

CLASSIFICATION REPORT No. 12 - A - 809 - Version 12

In accordance with standards EN 12101-8: 2011 and EN 13501-4

Delivered on	October 18 th , 2023 by EFECTIS France/Notified body n° 1812.
Laboratory assessment reference	<ul style="list-style-type: none">▪ Efectis France n°12 - A - 809 - Version 13
Concerning	<p>A range of smoke control dampers of type VU 120 installed on a horizontal or vertical smoke extraction duct:</p> <ul style="list-style-type: none">- Commercial reference of duct:<ul style="list-style-type: none">PROMATECT L 500 th = 30/40/50 mmGEOFLAM F th = 30/35/45 mmGEOFLAM LIGHT th = 35 mmGLASROC F V500 th = 35/50 mmEXTHAMAT th = 25/30/35 mmDESENFIRE 25HD/25THD/35HD/45/STR25TECNIVER th = 35/45/50 mmGEOTEC® S th = 30/45 mmPrefabricated concrete duct th = 70 mm- Commercial reference of damper: VU 120
Applicant	<p>RF TECHNOLOGIES Lange Ambachtstraat 40 B – 9860 OOSTERZELE</p>

This report annuls and replaces classification report No. 12 - A - 809 - Version 11.

DISCLAIMER : The current document is a translation of the corresponding and official French version. In all situations where the meaning of the current document is unclear or ambiguous, the French document should be used for purposes of disambiguation.

LIST OF REVISIONS

Revision index	Date	Modification	Made by
2	27/04/2016	Assembly of dampers outside smoke extraction area	CSC
3	07/06/2016	Installation of dampers outside smoke extraction area	CSC
4	24/11/2016	Assembly of dampers in ducts type TECNIVER of thickness 35 and 50 mm Assembly of dampers in ducts type GEOTEC® S (GEOSTAFF) of thickness 30 and 45 mm	MFE CSC
5	20/03/2017	Endurance testing of BELIMO mechanism type BLE 24	RST
6	14/03/2018	Modifications to direct scope of application	MFE
7	14/02/2019	Modification of damper (flange) Installation on ducts of E190 performance	MFE
8	15/07/2019	Addition drawings for battery mounting	MFE
9	15/01/2020	Installation of dampers on ducts of DESENFIRE 25 STR (MF INDUSTRIES), th = 25 mm. Integration of § 4 : Reference tests	RST
10	17/09/2021	Correction - blade size formula - no L-shaped profile if PS type frame using when product overall dimensions are less than 400 x 400 mm	RST
11	18/07/2023	Validation of PROMASEAL GT (PROMAT) graphite seal	RST
12	18/10/2023	Validation screws/rivets for the fixation of L-shaped profiles , paragraph "Damper tunnel"	RST

1. INTRODUCTION

The classification report defines the classification assigned to the Type VU 120 smoke damper in compliance with the operating procedures given in the standard EN 13501-4: 2016 "Fire classification of construction products and building elements - Part 4: Classifications from the fire resistance test data on the products used in the smoke extraction systems: ducts and smoke control dampers and in the standard EN 12101-8 "Smoke control dampers".

2. ORGANISATION

Efectis France
Voie Romaine
F - 57280 MAIZIERES-LES-METZ

Notified body: 1812

3. APPLICANT

RF TECHNOLOGIES
Lange Ambachtstraat 40
B – 9860 OOSTERZELE

4. REFERENCE TEST

Efectis France n° 12 - E - 554
Efectis France n° 12 - H - 619
Efectis France n° 12 - U - 650
Efectis France n° 12 - T - 736
WFRG 16513A
EFR-15-E-002636
WFRG 18080A
WFRG 18080B
EFR-18-001103
APPLUS 22-32306734

5. REFERENCE AND ORIGIN OF THE ELEMENTS EXAMINED

Reference: VU 120

Source: RF TECHNOLOGIES
Lange Ambachtstraat 40
B – 9860 OOSTERZELE

6. PRINCIPLE OF ASSEMBLY

6.1. TYPE OF FUNCTION

VU 120 type dampers are defined as "smoke control dampers".

Their function is to resist fire, as specified by the fire resistance performance characteristics given in section 5 of standard EN 13501-4.

6.2. GENERAL

The elements tested are a range of smoke control dampers fitted in a horizontal or vertical smoke extraction duct.

The tunnel smoke extraction dampers are comprised as follows:

- a tunnel with frame;
- a blade;
- a control mechanism;
- a grille.

Each damper has flush-mount measurements of between:

- 200 x 200 à 1200 x 800 or 1000 x 1000 mm (W x h).

- Free passage: $(W*H) - (62.44*W) - (29.84*H) + 2904.72$ mm.

The smoke extraction duct is as described in procès-verbal:

- Efectis France no. 08 - A - 380 and comprises panels 30, 40 or 50 mm thick for panels in PROMATECT L500;
- Efectis France no. 10 - A - 067 - Version 2 and comprises panels 30, 35 or 45 mm thick for panels in GEOFLAM F;
- Efectis France no. 13 - A - 895 and comprises 35 mm thick panels for panels in GEOFLAM LIGHT;
- Efectis France no. 08 - A - 462 - Version 2, 08 - A - 115 Version 1 and 13 - A - 1041 and comprises panels 35, 45 or 50 mm for panels in TECNIVER;
- no. PV 2013 CERIB 1296 for a vertical multi-compartment smoke extraction duct prefabricated in reinforced concrete of minimum thickness 70 mm;
- no. EFR-16-001013 - Version 1 and comprises 30 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-001960 and comprises 30 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-002203 and comprises 45 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-002205 and comprises 45 mm thick panels for panels in GEOTEC® S;
- no. EFR 15-001253 - Version 1 and comprises 25 mm thick panels for panels in DESENFIRE HD 25;
- no. EFR-15-001255 - Version 1 and comprises 25 mm thick panels for panels in DESENFIRE THD 25;
- no. EFR-15-000723 - Version 1 and comprises 35 mm thick panels for panels in DESENFIRE THD 35 or 45;
- no. EFR-16-003582 and comprises 25 mm thick panels for panels in DESENFIRE STR 25;
- no. EFR-15-000198 and comprises 35 mm thick panels for panels in GLASROC F V500/35;
- no. EFR-15-000201 and comprises 50 mm thick panels for panels in GLASROC F V500/50;
- no. EFR-16-001070 and comprises 25 mm thick panels for panels in EXTHAMAT;
- Efectis France no. 13 - A - 032 and comprises 30 mm thick panels for panels in EXTHAMAT;
- Efectis France no. 13 - A - 049 and comprises 35 mm thick panels for panels in EXTHAMAT.

6.3. DETAILED DESCRIPTION OF ELEMENTS

6.3.1. Damper tunnel

The rectangular tunnel is produced from an assembly of four 15 mm thick PROMATECT® H panels, maintaining a flow cross-section of (L-6) x (H-6) mm.

The length of the tunnel is 306 mm. The panels are stapled together using 12 x 32 mm (w x h) staples, five being placed at each corner.

Cold sealing is ensured by EPDM gaskets of width 8 mm and thickness 5 mm located between the panels.

The end of the tunnel, on the mechanism side, receives a 2 mm thick steel connecting flange cross-section 10 x 33 x 35 x 16.5 x 35 mm, fastened at intervals of 200 mm to the tunnel by screws 4.8 x 16 mm (\varnothing x l).

This flange can be replaced by the following frames:

For front-frames (mechanism side):

- PG30: standard frame, drawing CU2-D001 / CU2-D096
- PG20: drawing CU2-D043 / CU2-D072
- PG40: drawing CU2-D023 / CU2-D097
- PM: drawing CU2-D039 / CU2-D098
- PP: drawing CU2-D041 / CU2-D099
- PG3V: drawing CU2-058 / CU2-D073
- PG3V + PPT: body with protection grille, drawing SED-S006
- PG20 + PR(J): body PG20 with circular interconnection, drawing CULT-D025.

The drawings of the different bodies are provided in the appendix.

The other end of the tunnel on the wall side is fitted with an L-shaped, galvanised steel profile, 1.25 mm thick of cross-section 16 x 24 mm, fastened to the tunnel by screws 4 x 16 mm (\varnothing x l) or rivet 3.2 x 25 mm (\varnothing x l).

This flange can be replaced by the following frames:

For the rear-frames (duct side):

- PS: standard frame (= without connection), drawing SED-S010 (if the dimensions of the product are less than 400 x 400 mm, the L-profile described in the previous paragraph is not used).
- PG30: drawing CU2-D001.
- PG20: drawing CU2-D043.
- PG40: drawing CU2-D023.

The total length of the damper then comes to 350 mm with the flanges and profiles.

The tunnel is fitted on the inside with stops formed from bent 1.25 mm thick galvanised sheet steel, positioned on the lower half-perimeter on the mechanism side and on the upper half-perimeter of the side opposite the mechanism.

These stops are affixed to the tunnel by 4.8 x 25.4 mm (\varnothing x l) rivets.

The half-perimeter stop on the fire side comprises a galvanised 1.25 mm thick steel sheet bent into a triangular form 20 x 12.5 x 5 mm and receiving a silicone gasket and a galvanised 1.25 mm thick steel sheet bent into a Z shape cross section 20 x 18 x 20 mm receiving a graphite intumescent seal (RECTORSEAL®).

The triangular and Z-shaped metal sheet forms both have holes 5.3 mm in diameter for fixing both by rivets.

The half-perimeter stop on the side away from fire comprises galvanised 1.25 mm thick steel sheet bent into a triangular form 20 x 12.5 x 5 mm and receiving a silicone seal.

These stops are mounted on the two half-perimeters facing the axis of the moving blade.

6.3.2. Blade

The moving blade, dimensions (Ln - 22) x (Hn - 22) mm (with Ln and Hn, the nominal length and height of the product) is made from two PROMATECT® H panels 15 mm thick assembled on their large faces and on the lateral part, over a length of 283 mm, by means of a galvanised steel, U-shaped profile of thickness 0.6 mm and cross-section 46 x 31 x 11 mm and by rivets of dimensions 4.8 x 40 mm (\varnothing x l), by means of three rivets over the length (distance between centres of 520 mm) and four rivets over the height (distance between centres of 200 mm, at 65 mm from the edge of the blade).

The assembly is fitted with an intumescent graphite seal (RECTORSEAL®) on the contour.

At mid-height, the blade is fitted with 1.25 mm thick galvanised steel metal brackets 103 x 36 x 150 mm into which fit two \varnothing 12 mm circular half shafts which allow the blade to rotate in \varnothing 22 mm nylon bearings.

Are glued to the metal brackets:

- 130 x 33 mm, 1.8 mm thickness graphite intumescent seal reference RECTORSEAL® or PROMASEAL GT (PROMAT);
- a Situseal® foam seal of section 36 x 150 mm and thickness 5 mm.

The nylon bearing carries a 30 mm wide metal panel on the blade sides. The metal is 0.6 mm thick and is located beneath the 1.25 mm metal bracket.

The 0.6 mm metal panel can be integrated into the metal conductor since it is of the same thickness.

In this case, the metal conductor around the blade has been extended to 40 mm beyond the blade axis in such a way that the 0.6 mm metal includes the 12 mm diameter shaft.

Two M5 bolts are used to assemble the different type of mechanism mount onto the blade. The two bolts pass through the blade.

6.3.3. Mechanism

6.3.3.1. MANF type mechanism

The control mechanism is entirely mounted on the outer side of the damper and comprises the following elements:

- 1) A base panel which includes the mechanical part.
- 2) An electro-magnetic actuator.
- 3) A transmission mechanism fitted with a return spring which connects the mechanism and moving blade.
- 4) A protective cover which includes the signalling and connection compartments.

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MANF

Not validated

6.3.3.2. BELIMO BLE type mechanism

The control mechanism is entirely mounted on the outer side of the damper and comprises the following elements:

- 1) A base panel which includes the mechanical part,
- 2) A bi-directional motor which connects the mechanism and moving blade.

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BELIMO BLE

Not validated

6.3.3.3. BELIMO NF/SF type motorised mechanism

The control mechanism is entirely mounted on the outer side of the damper and comprises the following elements:

- A motorised control mechanism whose type depends on the size of the dampers;
- A transmission mechanism comprising a 4 mm thick galvanised steel connecting rod system of width 30 mm and length 90 mm;
- A base panel of galvanised steel sheet 3 mm thick and flanged to the blade.

	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	
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BELIMO NF

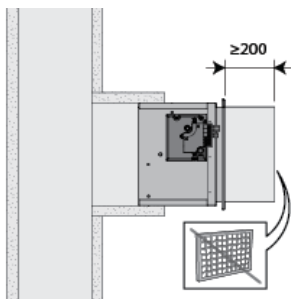
BELIMO SF

Not validated

6.3.4. Grille

The grille is of PPT type aluminium ensuring a free air passage of 69.4 % of the total free passage. The grille frame comprises profiles of section 12 x 32 x 2 mm (w x h x th). The grille is of sheet aluminium 2 mm thick with 6300 holes (63 holes over the width and 100 holes over the height) of dimensions 10 x 10 mm (w x h). Assembly of the grille to the frame is by gluing with POLYFLEX-Hm® glue.

When the damper is connected to the smoke extraction duct on both sides or when the duct downstream of the damper is of length greater than or equal to 200 mm, mounting of the grille is not mandatory in compliance with paragraph 5.2.3 of standard EN 1366-10.



6.3.5. Smoke extraction duct

The smoke extraction duct is as described in procès-verbal:

- Efectis France no. 08 - A - 380 and comprises panels 30, 40 or 50 mm thick for panels in PROMATECT L500;
- Efectis France no. 10 - A - 067 - Version 2 and comprises panels 30, 35 or 45 mm thick for panels in GEOFLAM F;
- Efectis France no. 13 - A - 895 and comprises 35 mm thick panels for panels in GEOFLAM LIGHT;
- Efectis France no. 08 - A - 462 - Version 2, 08 - A - 115 Version 1 and 13 - A - 1041 and comprises panels 35, 45 or 50 mm for panels in TECNIVER;
- no. PV 2013 CERIB 1296 for a vertical multi-compartment smoke extraction duct prefabricated in reinforced concrete of minimum thickness 70 mm;
- no. EFR-16-001013 - Version 1 and comprises 30 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-001960 and comprises 30 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-002203 and comprises 45 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-002205 and comprises 45 mm thick panels for panels in GEOTEC® S;
- no. EFR 15-001253 - Version 1 and comprises 25 mm thick panels for panels in DESENFIRE HD 25
- no. EFR-15-001255 - Version 1 and comprises 25 mm thick panels for panels in DESENFIRE THD 25;
- no. EFR-15-000723 - Version 1 and comprises 35 mm thick panels for panels in DESENFIRE THD 35;
- no. EFR-16-003582 and comprises 25 mm thick panels for panels in DESENFIRE STR 25;
- no. EFR-15-000198 and comprises 35 mm thick panels for panels in GLASROC F V500/35;
- no. EFR-15-000201 and comprises 50 mm thick panels for panels in GLASROC F V500/50;
- no. EFR-16-001070 and comprises 25 mm thick panels for panels in EXTHAMAT;
- Efectis France no. 13 - A - 032 and comprises 30 mm thick panels for panels in EXTHAMAT;
- Efectis France no. 13 - A - 049 and comprises 35 mm thick panels for panels in EXTHAMAT.

7. INSTALLATION OF ELEMENTS TESTED

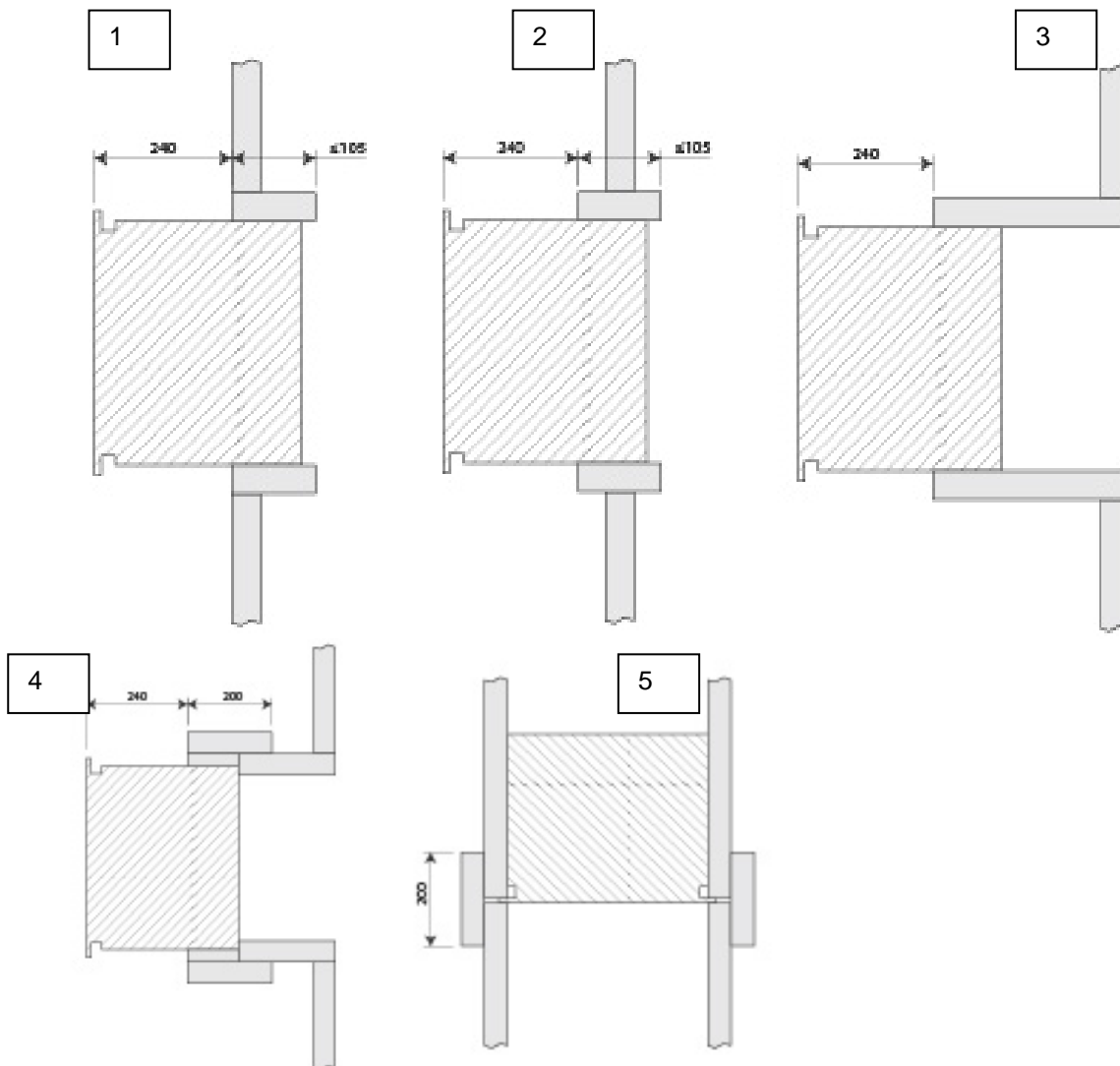
7.1. IN GENERAL FOR A DUCT IN PROMATECT L500, GEOFLAM, GEOTEC, TECNIVER, EXTHAMAT P, GLASROC, DESENFIRE

The dampers may be installed:

- With the blade axis horizontal or vertical;
- On the surface of a horizontal or vertical duct;
- Entering or edge-to-edge (4);
- Out of the zone to be extracted from, directly within a duct section (5).

The dampers are fixed to the duct by sleeves. This sleeve may be affixed independently:

- Within the duct (1);
- Within the duct shaft, including the foot of the column (2);
- Outside the duct, on the upper or lower horizontal face;
- Offset from the duct (in an off-duct of at least 105 mm in length) on the upper or lower face of the latter (3).



7.2. INSTALLATION ON A PROMATECT L 500 DUCT

Installation of dampers on a vertical or horizontal duct face:

The cut-out for the dampers is made directly in the horizontal surface of the horizontal duct wall or on the face in front of the wall in the case of a vertical duct.

Two cross-pieces and two uprights, also of PROMATECT L500 of thickness 30, 45 or 50 mm and width 105 mm, are added to allow an installation opening to be made of $(W + 6) \times (H + 6)$ mm.

Sealing of the joints between the uprights and cross-pieces and between the sleeve and the wall is with PROMACOL® S.

Before fitting the dampers, the walls of the duct forming the aperture are coated with PROMACOL® S.

Finally, the dampers are fitted into these openings and fixed to the walls of the sleeve by twelve screws $\varnothing 5 \times 60$ mm (P&G fasteners) for a horizontal duct and ten screws VBA 5 x 60 mm for a vertical duct.

7.3. INSTALLATION ON A GEOFLAM F OR GEOFLAM LIGHT FIBROUS PLASTER DUCT

Installation of dampers on a vertical or horizontal duct face:

For the installation of a damper a cut-out of $(W + 80) \times (H + 80)$ mm is made on a larger face of the duct.

The aperture for the damper is made directly into the front face of the wall. The damper space is then reinforced with a sleeve positioned on the outside of the face in front of the wall (side away from the fire) having an overall depth of 500 mm.

The sleeve comprises two vertical and two horizontal panels, both in GEOFLAM F 30, 35 or 45 mm thick, or GEOFLAM LIGHT 35 mm thick, glued and caulked together and to the wall. This construction thus provides for a free opening measuring $(W + 80) \times (H + 80)$ mm.

Sealing of the joints between uprights and cross-pieces and between the sleeve and the wall is achieved using caulking.

Finally, the damper is installed into these openings and attached to the walls of the duct by external caulking. The dampers are recessed at a depth of 100 mm.

7.4. INSTALLATION ON AN EXTHAMAT FIBROUS PLASTER DUCT

Installation of dampers on a vertical or horizontal duct face:

For the installation of a damper a cut-out of $(W + 80) \times (H + 80)$ mm is made on a larger face of the duct.

The aperture for the damper is made directly into the front face of the wall. The damper space is then reinforced with a sleeve positioned on the outside of the face in front of the wall (side away from the fire) having an overall depth of 500 mm.

The sleeve comprises two vertical and two horizontal panels, both in EXTHAMAT 25, 30 or 35 mm thick, glued and caulked together and to the wall. This construction thus provides for a free opening measuring $(W + 80) \times (H + 80)$ mm.

Sealing of the joints between uprights and cross-pieces and between the sleeve and the wall is achieved using caulking.

Finally, the damper is installed into these openings and attached to the walls of the duct by external caulking. The dampers are recessed at a depth of 100 mm.

7.5. INSTALLATION ON A DESENFIRE FIBROUS PLASTER DUCT

Installation of dampers on a vertical or horizontal duct face:

For the installation of a damper a cut-out of $(W + 80) \times (H + 80)$ mm is made on a larger face of the duct.

The aperture for the damper is made directly into the front face of the wall. The damper space is then reinforced with a sleeve positioned on the outside of the face in front of the wall (side away from the fire) having an overall depth of 500 mm.

The sleeve comprises two vertical and two horizontal panels, both in DESENFIRE of thickness 25(HD and STR), 25 (THD), 35(HD) or 45 mm, glued and caulked together and to the walls. This construction thus provides for a free opening measuring $(W + 80) \times (H + 80)$ mm.

Sealing of the joints between uprights and cross-pieces and between the sleeve and the wall is achieved using caulking.

Finally, the damper is installed into these openings and attached to the walls of the duct by external caulking. The dampers are recessed at a depth of 100 mm.

7.6. INSTALLATION ON A TECNIVER DUCT

Installation of dampers on a vertical or horizontal duct face:

The cut-out for the dampers is made directly in the front face of the wall or on the horizontal face of the wall of the duct. Two cross-pieces, both in TECNIVER 35, 45 or 50 mm thick and 105 mm in width, are added to allow an installation opening to be made of $(W + 6) \times (H + 6)$ mm.

Sealing of the joints between uprights and cross-pieces and between the sleeves and the walls is made with CF GLUE.

Before installation of the dampers, the walls of the duct forming the aperture are coated with CF GLUE.

Finally, the dampers are fitted into these openings and fixed to the walls of the sleeve by twelve screws $\varnothing 5 \times 60$ mm (P&G fasteners) for a horizontal duct or ten screws VBA 5 x 60mm for a vertical duct.

7.7. INSTALLATION ON A GLASROC F V500 DUCT

Installation of dampers on a vertical or horizontal duct face:

The cut-out for the dampers is made directly in the front face of the wall or on the horizontal face of the wall of the duct. Two cross-pieces, also of GLASROC F, V500 35 or 50 mm thick and 105 mm in width, are added to allow an installation to be made of $(L + 6) \times (H + 6)$ mm.

Sealing of the joints between uprights and cross-pieces and between the sleeve and the wall is achieved using GLASROC F V500 adhesive.

Before fitting the dampers, the walls of the duct forming the aperture are coated with GLASROC F V500 glue.

Finally, the dampers are fitted into these openings and fixed to the walls of the sleeve by twelve screws $\varnothing 5 \times 60$ mm (P&G fasteners) for a horizontal duct or ten screws VBA 5 x 60 mm for a vertical duct.

7.8. INSTALLATION ON A GEOTEC® S DUCT

Installation of dampers on a vertical or horizontal duct face:

For installation of a damper a cut-out of $(W + 80) \times (H + 80)$ mm (for caulked assembly) or $(W + 6) \times (H + 6)$ mm (for glued/screwed assembly) is made on the larger face of the duct.

The aperture for the damper is made directly into the front face of the wall.

The damper space is then reinforced with a sleeve positioned on the outside of the face in front of the wall (side away from the fire) having an overall depth of 500 mm.

The sleeve comprises two vertical panels and two horizontal panels, made of GEOTEC® S of thickness 30 or 45 mm glued and caulked together and to the walls, or glued and screwed together and to the wall using VBA Ø 5 x 90 mm screws for the 45 mm thick panels and Ø 5 x 80 mm for the 30 mm thick panels, positioned at 100 mm intervals. This construction allows a free opening to be obtained of $(L + 6) \times (H + 6)$ mm.

Sealing of the joints between uprights and cross-pieces and between the sleeve and the wall is achieved using caulking.

Finally, the damper is fitted into these openings and fastened to the duct walls by an external caulking or by GEOCOL (GEOSTAFF) plaster slab glue and VBA Ø 5 x 90 mm screws for 45 mm thick panels and Ø 5 x 80 mm for 30 mm thick panels positioned at intervals of 100 mm. The dampers are recessed at a depth of 100 mm.

For 30 mm thick panels GEOCOL S (GEOSTAFF) glue can also be used.

7.9. INSTALLATION ON A PREFABRICATED CONCRETE DUCT TH = 70 MM

The dampers may be installed:

- With the blade axis horizontal or vertical
- On a surface of the duct, vertical or at the foot of the column
- Entering or edge-to-edge
- Out of the zone to be extracted from, directly within a duct section

An opening of maximum dimensions $(W+100) \times (H+100)$ mm is made in the concrete duct of minimum thickness 70 mm. The damper is installed in the opening.

The maximum internal cross-section of the concrete ducts (validated) is 800 x 500 mm.

7.10. INSTALLATION OF 2 DAMPERS ON THE FACE OF A DUCT

The installation of 2 dampers on the same duct face is allowed provided that each damper is installed in accordance with the installation recommendations described in paragraphs 7.1 to 7.9 according to each type of duct.

8. FIRE RESISTANCE CLASSIFICATIONS

8.1. CLASSIFICATION REFERENCES

This classification procedure was performed in accordance with Section 7.2.4. of Standard EN 13501-4.

8.2. CLASSIFICATIONS

The elements are classified according to the following combinations of performance and class parameters.

Dampers that have been given this classification have undergone:

- 300 cycles under load (BELIMO SF/NF or MANF).
- 10,000 cycles under load (BELIMO BLE).

The dimensional range is as below:

- VU120 + MANF/BLE: 200 x 200 mm to 1200 x 800 mm.
- VU120 + SF/NF: 200 x 200 mm to 1200 x 650 mm / 950 x 750 mm.

8.2.1. For dampers with or without grille installed (see implementation conditions for the grille at section 5.3.4.):

- Installation on a Promatect L500 duct th = 30 mm (PV Efectis France no. 08 - A - 380).
- Installation on a GEOFLAM duct th = 30 mm (PV Efectis France no. 10 - A - 067 - Version 2).
- Installation on an EXTHAMAT duct th = 25 mm (PV no. EFR-16-002070).
- Installation on a TECNIVER duct th = 35 mm (PV Efectis France no. 08 - A - 462 - Version 2).
- Installation on a GLASROC F V500/35 duct (PV Efectis France no. 13 - A - 077).
- Installation on a DESENFIRE HD duct th = 25 mm (PV no. EFR 15-001253 - Version 1).
- Installation on a GEOTEC® S duct th = 30 mm (PV no. EFR-16-001013 and no. EFR-16-001960).

BELIMO SF/NF or MANF mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		60	S	Ved	Hod	i	<->	o	-1500/+0Pa	multi	AA	C300

BELIMO BLE mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		60	S	Ved	Hod	i	<->	o	-1500/+0Pa	multi	AA	C10000

8.2.2. For dampers with or without grille (see implementation conditions for the grille at section 5.3.4.) installed as:

- Installation on a GEOFLAM duct th = 35 mm (PV Efectis France no. 10 - A - 067 - Version 2).
- Installation on a TECNIVER duct th = 45 mm (PV Efectis France no. 08 - A - 115 - Version 1).
- Installation on a Promatect L500 duct th = 40 mm (PV Efectis France no. 08 - A - 380).
- Installation on a DESENFIRE THD duct th = 25 mm (PV no. EFR-15-001255 - Version 1).
- Installation on an EXTHAMAT duct th = 30 mm (PV Efectis France no. 13 - A - 032).

BELIMO SF/NF or MANF mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		90	S	Ved	Hod	i	<->	o	-1500/+0Pa	multi	AA	C300

BELIMO BLE mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		90	S	Ved	Hod	i	<->	o	-1500/+0Pa	multi	AA	C10000

- Installation on a prefabricated concrete duct th = 70 mm (PV 2013 CERIB 1296)

BELIMO SF/NF or MANF mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		90	S	Ved		i	<->	o	-1500/+0Pa	multi	AA	C300

BELIMO BLE mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		90	S	Ved		i	<->	o	-1500/+0Pa	multi	AA	C10000

8.2.3. For dampers with or without grille (see implementation conditions for the grille at section 5.3.4.) installed as:

- Installation on a TECNIVER duct th = 50 mm (PV Efectis France no. 13 - A - 1041).
- Installation on a PROMATECT L500 duct th = 50 mm (PV Efectis France no. 08 - A - 380).
- Installation on a GEOFLAM duct th = 45 mm (PV Efectis France no. 10 - A - 067 - Version 2).
- Installation on a GLASROC F V500/50 duct (PV Efectis France no. 13 - A - 079 and extension 15/1).
- Installation on a GEOFLAM LIGHT duct th = 35 mm (PV Efectis France no. 13 - A - 895).
- Installation on a DESENFIRE HD duct th = 35 mm/45 mm (PV no. EFR-15-000723 - Version 1).
- Installation on a DESENFIRE STR duct th = 25 mm (EFR-16-00003582).
- Installation on a GEOTEC® S duct th = 45 mm (PV no. EFR-16-002203 and no. EFR-16-002205).
- Installation on an EXTHAMAT duct th = 35 mm (PV Efectis France no. 13 - A - 049).

BELIMO SF/NF or MANF mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		120	S	Ved	Hod	i	<->	o	-1500/+0Pa	multi	AA	C300

BELIMO BLE mechanism:

E	I	-	t	S	Ved	ho	i	<->	o	Operating pressure	multi	AA	C
E	I		120	S	Ved	Hod	i	<->	o	-1500/+0Pa	multi	AA	C10000

9. SCOPE OF APPLICATION OF THE RESULTS

9.1. GENERAL

The requirements relating to the scope of application of all fire-resistant dampers submitted for testing in accordance with EN 1366-2 apply, as well as the following elements.

9.2. DIMENSIONS OF SMOKE CONTROL DAMPERS

Dampers with the following flush-mounted dimensions may be used:

- 200 x 200 to 1200 x 650 mm (BELIMO mechanism) or 1000 x 1000 mm / 1200 x 800 mm (MANF or BELIMO BLE mechanism) (W x h).

These dampers may be installed in ducts of all sizes authorised within the direct scope of application specified in EN 1366-8 and in reports:

- Efectis France no. 08 - A - 380 and comprises panels 30, 40 or 50 mm thick for panels in PROMATECT L500;
- Efectis France no. 10 - A - 067 - Version 2 and comprises panels 30, 35 or 45 mm thick for panels in GEOFLAM F;
- Efectis France no. 13 - A - 895 and comprises 35 mm thick panels for panels in GEOFLAM LIGHT;
- Efectis France no. 08 - A - 462 - Version 2, 08-A-115 Version 1 and 13-A-1041 and comprises panels 35, 45 or 50 mm for panels in TECNIVER;
- no. PV 2013 CERIB 1296 for a vertical multi-compartment smoke extraction duct prefabricated in reinforced concrete of minimum thickness 70 mm;
- no. EFR-16-001013 - Version 1 and comprises 30 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-001960 and comprises 30 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-002203 and comprises 45 mm thick panels for panels in GEOTEC® S;
- no. EFR-16-002205 and comprises 45 mm thick panels for panels in GEOTEC® S;
- no. EFR-15-001253 - Version 1 and comprises 25 mm thick panels for panels in DESENFIRE HD 25
- no. EFR-15-001255 - Version 1 and comprises 25 mm thick panels for panels in DESENFIRE THD 25;
- no. EFR-15-000723 - Version 1 and comprises 35 / 45 mm thick panels for panels in DESENFIRE THD 35 or DESENFIRE 45;
- no. EFR-16-003582 and comprises 25 mm thick panels for panels in DESENFIRE STR 25;
- no. EFR-15-000198 and comprises 35 mm thick panels for panels in GLASROC F V500/35;
- no. EFR-15-000201 and comprises 50 mm thick panels for panels in GLASROC F V500/50;
- no. EFR-16-001070 and comprises 25 mm thick panels for panels in EXTHAMAT;
- Efectis France no. 13 - A - 032 and comprises 30 mm thick panels for panels in EXTHAMAT;
- Efectis France no. 13 - A - 049 and comprises 35 mm thick panels for panels in EXTHAMAT.

Multi-compartment smoke extraction dampers may be used on ducts implemented (on-site) during masonry works, on ducts and walls in concrete or cellular concrete, on condition that the multi-compartment smoke extraction dampers have been submitted to test on a duct or in a wall of materials of the least bulk density and thickness (for example, a panel or sheet metal element) and on condition that the structure in concrete or cellular concrete has a thickness conforming with information relating to the support structure stated in EN 1363-1 and EN 1366-2 for the duration of the classification required. Appropriate fixing elements, resistant to fire and suitable for the materials, must be used.

9.3. PRESSURE DIFFERENCES

In accordance with standard EN 1366-10 - section 9.4, the performance levels specified in section 7.2 of this classification report are valid for any smoke extraction duct operating under a negative pressure of -1500 or overpressure of +0 Pa.

9.4. ELEVATED TEMPERATURES

The multi-compartment smoke control dampers submitted for test in accordance with the standardised fire test curve in EN 1363-1 are suitable for single-compartment applications for the same period of time.

9.5. TRIGGERING METHOD

Smoke control dampers submitted for testing for automatic activation (AA) systems are not suitable for use in manual activation (MA) systems.

9.6. APPLICATION TO DUCT CONSTRUCTIONS OTHER THAN THOSE SUBMITTED TO TEST

Multi-compartment smoke control dampers may be used in ducts that have been tested in accordance with EN 1366-9 and EN 1366-8 as appropriate, constructed from materials of the same density as those tested or from the same material but of greater bulk density or thickness, as long as the service pressure authorised in the classification document for the intended smoke extraction duct is compatible.

10. RESTRICTIONS

This classification document does not represent type approval or certification of the product.

These conclusions only relate to the fire resistance performances of the elements covered by this document. They are without prejudice, in any case, to other performances related to their use in a structure.

Maizières-lès-Metz, October 18th, 2023

X


Charlotte SCHNELLER


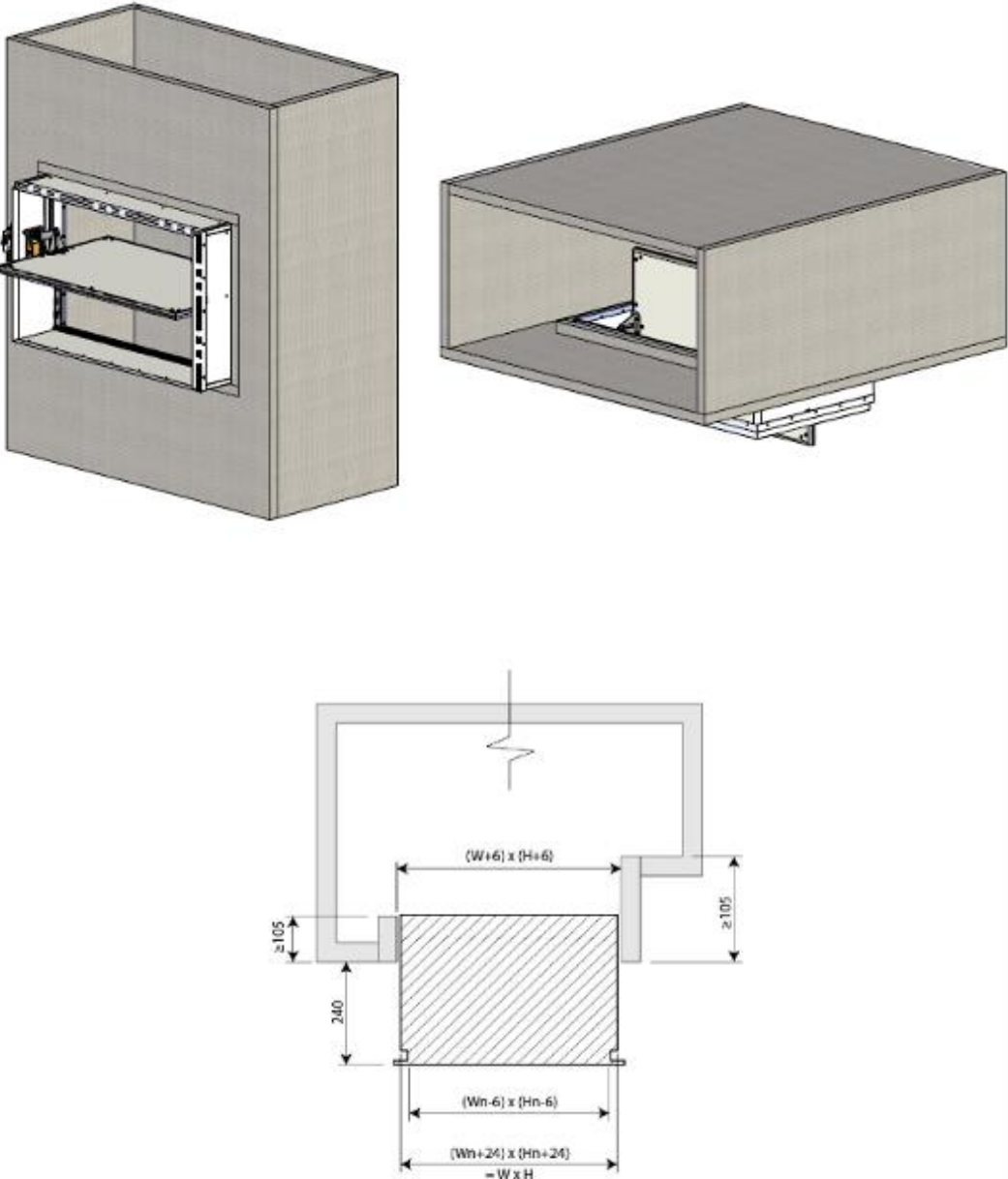
Project leader
Signé par : Charlotte SCHNELLER

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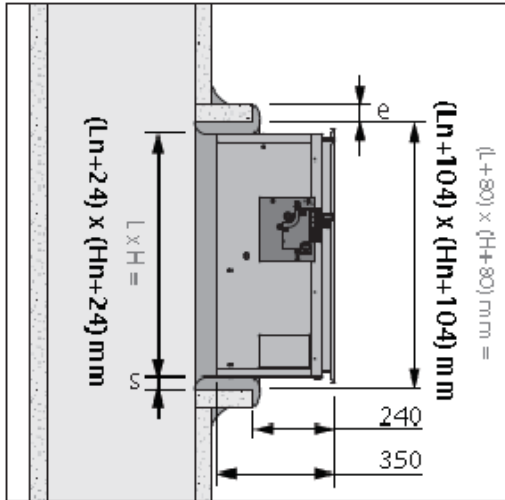

Romain STOUVENOT

Supervisor
Signé par : Romain STOUVENOT

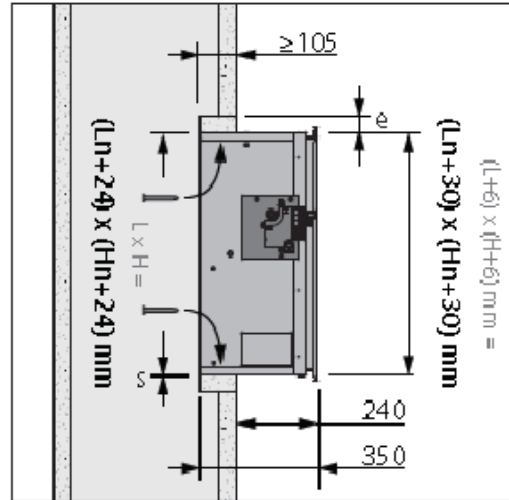
ILLUSTRATIONS APPENDIX

 www.rf.be	<u>Reference / Référence</u> SED	<u>Subject / Sujet</u> Dimensions / Mounting	<u>Plate / Plaque</u> 1/1
			
<u>Plan Title / Titre du plan</u> Smoke Evacuation Damper		<u>Date / Date</u> 14/09/2018	

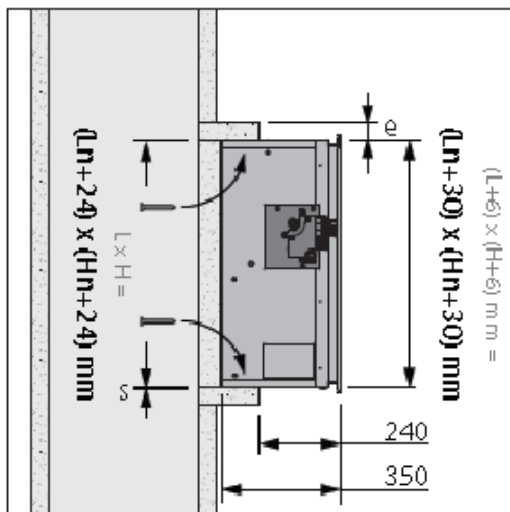
VU120



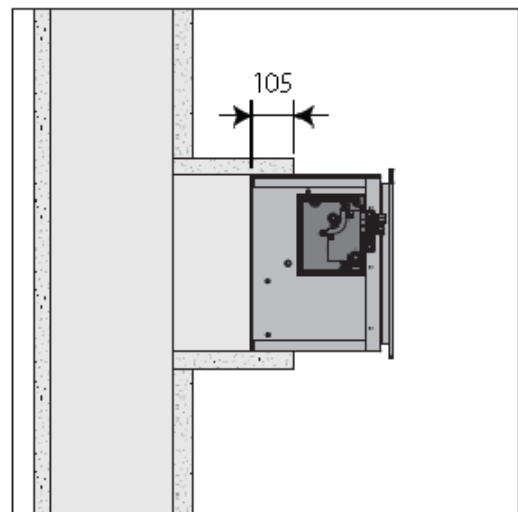
VU120: Fibrous plaster duct



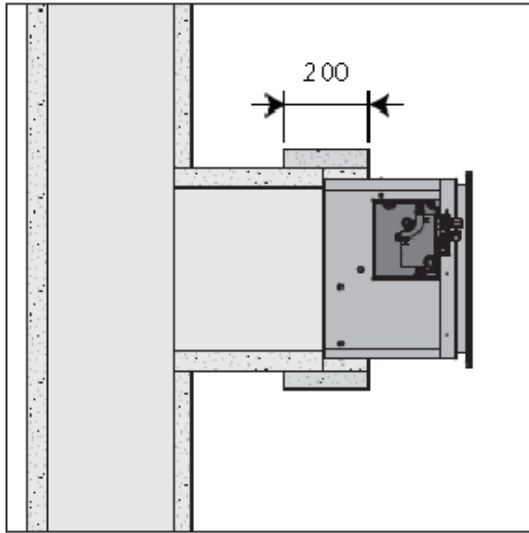
VU120: Calcium silicate duct
Internal sleeve on vertical duct



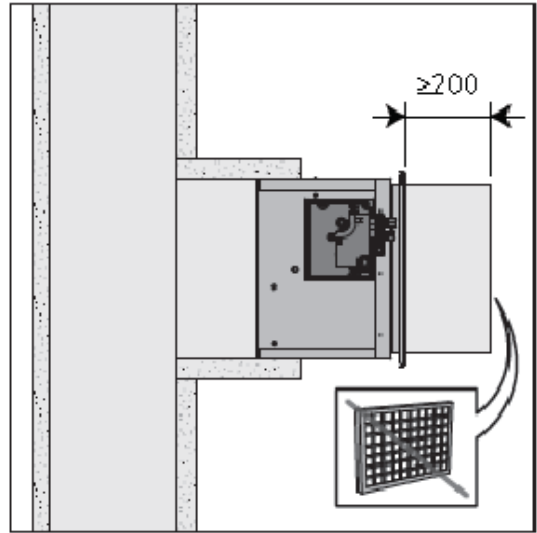
VU120: Calcium silicate duct
External sleeve on vertical duct



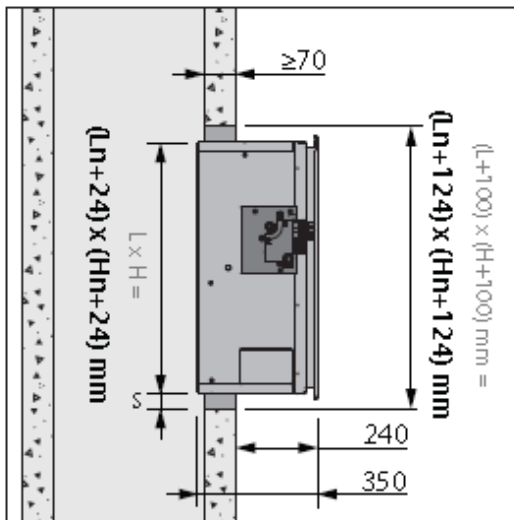
VU120: Calcium silicate / fibrous plaster duct
Installation within duct



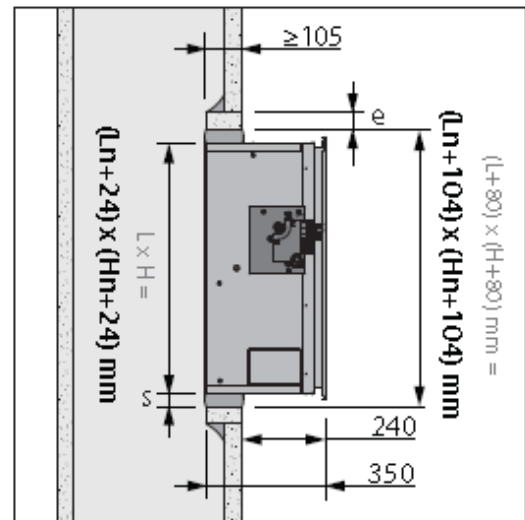
VU120: Calcium silicate / fibrous plaster duct
Edge-to-edge installation



VU120: Calcium silicate / fibrous plaster duct
Installation within duct



VU120: Concrete duct



VU120: Fibrous plaster duct

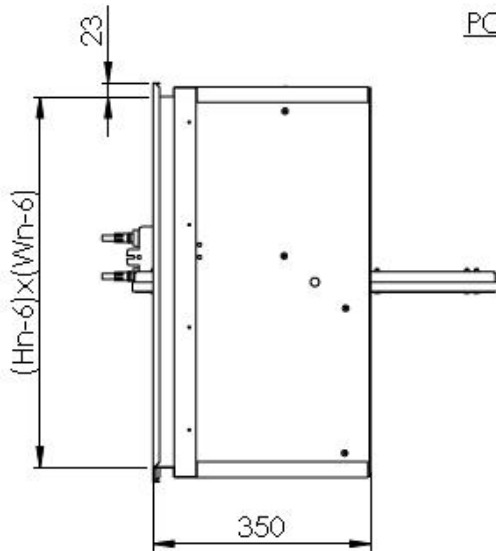


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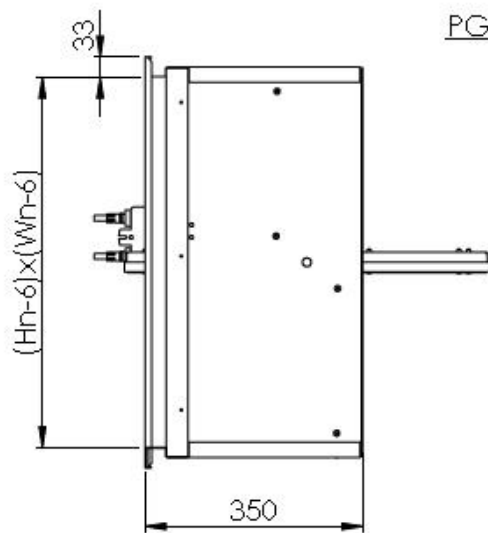
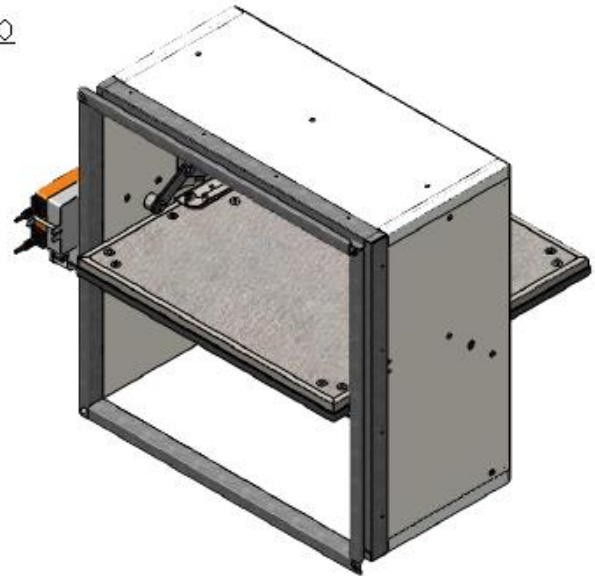
VU120_Parts_Fasteners_25_06_18

Plate

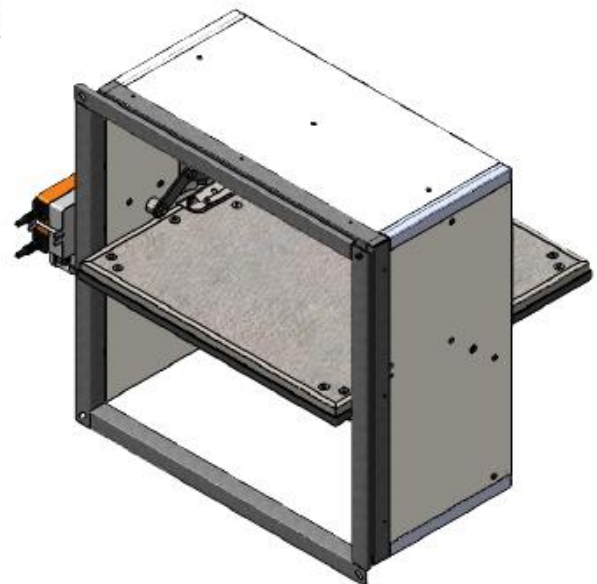
B 4/7




PG20

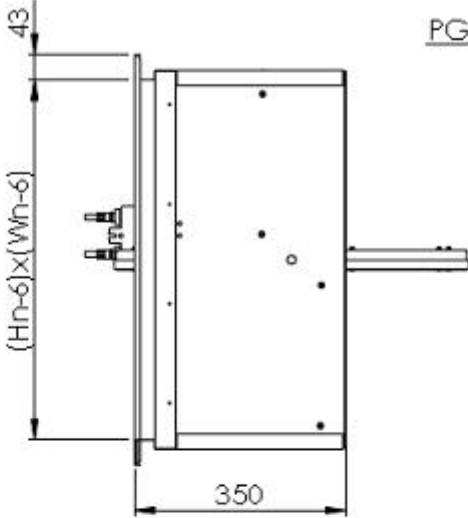


PG30

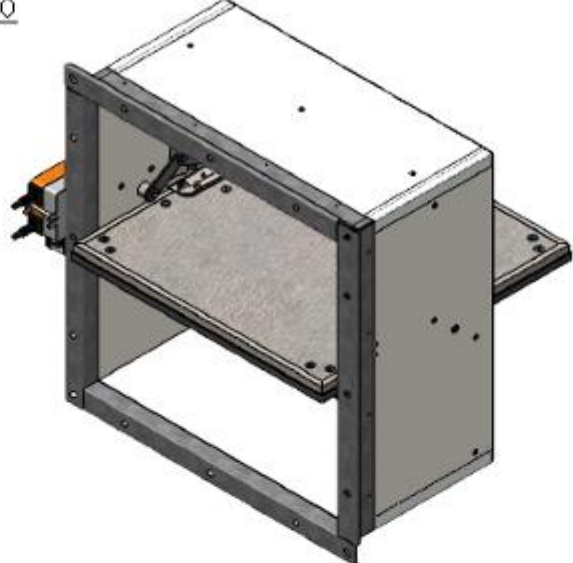


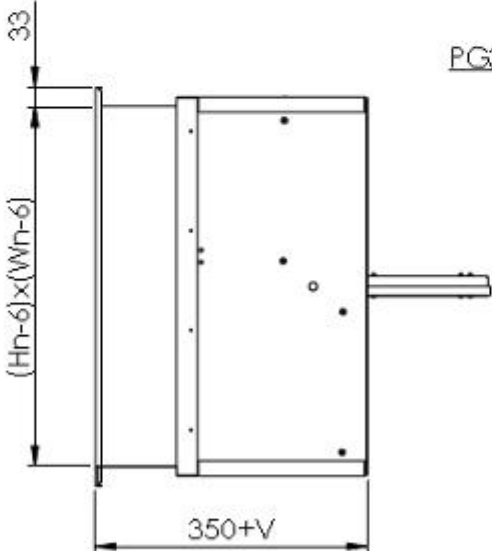
Plan Title:

	Reference - Subject - Date VU120_Parts_Fasteners_25_06_18	Plate B 5/7
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PG40






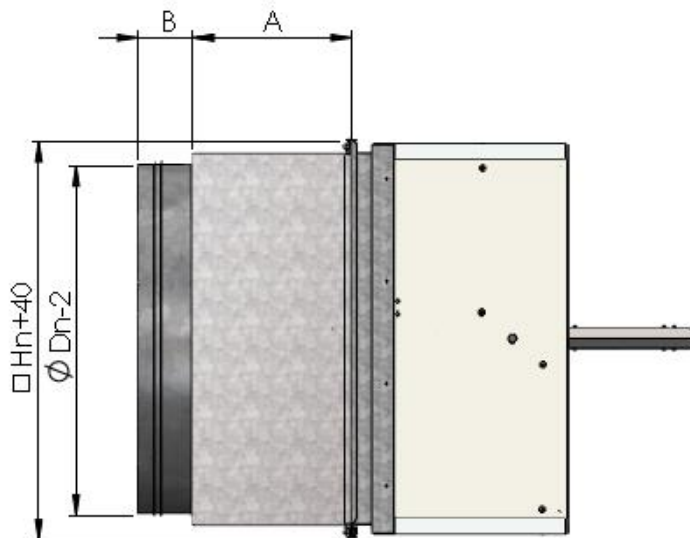
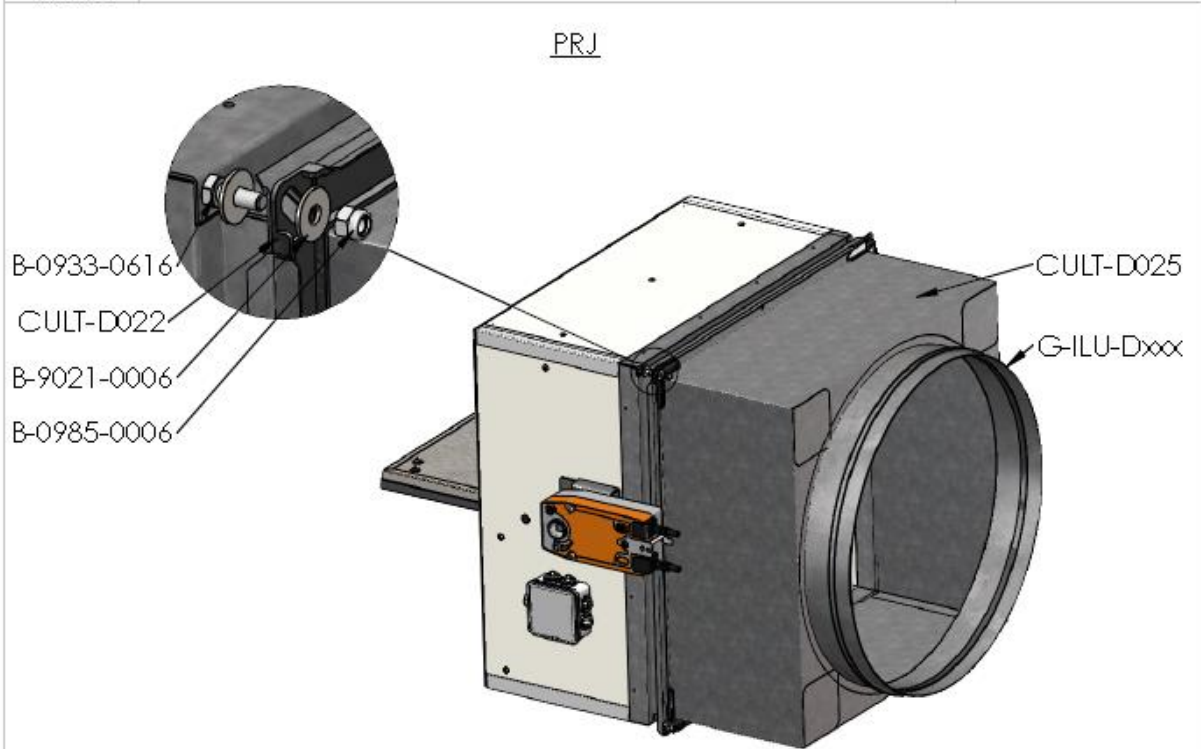
PG3V



Hn	<500	≤600	≤700	≤800	≤900	≤1000
V	0	+50	+100	+150	+200	+250

Plan Title:

	<p>Reference - Subject - Date VU120_Parts_Fasteners_25_06_18</p>	<p>Plate B 6/7</p>
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Damper HnxBn (mm)	Ø Dn PRJ (mm)	A (mm)	B(mm)
200x200	100	65	45
200x200	125	65	45
200x200	160	65	45
250x250	200	80	45
300x300	250	105	65
350x350	315	130	65
400x400	355	155	65
450x450	400	180	90
500x500	450	205	90
550x500	500	230	90
600x600	560	255	90
650x650	630	255	90

Plan Title:

