

KAMOUFLAGE P

Aesthetic smoke evacuation shutter for ceiling mounting.



NC 50
CLAPETE SÉCURITÉ AU FEU
VOLUTÉS RÉSISTANT AU FEU

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Explanation of the abbreviations and pictograms

3

Explanation of the abbreviations and pictograms

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 -> i = meets the criteria from the outside (o) to the inside (i)
i <-> o = fire side not important
AA = automatic activation
multi = multi compartment
1500 = pressure level 3 (1500Pa)
ved = vertical duct

hod = horizontal duct
vew = 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)

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
 $\zeta [-]$ = pressure loss coefficient
Q = air flow
 ΔP = static pressure drop
v = air speed in the duct
Lwa = A-weighted sound power level
ME = motorised
H = habitat

	aesthetic solution		optimal acoustic performance
	optimal free air passage and minimal pressure loss		superior air tightness (tested at 1500 Pa)
	intermediate dimensions on request		winner of the French "Janus de l'Industrie" award

Product presentation KAMOUFLAGE P

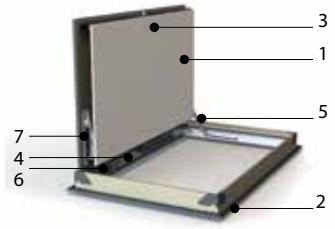
Aesthetic smoke evacuation shutter suitable for ceiling mounting into the bottom of smoke shafts.

Smoke evacuation 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.

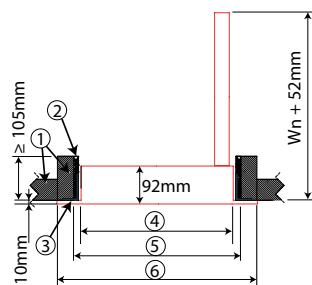
- aesthetic solution
- modern look: either select the ready-to-install product with white lacquered finish, or cover with paint or wallpaper
- superior air tightness (tested at 1500 Pa)
- thermal and acoustic insulation
- optimal free air passage and minimal pressure loss
- frame available with primer
- tested according to EN 1366-10
- compliant with EN 12101-8
- approved for installation in calcium-silicate, 'Staff', Tecniver and Glasroc shafts
- maintenance-free
- for indoor use
- winner of the French "Janus de l'Industrie" award
- intermediate dimensions on request



1. 1 shutter (1V)
2. frame in anodised aluminium / with primer (PRIM) / white lacquered (ATOUT RAL9010)
3. lock + key
4. connection compartment
5. blocking mechanism + automatic locking at 90°
6. product identification
7. gas spring (ceiling version)



Range and dimensions KAMOUFLAGE P



1. Refractory material
2. Sealing mounting frame
3. KAP mounting frame (mandatory option)
4. Nominal dimensions shutter Wn x Hn
5. Built-in dimensions with KAP mounting frame (Wn+20) x (Hn+20)mm
6. Overall (outside) dimensions of the shutter (Wn+54) x (Hn+54)mm

(Wn x Hn) mm	≥	≤
350x385		600x1045

Evolution - kits

Evolution - kits

	KITS VD24-VA	Natural magnet 24 V DC
	KITS VD48-VA	Natural magnet 48 V DC
	KITS VM24-VA	Electromagnet 24 V DC (not applicable for ME model)
	KITS VM48-VA	Electromagnet 48 V DC (not applicable for ME model)
	KITS FDC-VA	Limit switches 'open/closed'
	KAP	Mounting frame (delivered separately)

Options - at the time of order

	PRIM	Frame with primer (to facilitate the application of a layer of synthetic paint on the outside of the frame). The shutter is covered with a raw gypsum-cardboard-plate.
	ATOUT 1V P RAL9010	Frame painted white and shutter covered with white metallic sheet (RAL 9010 mat)

Storage and handling

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

Avoid:

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

It is recommended:

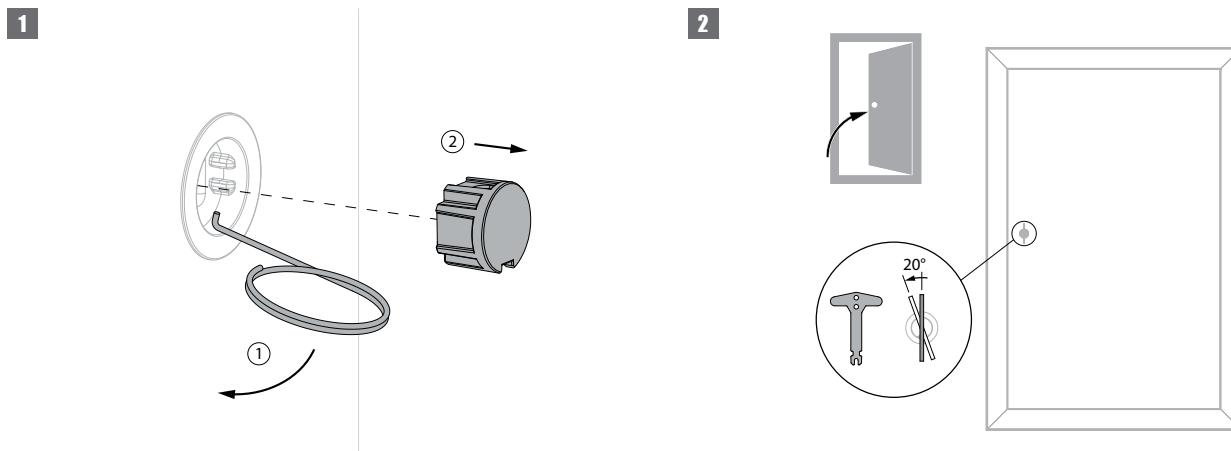
- to unload in a dry area
- not to flip or roll the product to move it
- not to use the damper as a scaffold, working table, etc.
- not to store smaller dampers inside larger ones

Installation

General points

- The installation must comply with the installation manual and the classification report.
- The installation of the shaft must comply with the classification report delivered by the shaft manufacturer.
- Axis orientation: see the declaration of performance.
- Avoid the obstruction of adjoining shafts.
- Verify if the blade can move freely.
- Rf-t smoke dampers may be applied to 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 evacuation duct.

Operation: manual opening



1. Unlocking 1V

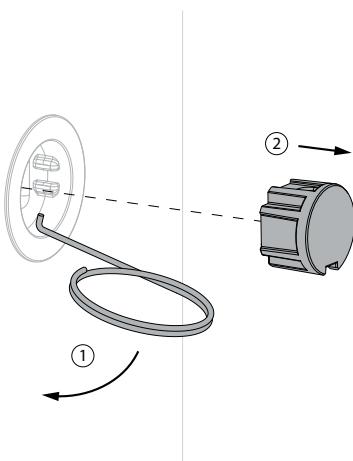
Remove the finishing cap from the shutter. To do this, use the hook with key ring that is delivered with the product. You may attach this tool to the key through its handy key ring.

2. Insert the key in the lock. Turn the key 20° anti-clockwise: the shutter opens. Remove the key from the lock.

Installation

Operation: manual closing

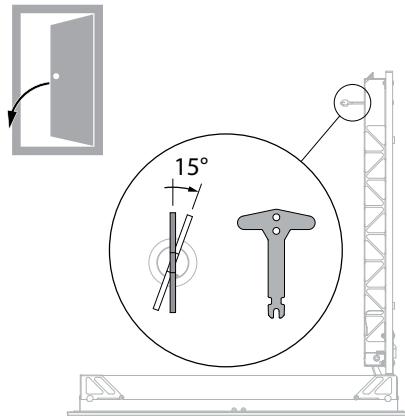
1



1. Resetting 1V

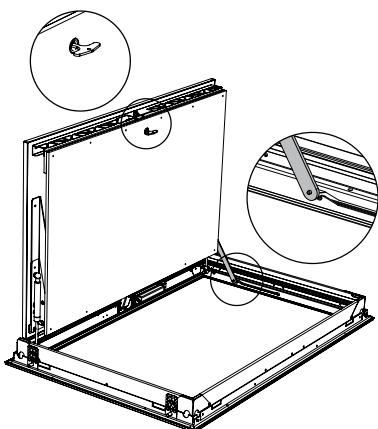
Remove the finishing cap from the shutter. To do this, use the hook with key ring that is delivered with the product. You may attach this tool to the key through its handy key ring.

2



2. Insert the key in the lock. Turn the key 15° clockwise, the key gets blocked in the lock and can be used to pull the shutter.

3



3. Press on the blocking devices.

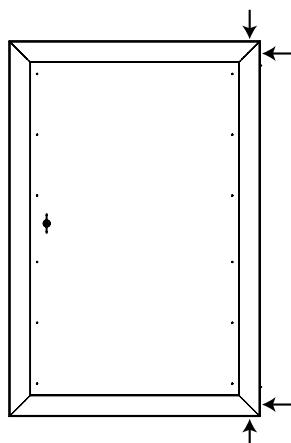
Close the shutter by pulling at the key.

Turn the key 15° clockwise, the key unblocks from the lock.

Withdraw the key.

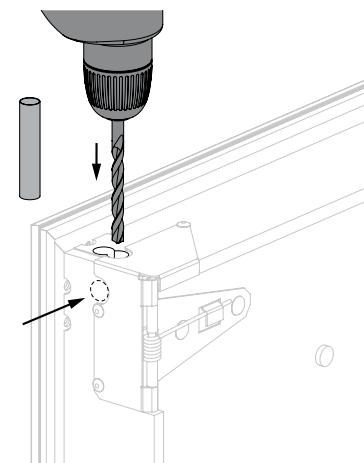
Electrical connection

1



1. You can thread the cable for the power supply through the 2 corners of the shutter, on the hinges' side.

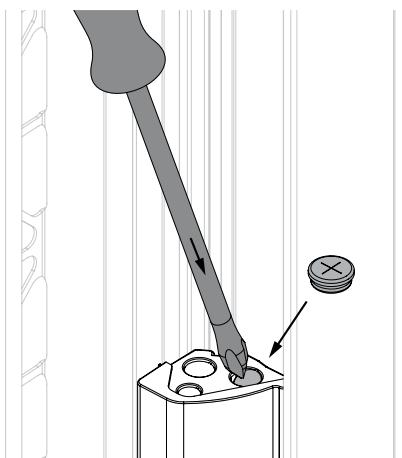
2



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.

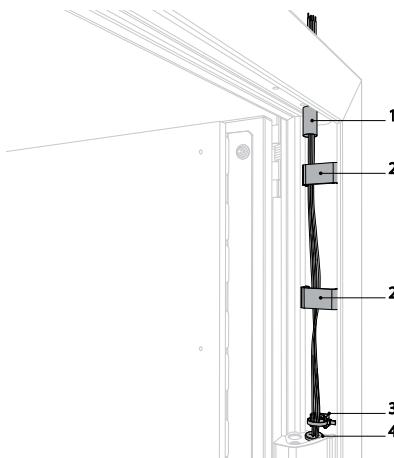
⚠ Caution: after passing and fixing the cables, you need to seal the drilled hole in the refractory plates around the electrical cables with fire resistant adhesive sealant (BCM f.e.).

3



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

4

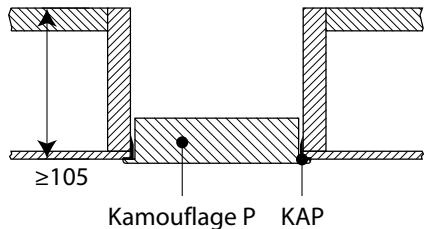


4. Lead the cables through the opening. Use the protective sleeve (1), the fixation clips (2) and the plastic cable clamp (3) to attach the cables to the frame. Lead the cables to the connection box through the grommet (4) and connect according to the electrical connection diagram. Comply with the installation rules according to article 6.1 of NF S 61-932.

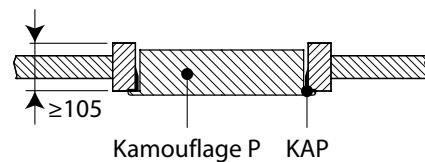
Installation

Position in the shaft

1

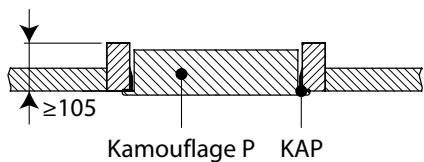


2



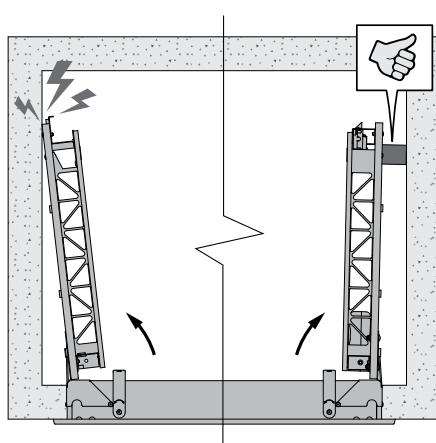
1. The shutter is affixed to the smoke evacuation shaft through a sleeve. That sleeve can be installed either in the shaft, in the axis of the shaft or outside the shaft (or shaft extension).

3

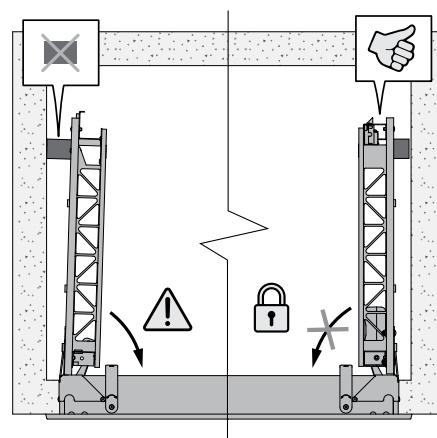


Shock absorbers for the doors

1



2

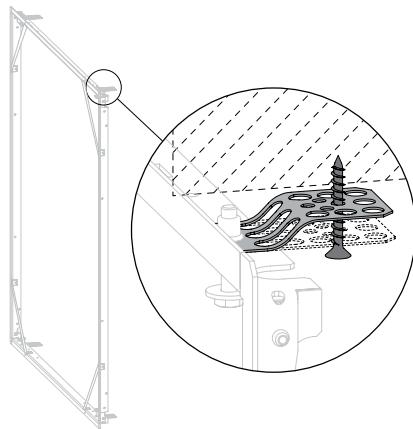


1. Shock absorbers (foam) come standard with the shutter. They can be affixed to the inner face of the door to prevent it from hitting the shaft wall when opening.

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

Horizontal installation with built-in mounting frame: general instructions for all types of shafts

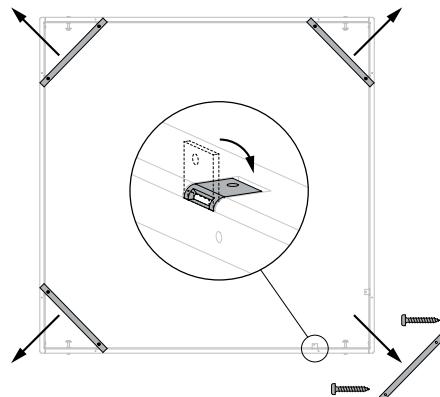
1



1. Make an opening with dimensions $(W+A) \times (H+A)$ mm.
 $A = 2 \times$ thickness sleeve (e) + 20 mm.

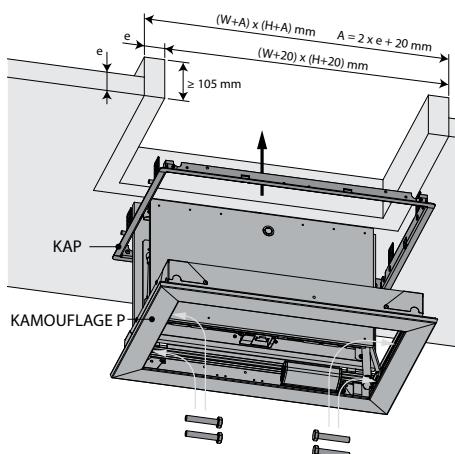
Fit a sleeve of the same type and thickness of the duct (thickness e) of minimum 105 mm deep in the opening.
 Fasten and seal the mounting frame. See details per type of shaft hereafter.
 Screw the mounting frame with chipboard screw ($\varnothing 6 \times e$)mm to the sleeve. Two sealing lugs are provided at the bottom and at the top of the mounting frame: fold these against 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.

2



2. Unscrew the 4 cross beams of the KAP mounting frame and fold the 8 plates in the frame.

3



3. Open and position the shutter in the mounting frame. If VM magnet: remove the key from the lock to open the shutter.
 Don't use the bolts delivered with the mounting frame, but use the ones delivered with the shutter (M6x50).

⚠ 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.

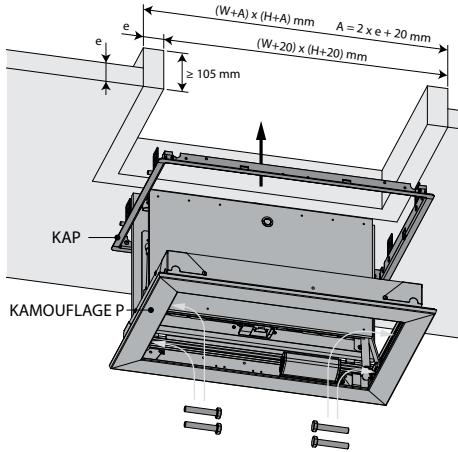
Installation

Horizontal installation into shaft PROMATECT L500 with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 90 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 120 (h_{od} i ↔ o) S 1500 AA multi

1



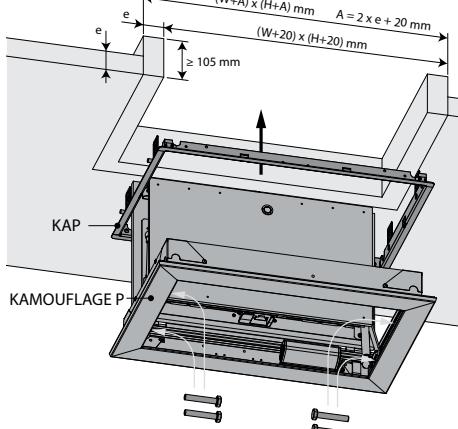
- Assemble the sleeve with staples and affix the assembled sleeve to the shaft wall with staples.
- Coat the edges of the opening with adhesive plaster type Promacol S.
- Seal the mounting frame with Promacol S taking care not to misshape it.

Horizontal installation into shaft GEOFLAM (LIGHT) / GEOTEC with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 90 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 120 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 120 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	EI 120 (h_{od} i ↔ o) S 1500 AA multi

1



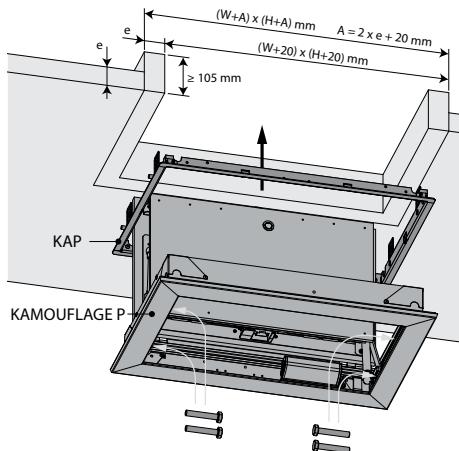
- Coat the edges of the opening with adhesive plaster type PLACOL (in case of Geoflam) or GEOCOL (S) (in case of Geotec). In case of Geotec you can also assemble the sleeve with glue and screws Ø 5 x (2 x e) mm and affix the assembled sleeve to the shaft wall with glue and screws Ø 5 x (2 x e) mm every 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 Ø 5 x e mm. Take care not to misshape the frame. The finished opening must have the same size as the mounting frame (W+10) x (H+10) mm.

Horizontal installation into shaft TECNIVER with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Tecniver ≥ 35 mm EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Tecniver ≥ 45 mm EI 90 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Tecniver ≥ 50 mm EI 120 (h_{od} i ↔ o) S 1500 AA multi

1



1. Put glue CF GLUE on the edges of the opening and the uprights and cross pieces.

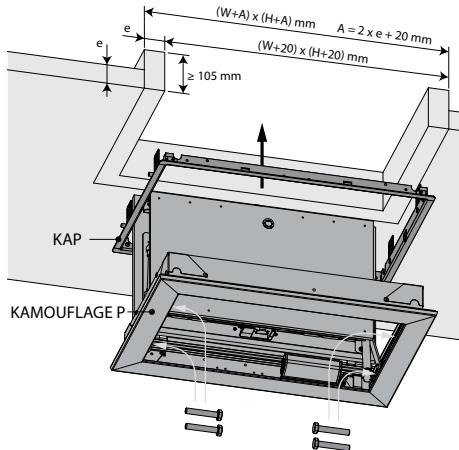
Put glue type CF GLUE on the uprights and cross pieces and between the lining and the wall. Screw the sleeve using chipboard screws Ø5 x 70 mm at 150 mm intervals. Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. First coat the opening with glue 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) x (H+10) mm.

Horizontal installation into shaft GLASROC F V500 with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Glasroc F V500 ≥ 35 mm EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Glasroc F V500 ≥ 50 mm EI 120 (h_{od} i ↔ o) S 1500 AA multi

1



1. Put glue GLASROC F V500 on the edges of the opening and the uprights and cross pieces.
- 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.

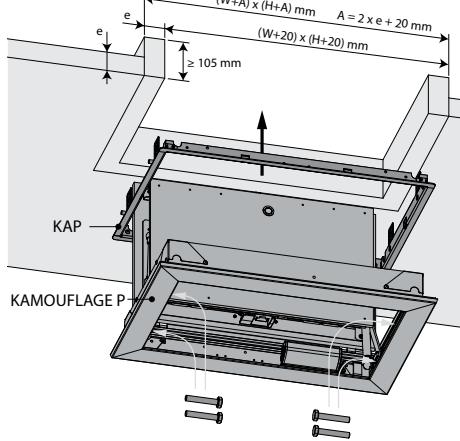
Installation

Horizontal installation into shaft DESENFIRE (HD/THD/STR) with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Desenfire HD ≥ 25 mm EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Desenfire THD ≥ 25 mm EI 90 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Desenfire HD ≥ 35 mm EI 120 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Desenfire ≥ 45 mm EI 120 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Desenfire STR ≥ 25 mm EI 120 (h_{od} i ↔ o) S 1500 AA multi

1



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

Fit a sleeve of the same type and thickness of the duct (thickness e) of minimum 105 mm deep in the opening. Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster.

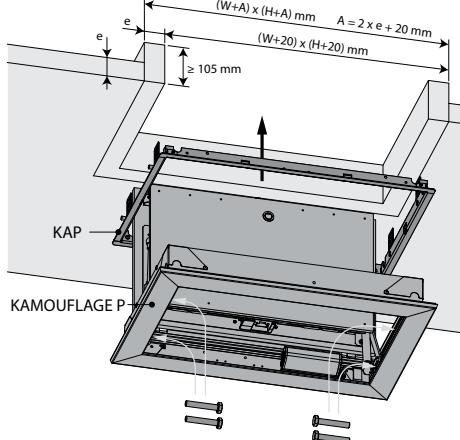
Two fixing lugs are provided at the bottom and at the top of the mounting frame: fold these against the sleeve. Caulk the mounting frame to the duct with vegetable fiber caulking and plaster and taking care not to misshape it. The finished opening must have the same size as the mounting frame (W+10)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

Horizontal installation into shaft EXTHAMAT with built-in mounting frame

The product was tested and approved in:

Product	Range	Wall type	Classification
Kamouflage 60 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Exthamat ≥ 25 mm EI 60 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Exthamat ≥ 30 mm EI 90 (h_{od} i ↔ o) S 1500 AA multi
Kamouflage 120 P	350x385 mm ≤ Kamouflage P 1V ≤ 700x775 mm; 550x1075 mm	Shaft	Exthamat ≥ 35 mm EI 120 (h_{od} i ↔ o) S 1500 AA multi

1



1. Put gypsum glue on the edges of the opening.

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.

Finishing

1



1. The upper face of the shutter consists of a sheet of plasterboard, which you can decorate to match the wall in which the shutter is installed (paint or wallpaper). A coat of paint can be applied on the unexposed face of the shutter and the frame; wallpaper can be applied to the shutter. Covering plate of plasterboard: fill the holes of the screws with a suitable filler. Let it dry and sand. Apply a primer paint suitable for plasterboard.

Profile of anodised aluminium: apply a primer suitable for metal. With the option PRIM, the frame is already prepared with a primer, ready to be painted.

Once the primer is dry, proceed with the finishing (paint or wallpaper).

⚠ Caution : don't fill / cover the joint between the covering plate and the aluminium profile in order to guarantee that the shutter can open.

The options ATOUT RAL9010 / ALU (ALU not available on ceiling (P) model) and PRIM facilitate the finishing phase. With option ATOUT RAL9010 / ALU the shutter is supplied with a finished aspect, lacquered white or aluminium. With option PRIM the profile is pre-painted with a primer.

Maintenance

- No specific maintenance required.
- Schedule at least two running visual checks each year.
- Remove dust and all other particles before start-up.
- Follow the local maintenance regulations (i.e. BS9999 Annex V; NF S 61-933) and EN13306.

Operation and mechanisms

Operation and mechanisms

Operation: general points

- See under 'Installation'.
- ⚠ Caution : please note dampers must be fully open before starting supply and/or extract fans.



VA MEC Remote controlled unlocking by a magnet.

Remote controlled unlocking by an electric impulse (VD) or by interruption (VM) of the magnet's power supply.



Options - at the time of order

VD24	Natural magnet 24 V DC
VD48	Natural magnet 48 V DC
VM24	Electromagnet 24 V DC (not applicable for ME and H model)
VM48	Electromagnet 48 V DC (not applicable for ME and H model)
FDCU	Limit switch 'open/closed' (Incl. exc. for H model)
FDCB	Auxiliary limit switch 'open/closed'

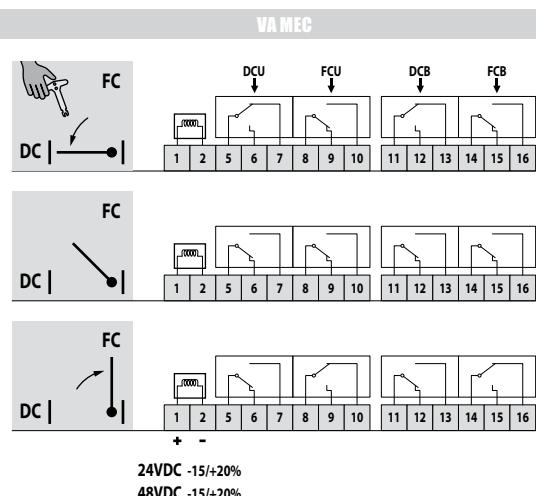
Unlocking

- **manual unlocking:** with the key (delivered in the bag together with the installation guidelines)
- **automatic unlocking:** n/a
- **remote unlocking:** by electrical impulse (VD) or interruption (VM) of current to the magnet.

Resetting

- **manual resetting:** with the key (delivered in the bag together with the installation guidelines)

Electrical connection



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 MEC	N/A	24/48 V DC	VM: 1,5W / VD: -	VM: - / VD: 3,5W	1mA...6A, DC 5V...AC 250V	IP 42

Selection data

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

KAMOUFLAGE 1V60 P - 1V120 P

Hn\Wn [mm]	350	400	450	500	550	600	650	700				
385 $\zeta [-]$	3,603	2,960	2,518	2,196	1,950	1,757	1,600					
415 $\zeta [-]$	3,237	2,663	2,267	1,978	1,758	1,585	1,444					
445 $\zeta [-]$	2,940	2,422	2,064	1,802	1,602	1,445	1,317	1,212				
475 $\zeta [-]$	2,696	2,222	1,895	1,656	1,473	1,329	1,212	1,115				
505 $\zeta [-]$	2,491	2,055	1,754	1,533	1,364	1,231	1,123	1,033				
535 $\zeta [-]$	2,316	1,913	1,633	1,428	1,271	1,147	1,047	9,963				
565 $\zeta [-]$	2,166	1,790	1,529	1,337	1,191	1,075	9,981	9,903				
595 $\zeta [-]$	2,035	1,683	1,438	1,258	1,121	1,012	9,923	9,850				
625 $\zeta [-]$	1,920	1,588	1,358	1,189	1,059	9,956	9,873	9,804				
655 $\zeta [-]$	1,818	1,505	1,287	1,127	1,004	9,907	9,828	9,762				
685 $\zeta [-]$	1,728	1,430	1,223	1,071	9,955	9,862	9,787	9,725				
715 $\zeta [-]$	1,646	1,363	1,166	1,022	9,911	9,823	9,751	9,692				
745 $\zeta [-]$	1,572	1,303	1,115	9,977	9,871	9,787	9,718	9,662				
775 $\zeta [-]$	1,506	1,248	1,068	9,936	9,834	9,754	9,689	9,634				
805 $\zeta [-]$	1,445	1,198	1,025	9,899	9,801	9,724	9,661					
835 $\zeta [-]$	1,389	1,152	9,986	9,864	9,771	9,697	9,636					
865 $\zeta [-]$	1,338	1,109	9,950	9,833	9,743	9,671	9,613					
895 $\zeta [-]$	1,290	1,070	9,917	9,804	9,717	9,648	9,592					
925 $\zeta [-]$	1,246	1,034	9,886	9,777	9,693	9,626						
955 $\zeta [-]$	1,206	1,001	9,857	9,752	9,671	9,606						
985 $\zeta [-]$	1,168	9,969	9,831	9,728	9,650	9,588						
1015 $\zeta [-]$	1,132	9,940	9,806	9,707	9,630	9,570						
1045 $\zeta [-]$	1,099	9,913	9,782	9,686	9,612	9,554						
1075 $\zeta [-]$	1,068	9,887	9,760	9,667	9,595							

KAMOUFLAGE 1V60 P - 1V120 P - Free air passage (m²)

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

Sample order

KAMOULAGE P	1V	120	400	685	VD24	FDCB	ATOUT RAL 9010
1	2	3	4	5	6	7	8

1. product
2. 1 shutter (1V)
3. fire resistance of 60 or 120 minutes
4. width
5. height
6. option: type magnet and voltage
7. option: bipolar end of range switch (FDCU included)
8. option: frame painted white, shutter covered with white metallic sheet

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.



Efectis_1812_CPR_1043

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The NF-label guarantees: conformity with the standard NF S 61-937 Parts 1 and 10: "Systèmes de Sécurité Incendie Dispositifs Actionnés de Sécurité"; conformity with the national decree of March 22, 2004, changed on 14 March 2011 for the classification of fire resistance; the values of the characteristics mentioned in this document. Organisme Certificateur: AFNOR Certification, 11 Rue Francis de Pressensé, F93571 La Plaine Saint-Denis Cedex; Website: <http://www.afnor.org> <http://www.marque-nf.com>; Phone: +33 (0)1.41.62.80.00, Fax: +33 (0)1.49.17.90.00, Email: [certification@afnor.org](mailto:cetification@afnor.org)