

# AVANTAGE MP

Motorised and CE marked smoke control shutter that can be perfectly integrated in many smoke control systems



CE 1812 UK CA






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## Explanation of the abbreviations and pictograms

<p>Wn = nominal width                  Hn = nominal height                  Sn = free air passage                  E = integrity                  I = thermal insulation                  S = smoke leakage                  60/120 = fire resistance time                  Pa = pascal                  o -&gt; i = meets the criteria from the outside                  (o) to the inside (i)                  i &lt;-&gt; o = fire side not important                  AA = automatic activation                  MA = manual activation                  multi = multi compartment                  ved = vertical duct</p>	<p>hod = horizontal duct                  vev = vertical wall penetration                  V = volt                  W = watt                  V AC = Volt alternating current                  V DC = Volt direct current                  E.TELE = power supply magnet                  E.ALIM = power supply motor                  Auto = automatic                  Tele = remote controlled                  Pnom = nominal capacity                  Pmax = maximum capacity                  DAS MOD = modular product                  OP = option (delivered with the product)</p>	<p>KIT = kit (delivered separately for repair or upgrade)                  PG = connection flange to the duct                  GKB (type A) / GKF (type F): "GKB" stands for standard plasterboards (type A according to EN 520) while "GKF" plasterboards offer a higher fire resistance for a similar plate thickness (type F according to EN 520)                  Cal-Sil = calcium silicate  <math>\zeta</math> [-] = pressure loss coefficient                  Q = airflow  <math>\Delta P</math> = static pressure drop                  v = air speed in the duct                  Lwa = A-weighted sound power level                  ME = motorised                  H = habitat</p>
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	optimal free air passage and minimal pressure loss		superior air tightness (tested at 1500 Pa)
	intermediate dimensions on request		

## DECLARATION OF PERFORMANCE

UKCA\_DoP\_Rf-t\_V34\_EN - D-01/08/2023



1. Unique identification code of the product-type:	AVANTAGE MP
2. Intended use(s):	Smoke control damper to be used in smoke control systems, in multi-compartment applications at fire temperatures, or in single-compartment applications.
3. Manufacturer:	Rf-technologies NV, Lange Ambachtstraat 40, B-9860 Oosterzele
4. System(s) of AVCP:	System 1
5. Designated standard / Approved body; certificate of constancy of performance:	BS EN 12101-8:2011, Efectis UK/Ireland Ltd 2822; 2822-UKCA-CPR-0013
6. Declared performance according to BS EN 12101-8:2011	(Fire resistance according to BS EN 1366-10, classification according to BS EN 13501-4)

## Essential characteristics

Range	Product	Shaft type	Shaft	Installation	Performance Classification
350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Avantage 60 MP	Shaft	Promatect L500 ≥ 30 mm Geoflam ≥ 30 mm Geotec ≥ 30 mm Tecniver ≥ 35 mm Glasroc FV500 ≥ 35 mm Exhamat ≥ 25 mm Desenfire HD ≥ 25 mm Concrete ≥ 90 mm Masonry, concrete blocks, concrete ≥ 100 mm	1	EI 60 (V <sub>ed</sub> , i ↔ o) S 1500 C10000 AA multi
	Avantage 120 MP	Shaft	Promatect L500 ≥ 40 mm Geoflam ≥ 35 mm Tecniver ≥ 45 mm Exhamat ≥ 30 mm Desenfire THD ≥ 25 mm Concrete ≥ 90 mm Masonry, concrete blocks, concrete ≥ 100 mm	1	EI 90 (V <sub>ed</sub> , i ↔ o) S 1500 C10000 AA multi
	Avantage 120 MP	Shaft	Promatect L500 ≥ 50 mm Geoflam ≥ 45 mm Geotec ≥ 45 mm Tecniver ≥ 50 mm Glasroc FV500 ≥ 50 mm Exhamat ≥ 35 mm Desenfire HD ≥ 35 mm Desenfire ≥ 45 mm Masonry, concrete blocks, concrete ≥ 100 mm	1	EI 120 (V <sub>ed</sub> , i ↔ o) S 1500 C10000 AA multi

Designated standard  
BS EN 12101-8:2011

1 Type of installation: shaft-mounted 0/180°. Minimal in-between distances authorised.



Nominal activation conditions/sensitivity:	Pass - automatic activation	Integrity (E):	60, 90 and 120 minutes
Response delay (response time): closure time	Pass - automatic activation	Insulation (EI):	60, 90 and 120 minutes
Operational reliability: cycling	10000 cycles (no load)	Smoke leakage (ES):	60, 90 and 120 minutes
Durability of response delay:	Pass	Mechanical stability (under E):	Pass
Durability of operational reliability:	Pass	Maintenance of cross section (under E):	Pass
Approved accessories	EASY-KAP ME/MP mounting frame; motorVA MP MEC		
High operational temperature (HOT 400/30):	NPD (no performance determined)		

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:  
Mathieu Steenland, Technical Manager

Oosterzele, 01/08/2023



## Product presentation AVANTAGE MP

The AVANTAGE MP is a motorised and CE marked smoke control shutter that can be perfectly integrated in many smoke control systems. It is certified in accordance with EN12101-8, suitable for vertical mounting in ducts or concrete shafts. Offering 60 or 120 minutes fire resistance at minimum pressure loss, it is classified as suitable for multi-compartment applications. In addition, AVANTAGE MP has a C10000 cycling classification, which means it can be used in combined smoke control and environmental, energy saving systems. It opens to supply and release air or to evacuate smoke in emergency situations whilst maintaining its fire resistant integrity in standby position.

The AVANTAGE MP is designed for use in:

- Pressure Differential Systems (PDS): e.g. pressurising staircases.
- Smoke and Heat Exhaust Ventilation Systems (SHEVS): ventilating protected lobbies and corridors through shafts, either naturally or mechanically, or a combination of both.
- Energy saving systems combined with PDS or SHEVS: e.g. night cooling systems.

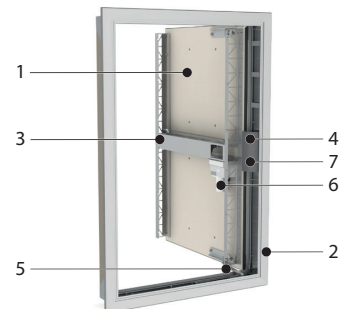
Smoke control shutters and dampers are suitable for use in ventilating protected lobbies, venting to shafts either naturally or mechanically. They open to evacuate smoke in emergency situations whilst maintaining fire resistant integrity in standby position.

- ✓ optimal smoke control shutter thanks to higher free air passage and minimal pressure loss
- ✓ easy to install thanks to optional mounting frame EASY-KAP ME/MP and its light weight
- ✓ simple operating tests through remote opening and resetting by an actuator
- ✓ installation at minimal distances

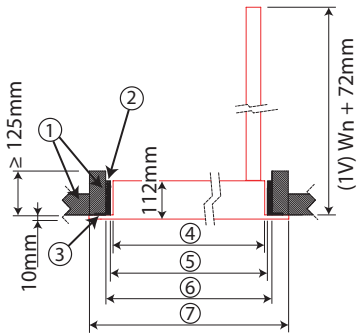


- tested according to EN 1366-10
- compliant with EN 12101-8
- suitable for use as air release and air supply vent in PDS-systems according to EN 12101-6
- suitable for air supply and smoke control vent in SHEVS-systems according to EN 12101-8
- light weight: ≤ 35 kg
- approved for installation in calcium-silicate, 'Staff', Tecriver, Glasroc, Extha and concrete shafts.
- maintenance-free
- superior air tightness (tested at 1500 Pa)

1. 1 shutter
2. aluminium frame
3. lock + key
4. connection compartment
5. actuating arm
6. resetting motor
7. product identification



**Range and dimensions AVANTAGE MP**



1. Refractory material
2. Sealing if mounting frame
3. Mounting frame EASY-KAP ME/MP (optional)
4. Nominal dimensions shutter  $W_n \times H_n$
5. Built-in dimensions without mounting frame  $(W_n+10) \times (H_n+10)$ mm
6. Built-in dimensions with KAP mounting frame  $(W_n+20) \times (H_n+20)$ mm
7. Overall (outside) dimensions of the shutter  $(W_n+54) \times (H_n+54)$ mm

	≥	≤
(B x H) mm	350x385	700x1075

**Evolution - kits**



**KITS VD24-VA**

Natural magnet 24 V DC



**EASY-KAP ME/MP**

Mounting frame (delivered separately)

**Options - at the time of order**



**BLACK**

Black covering plate



**TL**

Trailing lead 3 m for external connection

## Storage and handling

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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

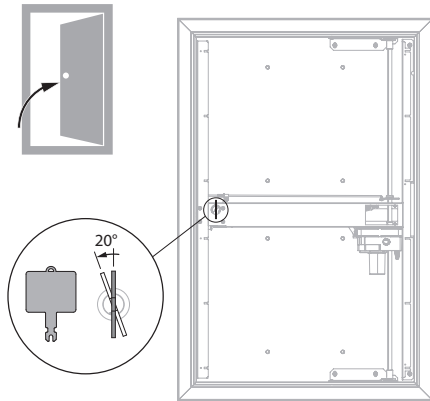
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### General points

- The installation must comply with the installation manual and the classification report.
- The installation of the smoke control duct must comply with the classification report delivered by the manufacturer.
- Axis orientation: see the declaration of performance.
- Avoid the obstruction of adjoining smoke control ducts.
- Verify if the blade can move freely.
- Rf-t smoke dampers may be applied to smoke control ducts that have been tested according to EN 1366-8 and EN 1366-9 as appropriate, constructed from similar materials with a fire resistance, thickness and density equal or superior to these of the tested materials.
  - ⚠ Caution: when fitting, the product should be handled with care and remain protected from any sealing products.
  - ⚠ Caution: before putting the installation into operation, clean off all the dust and dirt.
  - ⚠ Caution: bear in mind the blade's clearance inside the smoke control duct.

## Operation: manual opening

1

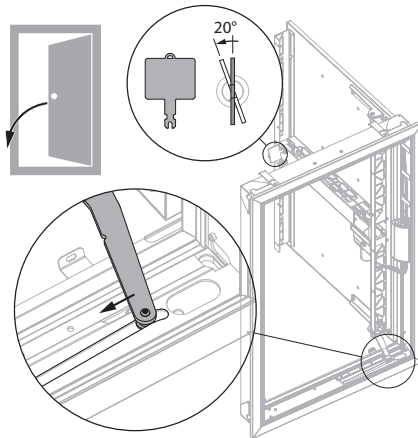


### 1. Unlocking 1V

Turn the key 20° anti-clockwise and push the shutter into its open position.

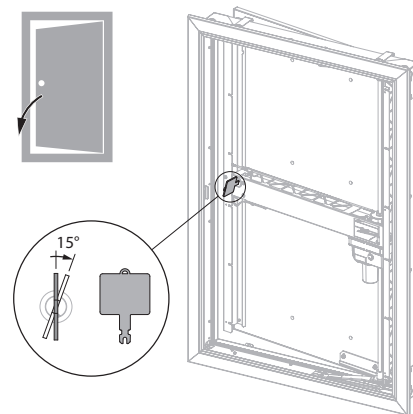
## Operation: manual closing

1



1. Turn the key 20° anti-clockwise. Push the actuating arm in the direction of the arrow and pull the shutter into its closed position.

2

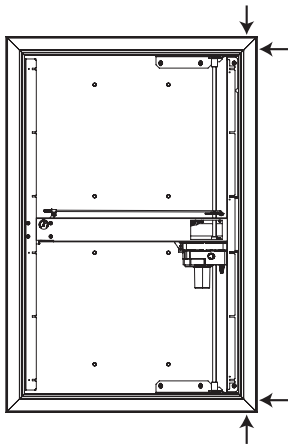


2. Turn the key 15° clockwise. The key blocks in the lock and the door can be pulled into its lock.



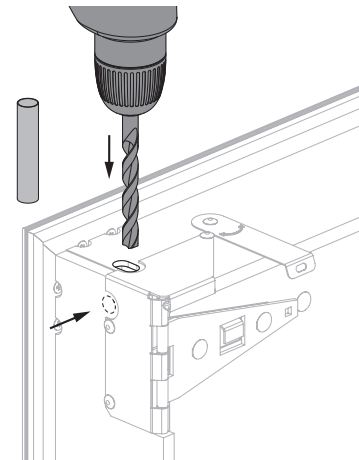
## Electrical connection

1



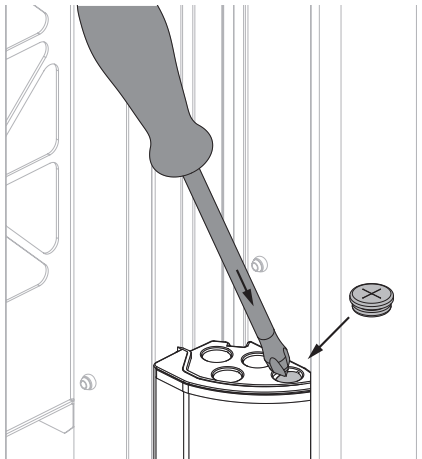
1. The electrical connection is possible via the 2 corners at the side of the hinges.

2



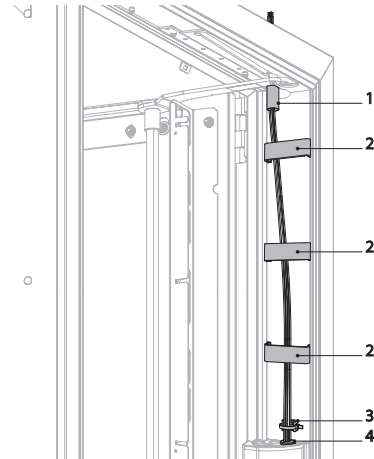
2. Drill a hole in the refractory material at the chosen corner(s). The galvanised part at the inside of the shutter is already indented.

3



3. Pierce an opening in the connection box. Affix the grommet delivered with the product.

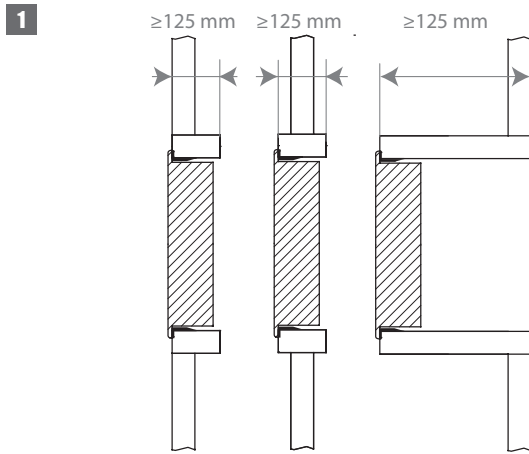
4



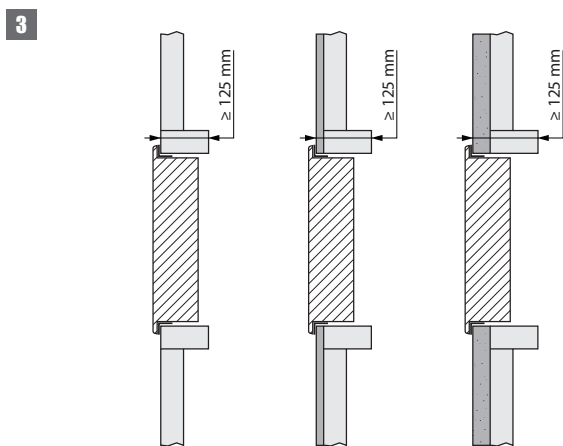
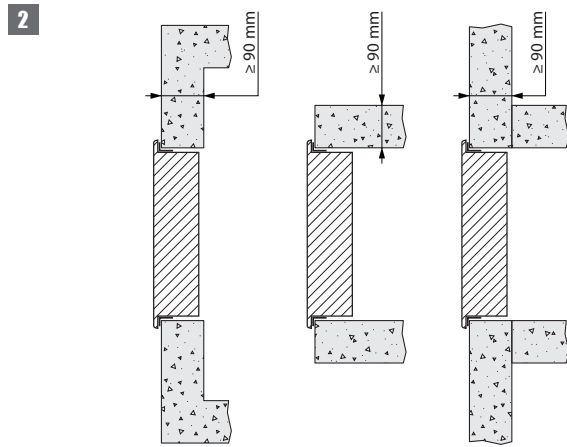
4. Lead the cables through the opening. Use the protective sleeve (1), the fixation clips (2) and the plastic cable clamp (3) to attach the cables to the frame. Lead the cables to the connection box through the grommet (4) and connect according to the electrical connection diagram.

**⚠ Caution:** after passing and fixing the cables, you need to seal the drilled hole in the refractory plates around the electrical cables with fire resistant adhesive sealant (BCM f.e.).

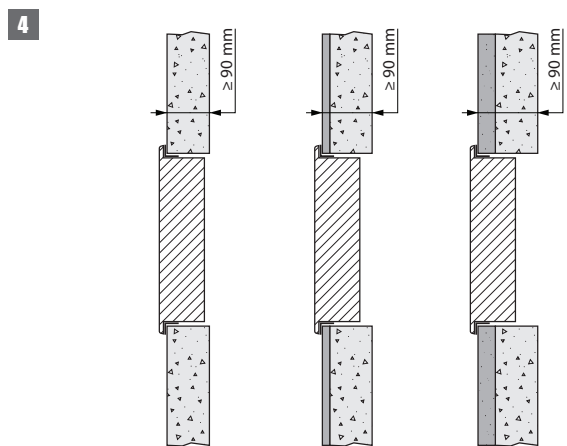
## Position in the shaft



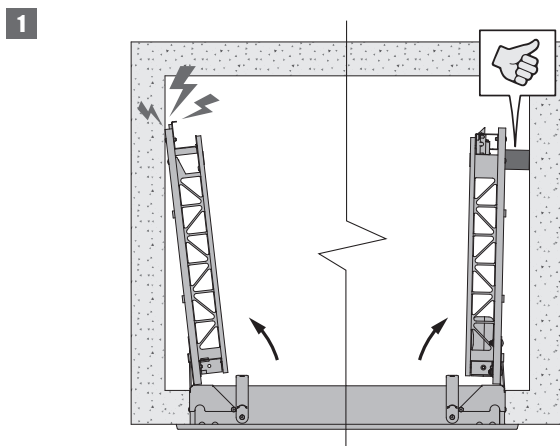
1. The shutter is affixed to the smoke control shaft through a sleeve. That sleeve can be installed either in the shaft, in the axis of the shaft or outside the shaft (or shaft extension).



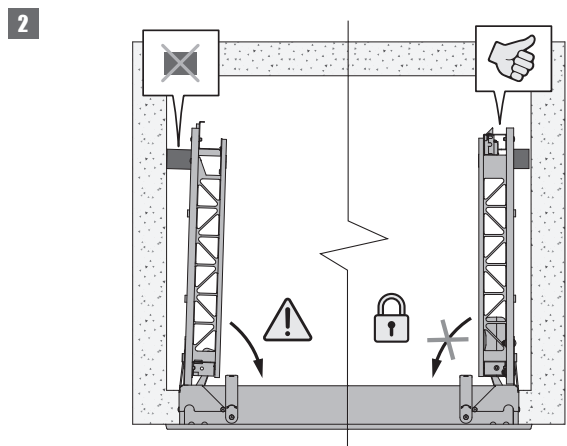
3. In order to prevent cracks around the opening in the long term, a finishing layer (plasterboard, (cellular) concrete, rigid wall) can be added between the mounting frame and the opening.



## Shock absorber for the door



1. Shock absorber (foam) comes standard with the shutter. It can be affixed to the inner face of the door to prevent it from hitting the shaft wall when opening.

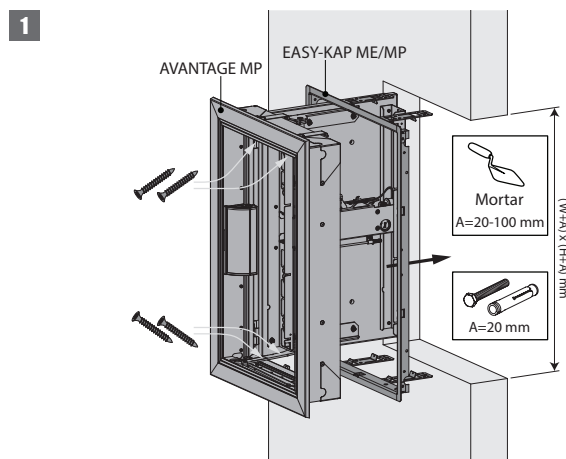


2. Be sure to cut the block to the correct dimensions so that the blocking mechanism can engage when the door opens.

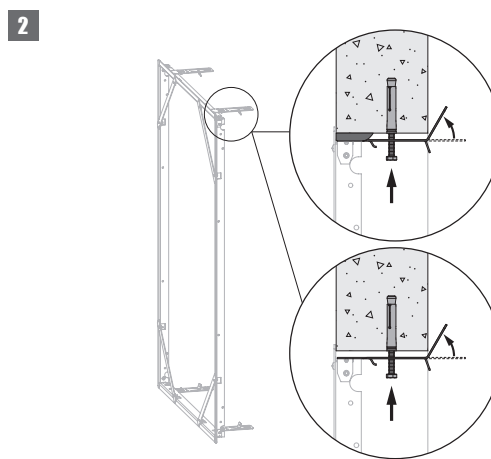
## Installation into vertical concrete shaft with mounting frame

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Concrete ≥ 90 mm	EI 60 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm	EI 60 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Concrete ≥ 90 mm	EI 90 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm	EI 90 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi



1. In case the mounting frame is screwed:  
 Make an opening with dimensions  $(W+20 \text{ min} / +30 \text{ max}) \times (H+20 \text{ min} / +30 \text{ max})$  mm.  
 In case the mounting frame is fixed with mortar:  
 Make an opening with dimensions  $(W+20) \times (H+20)$  mm till  $(W+100) \times (H+100)$  mm.

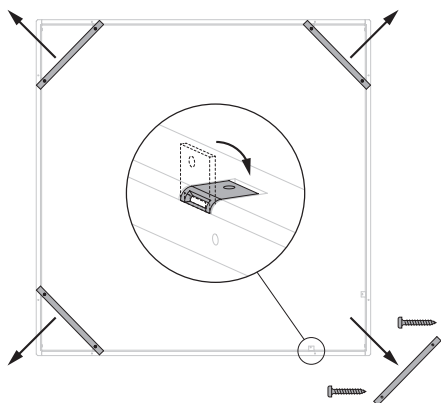


2. The mounting frame should always be fastened to the concrete shaft with screws and dowels ( $\varnothing 6$  x minimum 60 mm, steel or stainless steel).  
 For an opening with dimensions up to  $(W+20 \text{ min} / +30 \text{ max}) \times (H+20 \text{ min} / +30 \text{ max})$  mm:  
 Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the shaft and fasten the mounting frame with 4 screws  $\varnothing 6$  x 60 mm, taking care not to misshape it. These screws can be inserted through any of the punched holes in the lugs, depending on the thickness of the shaft wall.  
 The finished opening must have the same size as the mounting frame  $(W+10) \times (H+10)$  mm.

For an opening with dimensions up to  $(W+100) \times (H+100)$  mm:  
 Apply mortar around the opening to reduce the opening to the outer dimensions of the frame, then proceed as mentioned above to fasten the frame into the opening. Make sure that the gap between the frame and the opening is sealed completely with mortar.

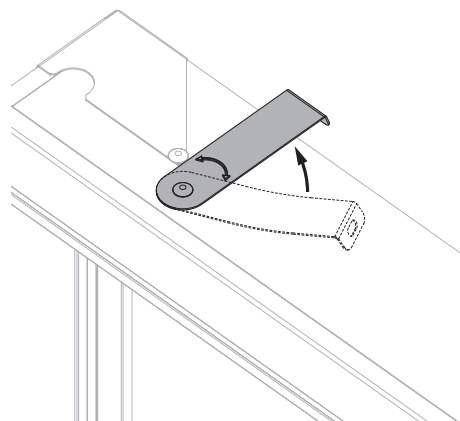
The mortar must harden completely before the damper is fastened to the mounting frame.

3



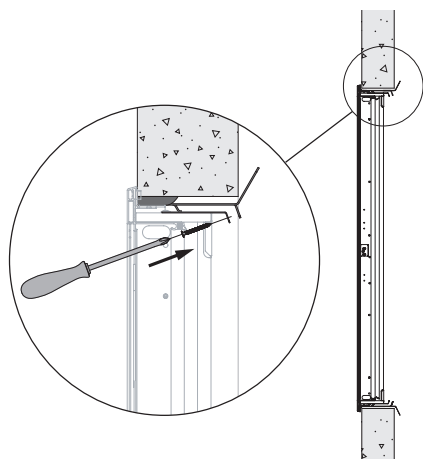
3. Put aside the screws that are affixed to one of the cross slats, then unscrew the 4 cross slats of the mounting frame and fold the 8 fastening plates in the frame.

4



4. Rotate the four fastening plates on the damper 90° (to the upright position).

5



5. Open the shutter and position it in the mounting frame. Fasten the shutter onto the mounting frame with the 4 screws supplied, as shown in the drawing. Tightening the screws pulls the shutter towards the wall until its final position. You can also slightly correct the angle of the shutter with respect to the mounting frame. Connect the mechanism according to the wiring diagram.

**⚠ Caution:** Connecting the frame to an uneven surface can lead to distortion of this frame. Check whether the slack between the frame and the surface of the door is still acceptable.

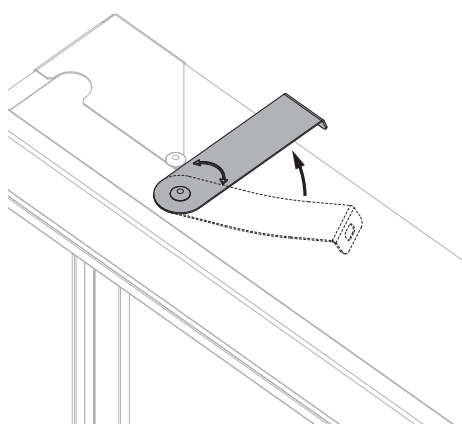
Check the mobility of the shutter.

## Installation into vertical concrete shaft without mounting frame

The product was tested and approved in:

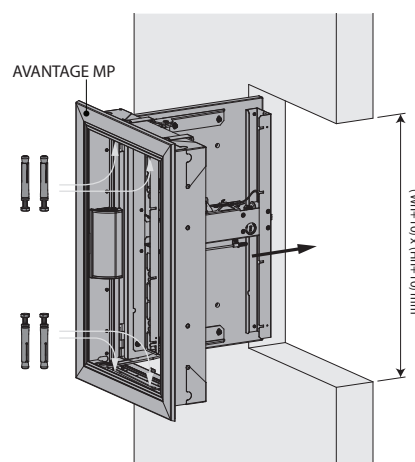
Product	Range	Wall type	Classification
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Concrete ≥ 90 mm
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Concrete ≥ 90 mm
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm

1



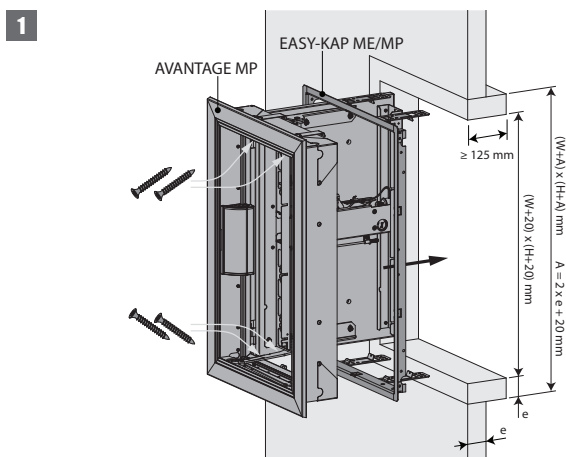
1. Rotate the four fastening plates on the damper 90° (to the upright position).  
The fastening plates are not used for an installation without a mounting frame.

2

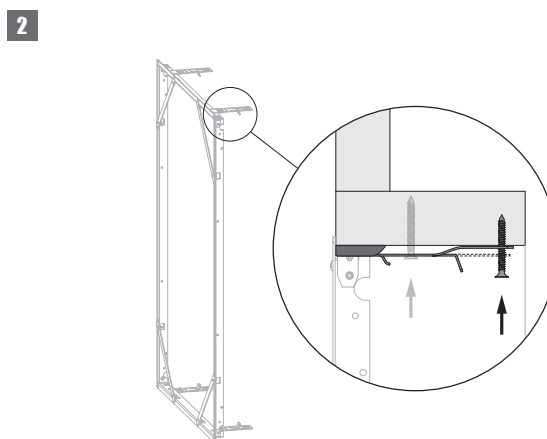


2. Make an opening with dimensions  $(W+10) \times (H+10)$  mm. Fix the shutter in the opening using 4 screws and dowels  $\varnothing 6 \times 40$  mm. Connect the mechanism according to the wiring diagram. Check the mobility of the shutter.

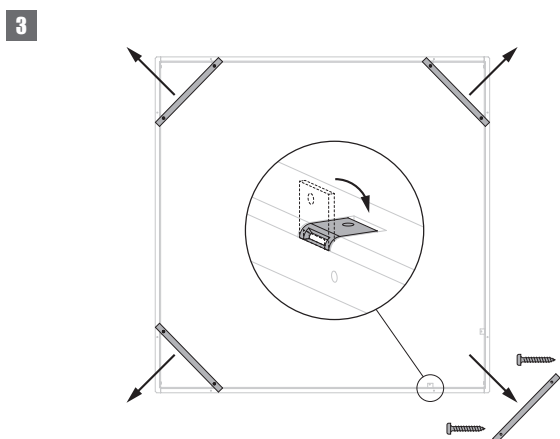
### Installation into vertical shaft with built-in mounting frame: general instructions for all types of shafts (other than concrete)



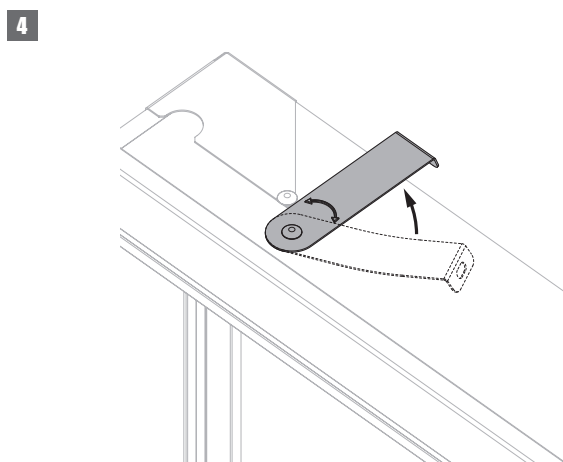
1. Make an opening with dimensions  $(W+A) \times (H+A)$  mm.  
 $A = 2 \times \text{thickness sleeve } (e) + 20 \text{ mm min. / } + 30 \text{ mm max.}$   
 Fit a sleeve of the same type of material and thickness as the duct (thickness  $e$ ) of minimum 125 mm deep in the opening.  
 Fasten and seal the mounting frame. See details per type of shaft hereafter.



2. Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve.  
 When fixed with screws, fasten the mounting frame to the sleeve with chipboard screws ( $\varnothing 6 \times e$ ) mm. These screws can be fixed in one of the openings provided for this purpose, depending on the depth of the sleeve.  
 Take care not to misshape the frame during its installation. The finished opening must have the same size as the mounting frame  $(W+10) \times (H+10)$  mm.

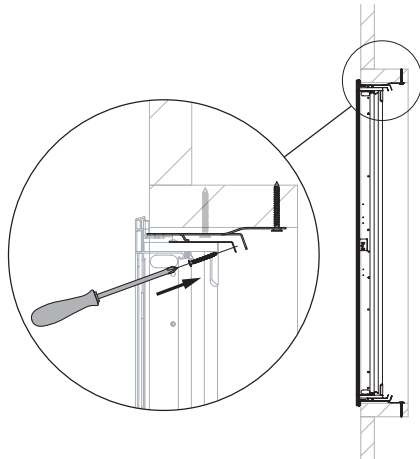


3. Put aside the screws that are affixed to one of the cross slats, then unscrew the 4 cross slats of the mounting frame and fold the 8 fastening plates in the frame.



4. Rotate the four fastening plates on the damper  $90^\circ$  (to the upright position).

5



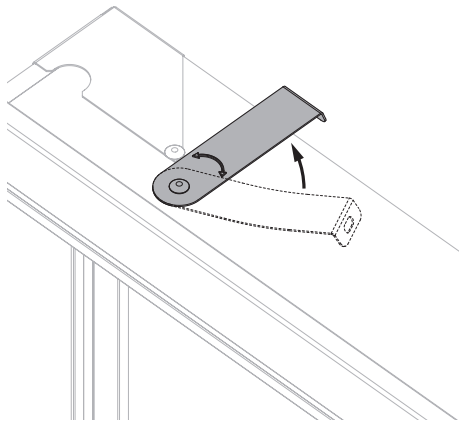
5. Open the shutter and position it in the mounting frame. Fasten the shutter onto the mounting frame with the 4 screws supplied, as shown in the drawing. Tightening the screws pulls the shutter towards the wall until its final position. You can also slightly correct the angle of the shutter with respect to the mounting frame. Connect the mechanism according to the wiring diagram.

**⚠ Caution:** Connecting the frame to an uneven surface can lead to distortion of this frame. Check whether the slack between the frame and the surface of the door is still acceptable.

Check the mobility of the shutter.

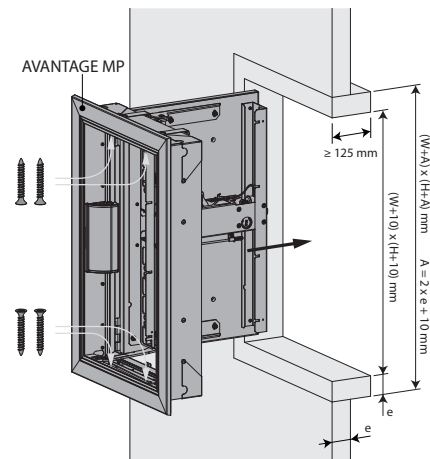
## Installation into vertical shaft (without a mounting frame): general instructions for all types of shafts (other than concrete)

1



1. Rotate the four fastening plates on the damper 90° (to the upright position). The fastening plates are not used for an installation without a mounting frame.

2



2. Make an opening with dimensions  $(W+A) \times (H+A)$  mm.  $A = 2 \times$  thickness sleeve  $(e) + 10$  mm. Fit a sleeve of the same type of material and thickness as the duct (thickness  $e$ ) of minimum 125 mm deep in the opening. Place the shutter in the opening. Ensure the cables are not trapped at this stage. Fix the shutter in the opening using 4 screws  $\text{Ø}6 \times 40$  mm.

**⚠ Caution:** make sure that the screws don't exceed the sleeve's thickness!

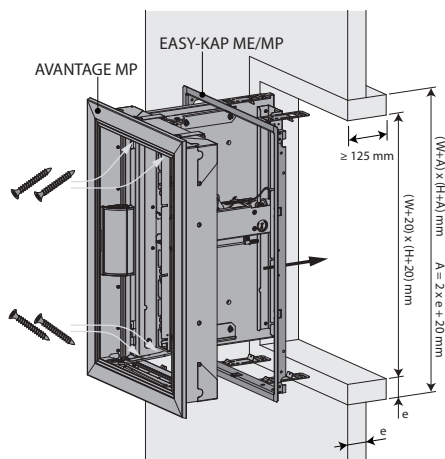
Connect the mechanism according to the wiring diagram. Check the mobility of the shutter.

## Installation into vertical shaft PROMATECT L500 with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Promatect L500 $\geq 30 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Promatect L500 $\geq 40 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Promatect L500 $\geq 50 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

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1. Assemble the sleeve with staples and affix the assembled sleeve to the shaft wall with staples.

Coat the edges of the opening with adhesive plaster type Promacol S.

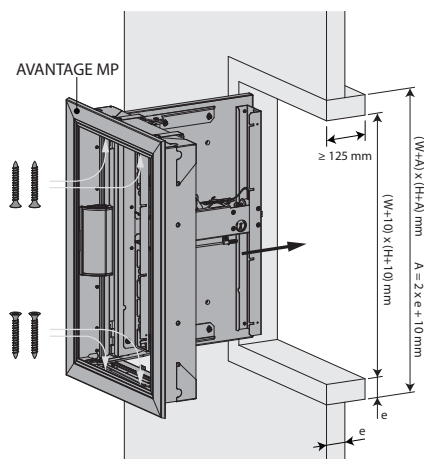
Screw the mounting frame to the sleeve with chipboard screw ( $\varnothing 6 \times e$ )mm. Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. Seal the mounting frame with Promacol S taking care not to misshape it. The finished opening must have the same size as the mounting frame  $(W+10) \times (H+10) \text{ mm}$ .

## Installation into vertical shaft PROMATECT L500 (without a mounting frame)

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Promatect L500 $\geq 30 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Promatect L500 $\geq 40 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Promatect L500 $\geq 50 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

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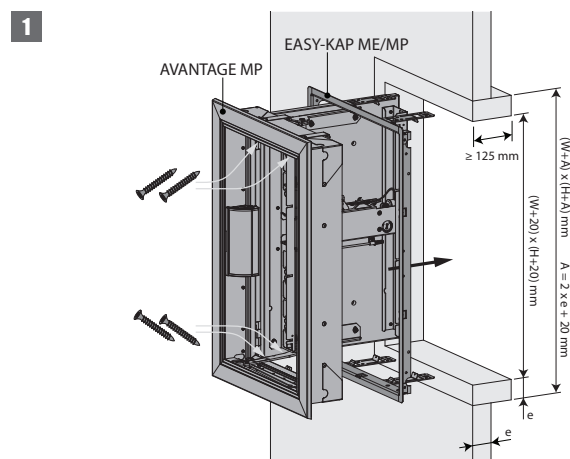
1. Assemble the sleeve with staples and affix the assembled sleeve to the shaft wall with staples.



## Installation into vertical shaft GEOFLAM (LIGHT) / GEOTEC with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam $\geq 30 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geotec $\geq 30 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam $\geq 35 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam $\geq 45 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam Light $\geq 35 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geotec $\geq 45 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

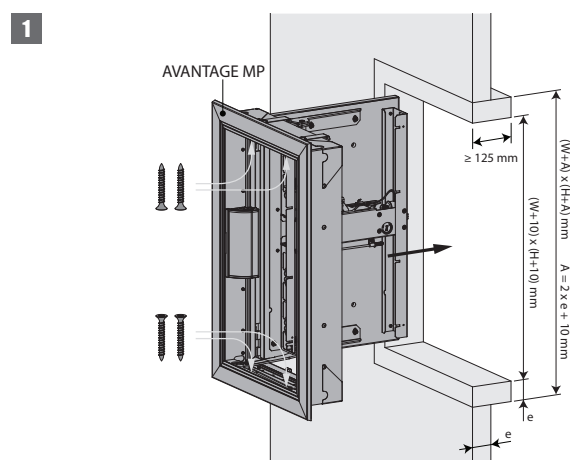


1. Coat the edges of the opening with adhesive plaster type PLACOL (in case of Geoflam) or GEOCOL (S) (in case of Geotec). In case of Geotec you can also assemble the sleeve with glue and screws  $\varnothing 5 \times (2 \times e) \text{ mm}$  and affix the assembled sleeve to the shaft wall with glue and screws  $\varnothing 5 \times (2 \times e) \text{ mm}$  every 100 mm. Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster or with GEOCOL (S) (in case of Geotec). Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. Caulk the mounting frame to the duct with vegetable fibre or (in case of Geotec) you can also coat the opening with Geocol (S) and fasten the mounting frame with screws of  $\varnothing 5 \times e \text{ mm}$ . Take care not to misshape the frame. The finished opening must have the same size as the mounting frame  $(W+10) \times (H+10) \text{ mm}$ .

## Installation into vertical shaft GEOFLAM (LIGHT) / GEOTEC (without a mounting frame)

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam $\geq 30 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geotec $\geq 30 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam $\geq 35 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam $\geq 45 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geoflam Light $\geq 35 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Geotec $\geq 45 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

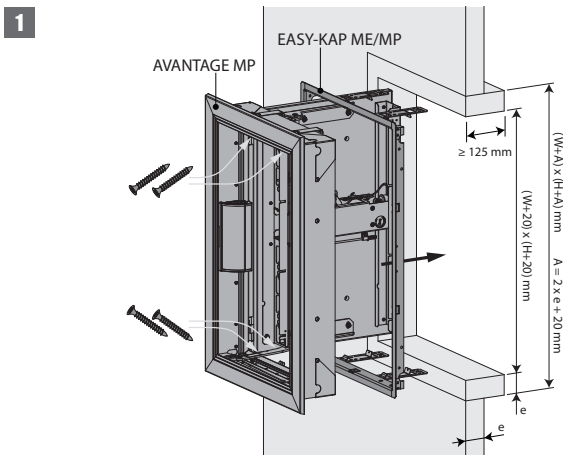


1. Coat the edges of the opening with adhesive plaster type PLACOL (in case of Geoflam) or GEOCOL (S) (in case of Geotec). Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster or with GEOCOL (S) (in case of Geotec). In case of Geotec you can also assemble the sleeve with glue and screws  $\varnothing 5 \times (2 \times e) \text{ mm}$  and affix the assembled sleeve to the shaft wall with glue and screws  $\varnothing 5 \times (2 \times e) \text{ mm}$  every 100 mm.

## Installation into vertical shaft TECNIVER with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Tecniver $\geq 35 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Tecniver $\geq 45 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Tecniver $\geq 50 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

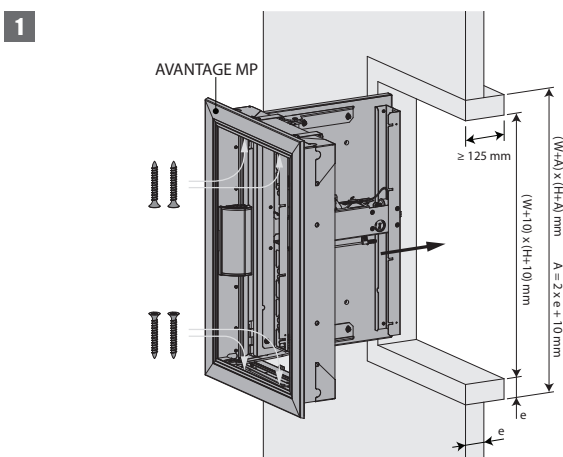


1. Put glue type CF GLUE on the uprights and cross pieces and between the lining and the wall. Screw the sleeve using chipboard screws  $\varnothing 5 \times 70 \text{ mm}$  at 150 mm intervals. Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. First coat the opening with glue CF GLUE. Glue the mounting frame to the lining taking care not to misshape it. The finished opening must have the same size as the mounting frame  $(W+10) \times (H+10) \text{ mm}$ .

## Installation into vertical shaft TECNIVER (without a mounting frame)

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Tecniver $\geq 35 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Tecniver $\geq 45 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Tecniver $\geq 50 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi



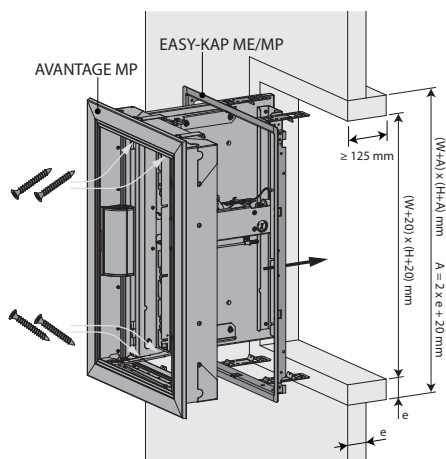
1. Put glue type CF GLUE on the uprights and cross pieces and between the lining and the wall. Screw the sleeve using chipboard screws  $\varnothing 5 \times 70 \text{ mm}$  at 150 mm intervals.

## Installation into vertical shaft GLASROC F V500 with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Glasroc F V500 ≥ 35 mm EI 60 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Glasroc F V500 ≥ 50 mm EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi

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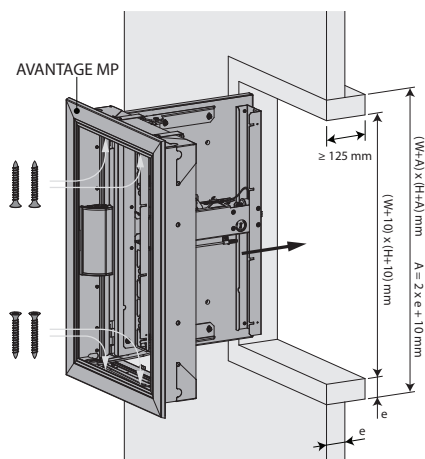
1. Put glue type GLASROC F V500 on the uprights and cross pieces and between the lining and the wall. Screw the sleeve using chipboard screws Ø5 x 70 mm at 150 mm intervals. Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. First coat the opening with glue GLASROC F V500. Glue the mounting frame to the lining taking care not to misshape it. The finished opening must have the same size as the mounting frame (W+10) x (H+10) mm.

## Installation into vertical shaft GLASROC F V500 (without a mounting frame)

The product was tested and approved in:

Product	Range	Wall type	Classification
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Glasroc F V500 ≥ 35 mm EI 60 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Glasroc F V500 ≥ 50 mm EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi

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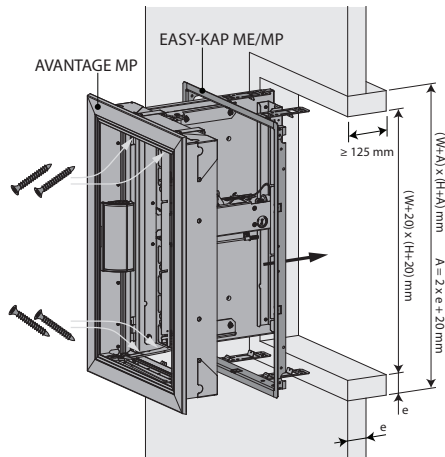
1. Put glue type GLASROC F V500 on the uprights and cross pieces and between the lining and the wall. Screw the sleeve using chipboard screws Ø5 x 70 mm at 150 mm intervals.

## Installation into vertical shaft EXTHAMAT with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Exthamat $\geq 25 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Exthamat $\geq 30 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Exthamat $\geq 35 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

1



1. Coat the edges of the opening with adhesive plaster.

Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster.

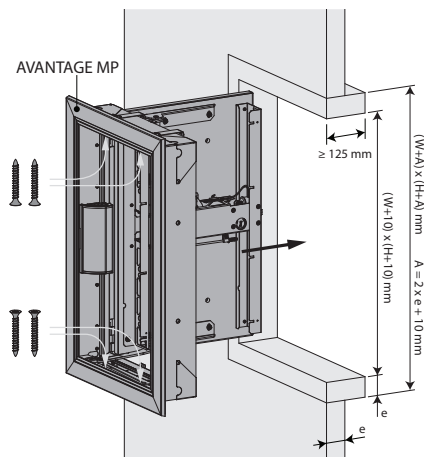
Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. Caulk the mounting frame to the duct with vegetable fiber caulking and plaster and taking care not to misshape it. The finished opening must have the same size as the mounting frame  $(W+10) \times (H+10) \text{ mm}$ .

## Installation into vertical shaft EXTHAMAT (without a mounting frame)

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Exthamat $\geq 25 \text{ mm}$	EI 60 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Exthamat $\geq 30 \text{ mm}$	EI 90 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi
Avantage 120 MP	$350 \times 385 \text{ mm} \leq \text{Avantage 1V MP} \leq 700 \times 1075 \text{ mm}$	Shaft	Exthamat $\geq 35 \text{ mm}$	EI 120 ( $v_{ed} i \leftrightarrow o$ ) S 1500 C10000 AA multi

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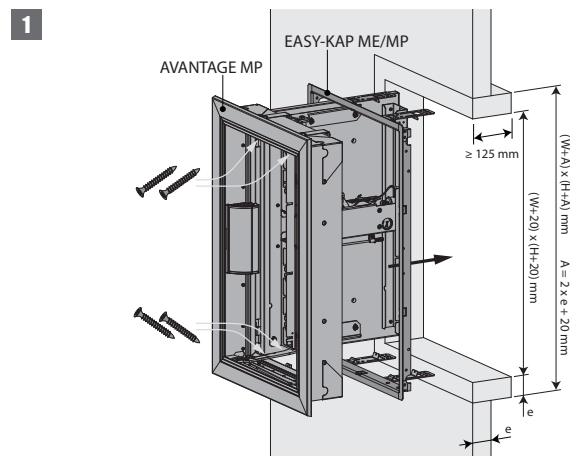
1. Coat the edges of the opening with adhesive plaster.

Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster.

## Installation into vertical shaft DESENFIRE (HD/THD/STR) with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type		Classification
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire HD ≥ 25 mm	EI 60 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire THD ≥ 25 mm	EI 90 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire HD ≥ 35 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire ≥ 45 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire STR ≥ 25 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi



1. Coat the edges of the opening with adhesive plaster, type FACILIS.

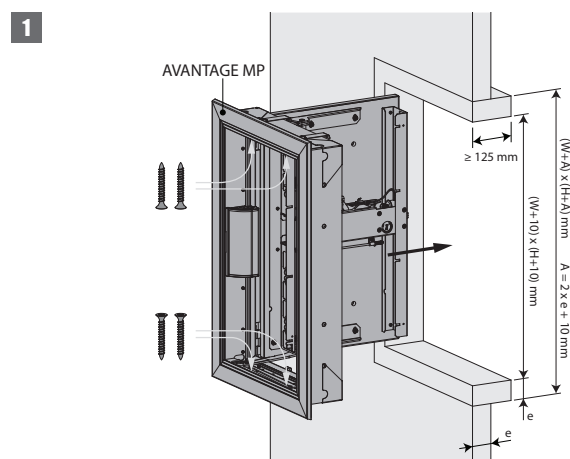
Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster.

Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. Caulk the mounting frame to the duct with vegetable fiber caulking and plaster and taking care not to misshape it. The finished opening must have the same size as the mounting frame (W+10) x (H+10) mm.

## Installation into vertical shaft DESENFIRE (HD/THD/STR) (without a mounting frame)

The product was tested and approved in:

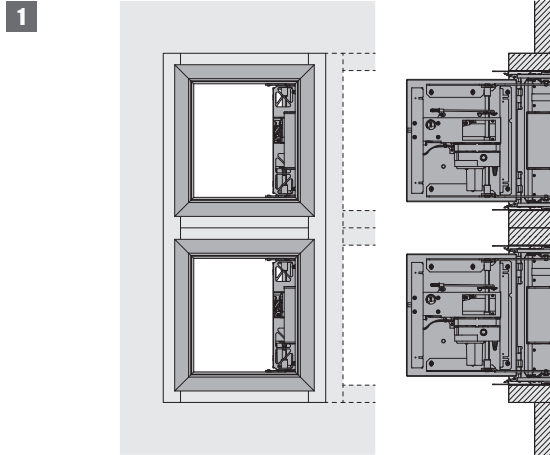
Product	Range	Wall type		Classification
Avantage 60 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire HD ≥ 25 mm	EI 60 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire THD ≥ 25 mm	EI 90 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire HD ≥ 35 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire ≥ 45 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi
Avantage 120 MP	350x385 mm ≤ Avantage 1V MP ≤ 700x1075 mm	Shaft	Desenfire STR ≥ 25 mm	EI 120 (v <sub>ed</sub> i ↔ o) S 1500 C10000 AA multi



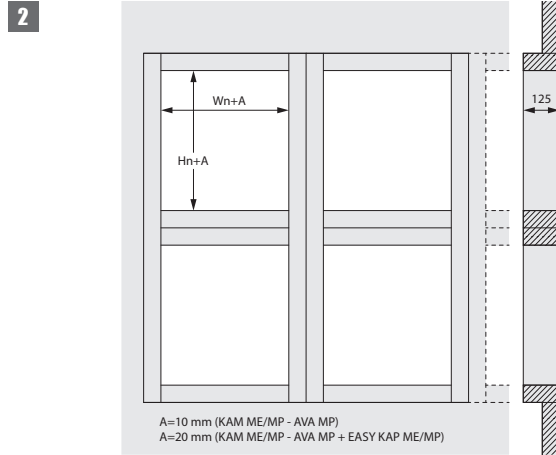
1. Coat the edges of the opening with adhesive plaster, type FACILIS.

Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster.

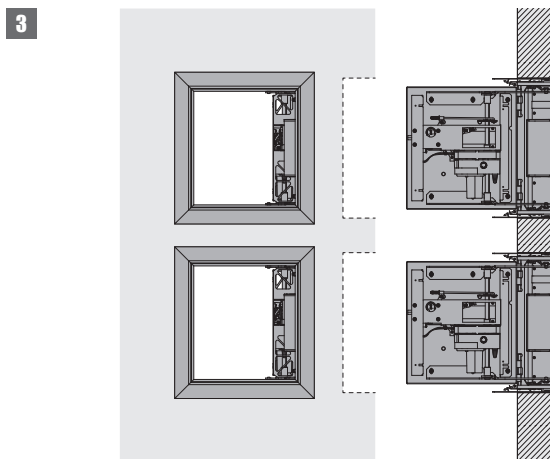
## Installation at minimal distances



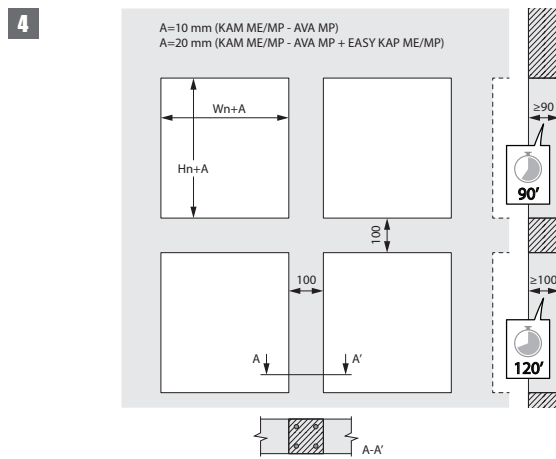
1. The shutters can be installed at minimal distance on top of or next to each other, if they are mounted in separate sleeves made from the shaft material with the required fire resistance. It is advised not to exceed a 4 x 2 configuration (W x H).



2. In case several shutters are mounted at a minimal distance, the bearing and reinforcement points of the shaft must be adjusted in proportion to the increased weight. The installation of the shaft must comply with the classification report delivered by the shaft manufacturer.



3. When mounting in a concrete shaft, you need to provide a continuous reinforcement in the vertical columns of at least 4 x Ø 8 mm.



## Product maintenance

Smoke control dampers must form part of a professionally designed Smoke and Heat Exhaust Ventilation System (SHEVS) that will be specially suited to an individual buildings size, usage and structure. SHEVS are Fire Safety Installations and it is essential they are subject to the routine inspection and maintenance requirements of the country of installation of the SHEV system. For example, BS7346 part 8, NF S 61-933 and EN 13306. Kamouflage MP dampers are virtually maintenance free, however, they will require occasional operation and maintenance as part of a system specific routine operational test and maintenance procedure. It is recommended that as part of the system testing and maintenance procedure that different individual dampers are operated at each system test such that each damper within a system is inspected, checked and tested at least once in any 6-month period. The following instructions are a general guide and our recommendations to the procedures required: a) Operate each ventilator at least once; checking that the unit opens and closes fully. b) Visually observe the control mechanisms ensuring the devices are in place and are not obviously damaged or obstructed. c) Inspect each ventilator in its open position to check that the intumescent fire seals and smoke seals between the vent frame and doors are not damaged and are securely attached. Wipe any dirt build up from the seals. Inspect the door leading and trailing edge seals and lightly lubricate with a machine oil and a silicone grease to the release latch.

## 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.

## Operation and mechanisms

### Operation: general points

- See under 'Installation' (manual opening and closing).
- ▲ Caution : please note dampers must be fully open before starting supply and/or extract fans.



### VA MP MEC Mechanism for remote controlled unlocking and resetting.

Mechanism for the smoke control shutters AVANTAGE MP and KAMOUFLAGE MP. Remote controlled unlocking and resetting.

### Opening

- **manual opening:** with the key (delivered in the bag together with the installation guidelines)
- **automatic opening:** n/a
- **remote opening:** remote by connection of 24 V DC or 48 V DC

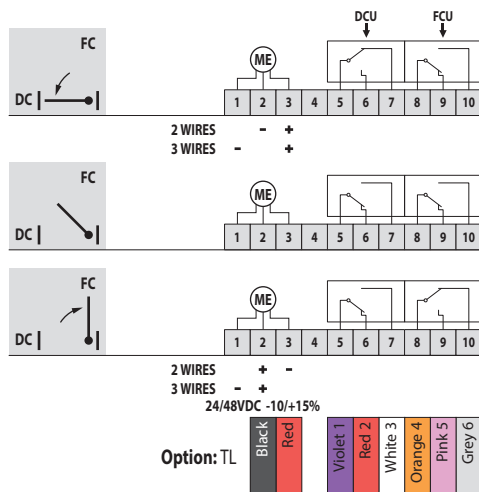
### Closing

- **manual closing:** turn the key 20° anti-clockwise. Push the actuating arm in the direction of the arrow and pull the shutter into its closed position. Turn the key 15° clockwise. The key blocks in the lock and the door can be pulled into its lock.
- **motorised closing:** remote controlled by reversing (2-wire) control or alternating (3-wire) control of the voltage to the motor. After the unlocking or rearmament is complete, the voltage on the motor may be stopped.

- ▲ Caution: the door can only be closed after it has been fully opened.

## Electrical connection

### VA MP MEC



DC : Switch closed position smoke evacuation shutter

FC : Switch open position smoke evacuation shutter

MEC	Nominal voltage motor	Nominal voltage magnet	Power consumption (stand-by)	Power consumption (operating)	Standard switches	Protection class
VA MP MEC	24/48 V DC (-10/+15%)	N/A	N/A	Pnom = 4W	1mA...1A 60V	IP 42

## Weights

## AVANTAGE MP 1V60 - 1V120

Hn\Wn [mm]		350	400	450	500	550	600	650	700
385	kg	9,3	9,9	10,4	10,9	11,6	12,1	12,7	13,1
415	kg	9,7	10,4	10,9	11,4	12,1	12,7	13,3	13,7
445	kg	10,0	10,7	11,3	11,8	12,5	13,1	13,7	14,2
475	kg	10,4	11,1	11,7	12,2	13,0	13,6	14,2	14,6
505	kg	10,7	11,5	12,1	12,7	13,4	14,1	14,7	15,2
535	kg	11,1	11,8	12,5	13,0	13,8	14,5	15,2	15,6
565	kg	11,4	12,2	12,9	13,5	14,3	14,9	15,6	16,1
595	kg	11,7	12,5	13,2	13,9	14,7	15,4	16,1	16,6
625	kg	12,1	12,9	13,6	14,3	15,1	15,9	16,6	17,2
655	kg	12,4	13,3	14,0	14,7	15,6	16,3	17,1	17,6
685	kg	12,8	13,6	14,4	15,1	16,0	16,8	17,5	18,1
715	kg	13,7	14,0	14,8	15,5	16,4	17,2	18,0	18,6
745	kg	14,1	14,4	15,2	15,9	16,9	17,7	18,5	19,2
775	kg	14,5	14,7	15,6	16,3	17,3	18,1	19,0	19,6
805	kg	14,8	15,9	16,0	16,7	17,7	18,6	19,5	20,1
835	kg	15,2	16,3	16,3	17,1	18,2	19,0	19,9	20,6
865	kg	15,6	16,7	16,7	17,6	18,6	19,5	20,4	21,2
895	kg	15,9	17,1	17,1	18,0	19,0	20,0	20,9	21,6
925	kg	16,3	17,5	18,6	18,4	19,5	20,4	21,4	22,1
955	kg	16,7	17,9	19,0	18,8	19,9	20,9	21,8	22,6
985	kg	17,1	18,3	19,5	19,2	20,3	21,3	22,3	23,2
1015	kg	17,4	18,7	19,9	21,0	20,8	21,8	22,8	23,6
1045	kg	17,8	19,1	20,3	21,4	21,2	22,2	23,3	24,1
1075	kg	18,2	19,5	20,7	21,9	21,6	22,7	23,8	26,8

## Selection data

$$\Delta p = 0,6 * v^2 * \zeta$$

## AVANTAGE MP 1V60 - 1V120

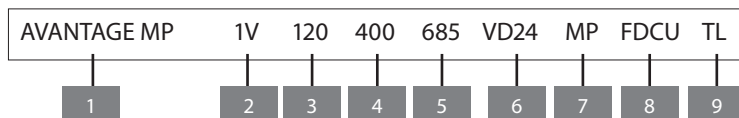
Hn\Wn [mm]		350	400	450	500	550	600	650	700
385	ζ [-]	2,484	2,051	1,747	1,523	1,35	1,213	1,101	1,009
415	ζ [-]	2,235	1,848	1,576	1,375	1,22	1,096	0,996	0,913
445	ζ [-]	2,031	1,682	1,436	1,253	1,113	1,001	0,91	0,834
475	ζ [-]	1,862	1,544	1,319	1,152	1,023	0,921	0,837	0,768
505	ζ [-]	1,719	1,427	1,22	1,066	0,947	0,853	0,776	0,712
535	ζ [-]	1,597	1,326	1,135	0,992	0,882	0,794	0,723	0,663
565	ζ [-]	1,491	1,239	1,061	0,928	0,825	0,743	0,676	0,621
595	ζ [-]	1,399	1,163	0,996	0,872	0,776	0,699	0,636	0,584
625	ζ [-]	1,317	1,096	0,939	0,822	0,732	0,659	0,6	0,551
655	ζ [-]	1,245	1,037	0,889	0,778	0,692	0,624	0,568	0,522
685	ζ [-]	1,181	0,983	0,843	0,739	0,657	0,593	0,54	0,496
715	ζ [-]	1,122	0,935	0,802	0,703	0,626	0,564	0,514	0,472
745	ζ [-]	1,07	0,892	0,765	0,671	0,597	0,539	0,491	0,451
775	ζ [-]	1,022	0,853	0,732	0,641	0,571	0,515	0,469	0,431
805	ζ [-]	0,979	0,817	0,701	0,615	0,547	0,494	0,45	0,413
835	ζ [-]	0,939	0,784	0,673	0,59	0,526	0,474	0,432	0,397
865	ζ [-]	0,902	0,753	0,647	0,567	0,505	0,456	0,415	0,382
895	ζ [-]	0,868	0,725	0,623	0,546	0,487	0,439	0,4	0,368
925	ζ [-]	0,837	0,699	0,601	0,527	0,47	0,424	0,386	0,355
955	ζ [-]	0,808	0,675	0,58	0,509	0,454	0,409	0,373	0,343
985	ζ [-]	0,781	0,653	0,561	0,492	0,439	0,396	0,361	0,332
1015	ζ [-]	0,756	0,632	0,543	0,476	0,425	0,383	0,349	0,321
1045	ζ [-]	0,732	0,612	0,526	0,462	0,412	0,371	0,339	0,311
1075	ζ [-]	0,71	0,593	0,51	0,448	0,399	0,36	0,329	0,302



AVANTAGE MP 1V60 - 1V120 - Free air passage (m<sup>2</sup>)

Hn\Wn [mm]		350	400	450	500	550	600	650	700
385	Sn [m <sup>2</sup> ]	0,1160	0,1340	0,1520	0,1700	0,1880	0,2060	0,2240	0,2420
415	Sn [m <sup>2</sup> ]	0,1260	0,1450	0,1650	0,1840	0,2040	0,2230	0,2430	0,2620
445	Sn [m <sup>2</sup> ]	0,1360	0,1570	0,1780	0,1990	0,2200	0,2410	0,2610	0,2820
475	Sn [m <sup>2</sup> ]	0,1450	0,1680	0,1900	0,2130	0,2350	0,2580	0,2800	0,3030
505	Sn [m <sup>2</sup> ]	0,1550	0,1790	0,2030	0,2270	0,2510	0,2750	0,2990	0,3230
535	Sn [m <sup>2</sup> ]	0,1650	0,1900	0,2160	0,2410	0,2670	0,2920	0,3180	0,3430
565	Sn [m <sup>2</sup> ]	0,1750	0,2020	0,2290	0,2550	0,2820	0,3090	0,3360	0,3630
595	Sn [m <sup>2</sup> ]	0,1840	0,2130	0,2410	0,2700	0,2980	0,3270	0,3550	0,3840
625	Sn [m <sup>2</sup> ]	0,1940	0,2240	0,2540	0,2840	0,3140	0,3440	0,3740	0,4040
655	Sn [m <sup>2</sup> ]	0,2040	0,2350	0,2670	0,2980	0,3300	0,3610	0,3920	0,4240
685	Sn [m <sup>2</sup> ]	0,2140	0,2460	0,2790	0,3120	0,3450	0,3780	0,4110	0,4440
715	Sn [m <sup>2</sup> ]	0,2230	0,2580	0,2920	0,3270	0,3610	0,3950	0,4300	0,4640
745	Sn [m <sup>2</sup> ]	0,2330	0,2690	0,3050	0,3410	0,3770	0,4130	0,4490	0,4850
775	Sn [m <sup>2</sup> ]	0,2430	0,2800	0,3180	0,3550	0,3920	0,4300	0,4670	0,5050
805	Sn [m <sup>2</sup> ]	0,2520	0,2910	0,3300	0,3690	0,4080	0,4470	0,4860	0,5250
835	Sn [m <sup>2</sup> ]	0,2620	0,3030	0,3430	0,3830	0,4240	0,4640	0,5050	0,5450
865	Sn [m <sup>2</sup> ]	0,2720	0,3140	0,3560	0,3980	0,4400	0,4820	0,5240	0,5650
895	Sn [m <sup>2</sup> ]	0,2820	0,3250	0,3680	0,4120	0,4550	0,4990	0,5420	0,5860
925	Sn [m <sup>2</sup> ]	0,2910	0,3360	0,3810	0,4260	0,4710	0,5160	0,5610	0,6060
955	Sn [m <sup>2</sup> ]	0,3010	0,3470	0,3940	0,4400	0,4870	0,5330	0,5800	0,6260
985	Sn [m <sup>2</sup> ]	0,3110	0,3590	0,4070	0,4550	0,5030	0,5500	0,5980	0,6460
1015	Sn [m <sup>2</sup> ]	0,3200	0,3700	0,4190	0,4690	0,5180	0,5680	0,6170	0,6670
1045	Sn [m <sup>2</sup> ]	0,3300	0,3810	0,4320	0,4830	0,5340	0,5850	0,6360	0,6870
1075	Sn [m <sup>2</sup> ]	0,3400	0,3920	0,4450	0,4970	0,5500	0,6020	0,6550	0,7070

## Sample order



1. product
2. 1 shutter
3. fire resistance of 60 or 120 minutes
4. width
5. height
6. option: type magnet and voltage
7. motor: MP
8. limit switch 'open/closed'
9. option: trailing lead

## Approvals and certificates

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



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*If the product is manipulated in any other way than described in this manual, Rf-Technologies will decline any responsibility and the guarantee will expire!*