0,09	0,09		

Example

Data

Hn = 350 mm, Bn = 400 mm, v = 5 m/s

Calculation

$$\Delta p = 0,25 \cdot (5 \text{ m/s})^2 \cdot 0,6 = 3,75 \text{ Pa}$$

CU-LT and CU-LT-L500 - A-weighted sound power level Lwa in the room

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	
100	Sn [m ²]	0,0099	0,0127	0,0154	0,0182	0,0209	0,0237	0,0264	0,0292	0,0319	0,0347	0,0374	0,0402	0,0429	45 dB
	Sn [%]	54,29	55,15	55,72	56,13	56,43	56,67	56,85	57,00	57,13	57,24	57,33	57,41	57,48	
	Q [m ³ /h]	690	860	1.030	1.200	1.360	1.530	1.700	1.870	2.030	2.200	2.370	2.540	2.700	
	Δp [Pa]	93,34	90,41	88,50	87,16	84,91	84,29	83,80	83,41	82,26	82,05	81,86	81,70	80,97	40 dB
	Q [m ³ /h]	560	700	840	970	1.110	1.250	1.380	1.520	1.650	1.790	1.930	2.060	2.200	
	Δp [Pa]	61,48	59,90	58,86	56,95	56,56	56,26	55,22	55,11	54,35	54,32	54,29	53,74	53,75	
	Q [m ³ /h]	460	570	680	790	900	1.010	1.120	1.230	1.350	1.460	1.570	1.680	1.790	35 dB
	Δp [Pa]	41,49	39,71	38,57	37,77	37,19	36,73	36,38	36,08	36,38	36,13	35,92	35,74	35,59	
	Q [m ³ /h]	370	460	550	640	730	820	910	1.000	1.090	1.180	1.270	1.360	1.450	
	Δp [Pa]	26,84	25,87	25,23	24,79	24,46	24,21	24,01	23,85	23,72	23,60	23,51	23,42	23,35	30 dB
	Q [m ³ /h]	310	380	450	520	600	670	740	820	890	960	1.040	1.110	1.180	
	Δp [Pa]	18,84	17,65	16,89	16,37	16,53	16,16	15,88	16,04	15,81	15,62	15,76	15,60	15,46	
150	Sn [m ²]	0,0189	0,0242	0,0294	0,0347	0,0399	0,0452	0,0504	0,0557	0,0609	0,0662	0,0714	0,0767	0,0819	45 dB
	Sn [%]	67,65	68,73	69,44	69,95	70,33	70,62	70,85	71,04	71,20	71,33	71,45	71,54	71,63	
	Q [m ³ /h]	940	1.170	1.390	1.610	1.840	2.060	2.290	2.510	2.730	2.960	3.180	3.410	3.630	
	Δp [Pa]	44,54	41,91	39,31	37,88	37,01	35,79	35,39	34,71	34,08	34,14	33,55	33,60	33,04	40 dB
	Q [m ³ /h]	770	950	1.130	1.310	1.490	1.680	1.860	2.040	2.220	2.400	2.590	2.770	2.950	
	Δp [Pa]	30,00	27,56	26,02	24,96	24,18	23,87	23,37	22,97	22,64	22,36	22,30	22,08	21,90	
	Q [m ³ /h]	620	770	920	1.070	1.220	1.360	1.510	1.660	1.810	1.960	2.100	2.250	2.400	35 dB
	Δp [Pa]	19,45	18,11	17,25	16,65	16,21	15,64	15,40	15,21	15,05	14,91	14,66	14,57	14,49	
	Q [m ³ /h]	510	630	750	870	990	1.110	1.230	1.350	1.470	1.590	1.710	1.830	1.950	
	Δp [Pa]	13,16	12,12	11,46	11,01	10,67	10,42	10,22	10,06	9,93	9,81	9,72	9,64	9,57	30 dB
	Q [m ³ /h]	410	510	610	710	810	900	1.000	1.100	1.200	1.290	1.390	1.490	1.590	
	Δp [Pa]	8,51	7,94	7,58	7,33	7,15	6,85	6,76	6,68	6,61	6,46	6,42	6,39	6,36	
200	Sn [m ²]	0,0279	0,0357	0,0434	0,0512	0,0589	0,0667	0,0744	0,0822	0,0899	0,0977	0,1054	0,1132	0,1209	45 dB
	Sn [%]	74,13	75,31	76,09	76,65	77,06	77,38	77,63	77,84	78,01	78,16	78,29	78,39	78,49	
	Q [m ³ /h]	1.190	1.470	1.750	2.030	2.310	2.590	2.860	3.140	3.420	3.700	3.980	4.260	4.530	
	Δp [Pa]	28,38	25,37	23,49	22,20	21,26	20,55	19,85	19,42	19,06	18,77	18,51	18,29	18,02	40 dB
	Q [m ³ /h]	970	1.200	1.420	1.650	1.880	2.100	2.330	2.550	2.780	3.010	3.230	3.460	3.690	
	Δp [Pa]	18,85	16,91	15,46	14,67	14,08	13,51	13,18	12,81	12,60	12,42	12,19	12,07	11,96	
	Q [m ³ /h]	790	970	1.160	1.340	1.530	1.710	1.890	2.080	2.260	2.450	2.630	2.810	3.000	35 dB
	Δp [Pa]	12,51	11,05	10,32	9,67	9,33	8,96	8,67	8,52	8,32	8,23	8,08	7,96	7,90	
	Q [m ³ /h]	640	790	940	1.090	1.240	1.390	1.540	1.690	1.840	1.990	2.140	2.290	2.440	
	Δp [Pa]	8,21	7,33	6,78	6,40	6,13	5,92	5,76	5,63	5,52	5,43	5,35	5,29	5,23	30 dB
	Q [m ³ /h]	520	640	770	890	1.010	1.130	1.250	1.370	1.500	1.620	1.740	1.860	1.980	
	Δp [Pa]	5,42	4,81	4,55	4,27	4,06	3,91	3,79	3,70	3,67	3,60	3,54	3,49	3,44	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	
250	Sn [m ²]	0,0369	0,0472	0,0574	0,0677	0,0779	0,0882	0,0984	0,1087	0,1189	0,1292	0,1394	0,1497	0,1599	45 dB
	Sn [%]	77,95	79,20	80,02	80,60	81,03	81,37	81,64	81,85	82,04	82,19	82,32	82,44	82,53	
	Q [m ³ /h]	1.440	1.770	2.100	2.440	2.770	3.100	3.430	3.760	4.090	4.420	4.750	5.090	5.420	
	Δp [Pa]	20,74	17,89	16,14	15,08	14,21	13,56	13,05	12,64	12,31	12,03	11,80	11,64	11,46	
	Q [m ³ /h]	1.170	1.440	1.710	1.980	2.250	2.520	2.790	3.060	3.330	3.600	3.870	4.130	4.400	40 dB
	Δp [Pa]	13,69	11,84	10,70	9,93	9,38	8,96	8,63	8,37	8,16	7,98	7,83	7,66	7,55	
	Q [m ³ /h]	950	1.170	1.390	1.610	1.830	2.050	2.270	2.490	2.710	2.920	3.140	3.360	3.580	35 dB
	Δp [Pa]	9,03	7,82	7,07	6,57	6,20	5,93	5,71	5,54	5,40	5,25	5,15	5,07	5,00	
	Q [m ³ /h]	780	950	1.130	1.310	1.490	1.670	1.840	2.020	2.200	2.380	2.560	2.730	2.910	30 dB
	Δp [Pa]	6,08	5,15	4,67	4,35	4,11	3,93	3,75	3,65	3,56	3,49	3,43	3,35	3,30	
	Q [m ³ /h]	630	780	920	1.070	1.210	1.360	1.500	1.640	1.790	1.930	2.080	2.220	2.370	25 dB
	Δp [Pa]	3,97	3,47	3,10	2,90	2,71	2,61	2,50	2,40	2,36	2,29	2,26	2,21	2,19	
300	Sn [m ²]	0,0459	0,0587	0,0714	0,0842	0,0969	0,1097	0,1224	0,1352	0,1479	0,1607	0,1734	0,1862	0,1989	45 dB
	Sn [%]	80,48	81,76	82,60	83,20	83,65	84,00	84,28	84,50	84,69	84,85	84,99	85,10	85,21	
	Q [m ³ /h]	1.533	1.954	2.377	2.802	3.227	3.653	4.080	4.507	4.934	5.361	5.788	6.216	6.644	
	Δp [Pa]	13,50	12,30	11,50	10,90	10,40	10,10	9,80	9,60	9,40	9,30	9,10	9,00	8,90	
	Q [m ³ /h]	1.267	1.616	1.966	2.317	2.668	3.020	3.373	3.726	4.079	4.432	4.786	5.139	5.493	40 dB
	Δp [Pa]	9,30	8,40	7,80	7,40	7,10	6,90	6,70	6,60	6,40	6,30	6,20	6,20	6,10	
	Q [m ³ /h]	1.048	1.336	1.625	1.915	2.206	2.497	2.789	3.080	3.372	3.664	3.956	4.249	4.541	35 dB
	Δp [Pa]	6,30	5,70	5,40	5,10	4,90	4,70	4,60	4,50	4,40	4,30	4,30	4,20	4,20	
	Q [m ³ /h]	866	1.104	1.343	1.583	1.824	2.065	2.305	2.547	2.788	3.029	3.271	3.513	3.754	30 dB
	Δp [Pa]	4,30	3,90	3,70	3,50	3,30	3,20	3,10	3,10	3,00	3,00	2,90	2,90	2,90	
	Q [m ³ /h]	716	913	1.111	1.309	1.508	1.707	1.906	2.105	2.305	2.505	2.704	2.904	3.104	25 dB
	Δp [Pa]	3,00	2,70	2,50	2,40	2,30	2,20	2,10	2,10	2,10	2,00	2,00	2,00	1,90	
350	Sn [m ²]	0,0549	0,0702	0,0854	0,1007	0,1159	0,1312	0,1464	0,1617	0,1769	0,1922	0,2074	0,2227	0,2379	45 dB
	Sn [%]	82,26	83,58	84,44	85,05	85,51	85,87	86,15	86,38	86,57	86,74	86,87	86,99	87,10	
	Q [m ³ /h]	1.826	2.334	2.844	3.356	3.870	4.384	4.900	5.416	5.932	6.449	6.966	7.484	8.001	
	Δp [Pa]	12,20	10,90	10,00	9,40	9,00	8,70	8,40	8,20	8,00	7,80	7,70	7,60	7,50	
	Q [m ³ /h]	1.510	1.929	2.351	2.775	3.199	3.625	4.051	4.478	4.905	5.332	5.759	6.187	6.615	40 dB
	Δp [Pa]	8,30	7,50	6,90	6,50	6,20	5,90	5,70	5,60	5,40	5,30	5,20	5,20	5,10	
	Q [m ³ /h]	1.248	1.595	1.944	2.294	2.645	2.997	3.349	3.702	4.055	4.408	4.762	5.115	5.469	35 dB
	Δp [Pa]	5,70	5,10	4,70	4,40	4,20	4,00	3,90	3,80	3,70	3,70	3,60	3,50	3,50	
	Q [m ³ /h]	1.032	1.319	1.607	1.897	2.187	2.478	2.769	3.061	3.352	3.644	3.937	4.229	4.521	30 dB
	Δp [Pa]	3,90	3,50	3,20	3,00	2,90	2,80	2,70	2,60	2,50	2,50	2,50	2,40	2,40	
	Q [m ³ /h]	853	1.090	1.329	1.568	1.808	2.048	2.289	2.530	2.772	3.013	3.255	3.496	3.738	25 dB
	Δp [Pa]	2,70	2,40	2,20	2,10	2,00	1,90	1,80	1,80	1,70	1,70	1,70	1,70	1,60	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	
400	Sn [m ²]	0,0639	0,0817	0,0994	0,1172	0,1349	0,1527	0,1704	0,1882	0,2059	0,2237	0,2414	0,2592	0,2769	
	Sn [%]	83,60	84,93	85,81	86,43	86,90	87,26	87,55	87,78	87,98	88,14	88,28	88,41	88,51	
	Q [m ³ /h]	2.122	2.717	3.316	3.918	4.522	5.127	5.734	6.341	6.950	7.558	8.168	8.777	9.387	45 dB
	Δp [Pa]	11,20	9,90	9,00	8,40	8,00	7,60	7,30	7,10	6,90	6,80	6,60	6,50	6,40	
	Q [m ³ /h]	1.754	2.246	2.741	3.239	3.738	4.239	4.740	5.243	5.746	6.249	6.753	7.256	7.761	40 dB
	Δp [Pa]	7,70	6,80	6,20	5,70	5,40	5,20	5,00	4,90	4,70	4,60	4,50	4,40	4,40	
	Q [m ³ /h]	1.450	1.857	2.266	2.678	3.091	3.505	3.919	4.334	4.750	5.166	5.583	5.999	6.416	35 dB
	Δp [Pa]	5,20	4,60	4,20	3,90	3,70	3,60	3,40	3,30	3,20	3,20	3,10	3,00	3,00	
	Q [m ³ /h]	1.199	1.535	1.874	2.214	2.555	2.897	3.240	3.583	3.927	4.271	4.615	4.960	5.305	30 dB
	Δp [Pa]	3,60	3,20	2,90	2,70	2,50	2,40	2,30	2,30	2,20	2,20	2,10	2,10	2,00	
	Q [m ³ /h]	991	1.269	1.549	1.830	2.113	2.395	2.679	2.963	3.247	3.531	3.816	4.101	4.386	25 dB
	Δp [Pa]	2,40	2,20	2,00	1,80	1,70	1,70	1,60	1,50	1,50	1,50	1,40	1,40	1,40	
450	Sn [m ²]	0,0729	0,0932	0,1134	0,1337	0,1539	0,1742	0,1944	0,2147	0,2349	0,2552	0,2754	0,2957	0,3159	
	Sn [%]	84,63	85,98	86,87	87,50	87,98	88,34	88,63	88,87	89,07	89,23	89,38	89,50	89,61	
	Q [m ³ /h]	2.420	3.103	3.792	4.485	5.181	5.880	6.579	7.280	7.982	8.685	9.389	10.093	10.797	45 dB
	Δp [Pa]	10,50	9,10	8,20	7,60	7,20	6,80	6,50	6,30	6,10	6,00	5,80	5,70	5,60	
	Q [m ³ /h]	2.000	2.565	3.135	3.708	4.284	4.861	5.439	6.019	6.599	7.180	7.762	8.344	8.926	40 dB
	Δp [Pa]	7,10	6,20	5,60	5,20	4,90	4,70	4,50	4,30	4,20	4,10	4,00	3,90	3,80	
	Q [m ³ /h]	1.654	2.121	2.592	3.066	3.542	4.019	4.497	4.976	5.456	5.936	6.417	6.898	7.380	35 dB
	Δp [Pa]	4,90	4,30	3,80	3,60	3,30	3,20	3,00	2,90	2,90	2,80	2,70	2,70	2,60	
	Q [m ³ /h]	1.367	1.753	2.143	2.535	2.928	3.322	3.718	4.114	4.511	4.908	5.305	5.703	6.101	30 dB
	Δp [Pa]	3,30	2,90	2,60	2,40	2,30	2,20	2,10	2,00	2,00	1,90	1,90	1,80	1,80	
	Q [m ³ /h]	1.130	1.450	1.772	2.095	2.421	2.747	3.074	3.401	3.729	4.058	4.386	4.715	5.044	25 dB
	Δp [Pa]	2,30	2,00	1,80	1,70	1,60	1,50	1,40	1,40	1,30	1,30	1,30	1,20	1,20	
500	Sn [m ²]	0,0819	0,1047	0,1274	0,1502	0,1729	0,1957	0,2184	0,2412	0,2639	0,2867	0,3094	0,3322	0,3549	
	Sn [%]	85,46	86,82	87,72	88,36	88,83	89,20	89,49	89,73	89,93	90,10	90,25	90,37	90,48	
	Q [m ³ /h]	2.718	3.491	4.272	5.058	5.847	6.640	7.434	8.231	9.028	9.827	10.627	11.427	12.228	45 dB
	Δp [Pa]	9,90	8,50	7,60	7,00	6,50	6,20	5,90	5,70	5,50	5,30	5,20	5,10	5,00	
	Q [m ³ /h]	2.247	2.886	3.532	4.181	4.834	5.489	6.146	6.805	7.464	8.124	8.786	9.447	10.109	40 dB
	Δp [Pa]	6,70	5,80	5,20	4,80	4,50	4,20	4,00	3,90	3,80	3,60	3,60	3,50	3,40	
	Q [m ³ /h]	1.858	2.386	2.920	3.457	3.997	4.538	5.082	5.626	6.171	6.717	7.263	7.811	8.358	35 dB
	Δp [Pa]	4,60	4,00	3,60	3,30	3,10	2,90	2,80	2,70	2,60	2,50	2,40	2,40	2,30	
	Q [m ³ /h]	1.536	1.973	2.414	2.858	3.304	3.752	4.201	4.651	5.102	5.553	6.005	6.457	6.910	30 dB
	Δp [Pa]	3,10	2,70	2,40	2,20	2,10	2,00	1,90	1,80	1,80	1,70	1,70	1,60	1,60	
	Q [m ³ /h]	1.270	1.631	1.996	2.363	2.732	3.102	3.473	3.845	4.218	4.591	4.965	5.339	5.713	25 dB
	Δp [Pa]	2,20	1,90	1,70	1,50	1,40	1,30	1,30	1,20	1,20	1,20	1,10	1,10	1,10	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	
550	Sn [m²]	0,0909	0,1162	0,1414	0,1667	0,1919	0,2172	0,2424	0,2677	0,2929	0,3182	0,3434	0,3687	0,3939	
	Sn [%]	86,13	87,50	88,41	89,05	89,53	89,90	90,20	90,44	90,64	90,81	90,96	91,08	91,19	
	Q [m³/h]	3.018	3.882	4.755	5.634	6.519	7.407	8.298	9.191	10.086	10.982	11.879	12.778	13.677	45 dB
	Δp [Pa]	9,40	8,00	7,10	6,50	6,00	5,70	5,40	5,20	5,00	4,80	4,70	4,60	4,50	
	Q [m³/h]	2.495	3.209	3.931	4.658	5.389	6.123	6.860	7.598	8.338	9.079	9.821	10.564	11.307	40 dB
	Δp [Pa]	6,40	5,50	4,90	4,40	4,10	3,90	3,70	3,50	3,40	3,30	3,20	3,10	3,10	
	Q [m³/h]	2.063	2.653	3.250	3.851	4.456	5.063	5.672	6.282	6.894	7.506	8.120	8.734	9.348	35 dB
	Δp [Pa]	4,40	3,70	3,30	3,00	2,80	2,70	2,50	2,40	2,30	2,30	2,20	2,10	2,10	
	Q [m³/h]	1.706	2.194	2.687	3.184	3.684	4.186	4.689	5.194	5.699	6.206	6.713	7.221	7.729	30 dB
	Δp [Pa]	3,00	2,60	2,30	2,10	1,90	1,80	1,70	1,70	1,60	1,50	1,50	1,50	1,40	
	Q [m³/h]	1.410	1.813	2.221	2.632	3.045	3.460	3.877	4.294	4.712	5.131	5.550	5.970	6.390	25 dB
	Δp [Pa]	2,00	1,70	1,60	1,40	1,30	1,20	1,20	1,10	1,10	1,10	1,00	1,00	1,00	
600	Sn [m²]	0,0999	0,1277	0,1554	0,1832	0,2109	0,2387	0,2664	0,2942	0,3219	0,3497	0,3774	0,4052	0,4329	
	Sn [%]	86,69	88,07	88,99	89,63	90,11	90,49	90,79	91,03	91,23	91,40	91,55	91,68	91,79	
	Q [m³/h]	3.319	4.274	5.240	6.214	7.194	8.179	9.168	10.159	11.153	12.148	13.145	14.143	15.142	45 dB
	Δp [Pa]	9,00	7,60	6,70	6,10	5,60	5,30	5,00	4,80	4,60	4,40	4,30	4,20	4,10	
	Q [m³/h]	2.744	3.533	4.332	5.137	5.948	6.762	7.580	8.399	9.220	10.043	10.867	11.693	12.519	40 dB
	Δp [Pa]	6,10	5,20	4,60	4,20	3,80	3,60	3,40	3,30	3,10	3,00	2,90	2,90	2,80	
	Q [m³/h]	2.269	2.921	3.581	4.247	4.918	5.591	6.266	6.944	7.623	8.303	8.985	9.667	10.350	35 dB
	Δp [Pa]	4,20	3,50	3,10	2,80	2,60	2,50	2,30	2,20	2,10	2,10	2,00	2,00	1,90	
	Q [m³/h]	1.876	2.415	2.961	3.512	4.066	4.622	5.181	5.741	6.302	6.865	7.428	7.992	8.557	30 dB
	Δp [Pa]	2,90	2,40	2,10	1,90	1,80	1,70	1,60	1,50	1,50	1,40	1,40	1,30	1,30	
	Q [m³/h]	1.551	1.997	2.448	2.903	3.361	3.821	4.283	4.746	5.210	5.675	6.141	6.607	7.074	25 dB
	Δp [Pa]	2,00	1,70	1,50	1,30	1,20	1,20	1,10	1,00	1,00	1,00	0,90	0,90	0,90	

Every air flow lower than the above mentioned maximum value, will meet the listed A-weighted sound power level for the respective dimension. More information on sound power can be found in the product information on our website (documents).

Sample order

CU-LT	200	200	ONE T	24	FDCU	UL	IFW
1	2	3	4	5	6	7	8

1. product
2. width
3. height
4. mechanism type
5. option: type voltage
6. option: uni/bipolar switches
7. option: inspection shutter
8. option: installation kit for flexible wall IFW

Approvals and certificates

All our dampers are submitted to a number of tests by official test institutes. Reports of these tests form the basis for the approvals of our dampers.



BCCA-0749-CPR-BC1-606-0464-15650.05-0464



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The NF-label guarantees: conformity with the standard NF S 61-937 Parts 1 and 5: "Systèmes de Sécurité Incendie Dispositifs Actionnés de Sécurité"; conformity with the national decree of March 22, 2004, changed on 14 March 2011 for the classification of fire resistance; the values of the characteristics mentioned in this document. Organisme Certificateur: AFNOR Certification, 11 Rue Francis de Pressensé, F93571 La Plaine Saint-Denis Cedex; Website: <http://www.afnor.org> and <http://www.marque-nf.com>; Phone: +33 (0)1.41.62.80.00, Fax: +33 (0)1.49.17.90.00, Email: certification@afnor.org