

VU120

Rectangular smoke control damper.



CE
1812

UK
CA



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Explanation of the abbreviations and pictograms

Wn = nominal width	ved = vertical duct	OP = option (delivered with the product)
Hn = nominal height	hod = horizontal duct	KIT = kit (delivered separately for repair or upgrade)
Sn = free air passage	vew = vertical wall penetration	PG = connection flange to the duct
Sl = free surface	V = volt	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)
E = integrity	W = watt	Cal-Sil = calcium silicate
I = thermal insulation	V AC = Volt alternating current	ζ [-] = pressure loss coefficient
S = smoke leakage	V DC = Volt direct current	Q = airflow
60/120 = fire resistance time	E.TELE = power supply magnet	ΔP = static pressure drop
Pa = pascal	E.ALIM = power supply motor	v = air speed in the duct
o -> i = meets the criteria from the outside (o) to the inside (i)	Auto = automatic	Lwa = A-weighted sound power level
i <-> o = fire side not important	Tele = remote controlled	ME = motorised
AA = automatic activation	Pnom = nominal capacity	H = habitat
MA = manual activation	Pmax = maximum capacity	
multi = multi compartment	DAS MOD = modular product	



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_V22_EN - K-01/04/2024

1. Unique identification code of the product-type:	VU120
2. Intended use/es:	Smoke control damper to be used in smoke control systems, in multi-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; Efectis_2822_UKCA_CPR_0014
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		Performance	
Range	Type	Material	Sealing
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000; 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Promatect L500 ≥ 30 mm Geoflam ≥ 30 mm Geotec ≥ 30 mm Techniver ≥ 35 mm Glasroc FV500 ≥ 35 mm Exhamat ≥ 25 mm Desenfire HD ≥ 25 mm Promatect L500 ≥ 40 mm Geoflam ≥ 35 mm Techniver ≥ 45 mm Exhamat ≥ 30 mm Desenfire THD ≥ 25 mm Reinforced concrete (≥ 2150 kg/m³) ≥ 70 mm	Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Mortar
	Duct	Promatect L500 ≥ 40 mm Geoflam ≥ 35 mm Techniver ≥ 45 mm Exhamat ≥ 30 mm Desenfire THD ≥ 25 mm Reinforced concrete (≥ 2150 kg/m³) ≥ 70 mm	Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Mortar
	Shaft	Reinforced concrete (≥ 2150 kg/m³) ≥ 70 mm	Mortar
	Duct	Promatect L500 ≥ 50 mm Geoflam ≥ 45 mm Geoflam Light ≥ 35 mm Geotec ≥ 45 mm Techniver ≥ 50 mm Glasroc FV500 ≥ 50 mm Exhamat ≥ 35 mm Desenfire HD ≥ 35 mm Desenfire STR ≥ 25 mm	Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 6 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Gap between duct and damper (≤ 80 mm) sealed with refractory kit (on a depth ≥ 105 mm) Mortar
	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm	Mortar

1	Type of installation: in duct/shaft-mounted 0/90°/180°/270°. Minimal distances authorised.	max 2	
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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	Belimo NF - 300 cycles (with load); Belimo SF - 300 cycles (with load); MANF - 300 cycles (no load); BEN - 10000 cycles (C10000) (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
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:

 Duchan Laplace, R&D Manager
 Oosterzele, 01/04/2024



Product presentation VU120

Product presentation VU120

The rectangular VU120 smoke control damper is noted for its superior airtight properties. It was developed in accordance with the European product standard EN 12101-8 and tested according to the EN 1366-10 standard. The VU120 offers a fire resistance up to 120 minutes, and ensures minimum pressure loss.

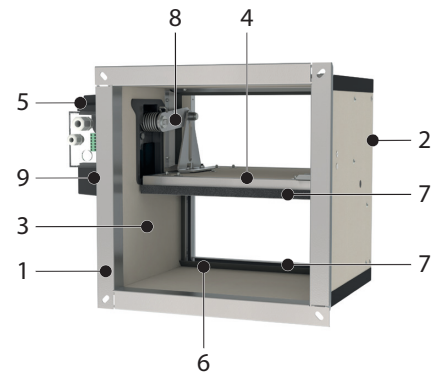
Smoke control shutters and dampers are suitable for use in ventilating protected lobbies, venting to shafts either naturally or mechanically. They open to evacuate smoke in emergency situations whilst maintaining fire resistant integrity in both directions in standby position.

- ✓ superior air tightness (tested at 1500 Pa)
- ✓ optimal free air passage and minimal pressure loss



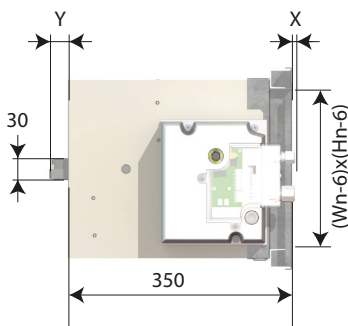
- tested according to EN 1366-10
- compliant with BS EN 12101-8
- approved for installation in calcium-silicate ducts, Geostaff gypsum, Tecniver, Glasroc, Extha and concrete shafts.
- maintenance-free
- for indoor use
- intermediate dimensions on request

1. connection flange PG30 on the side of the mechanism
2. simple flat finish (PS) duct/shaft side
3. casing made of refractory material
4. damper blade
5. operating mechanism
6. sealing and blade bumper
7. intumescent strip
8. transmission with locking (open/closed)
9. product identification



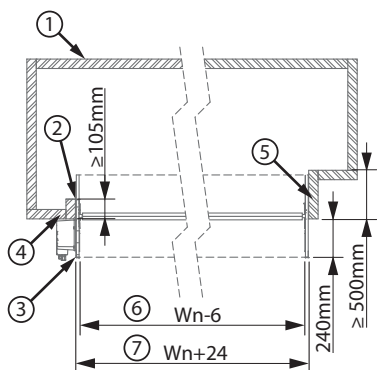
Range and dimensions VU120

Wn/Hn in steps of 50 mm; intermediate dimensions are subject to extra cost (heights between ≥ 275 and ≤ 299 mm are not possible). Exceeding blade: X = on the mechanism side, Y = on the wall side



Hn (mm)	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
x	-	-	-	-	-	-	-	9	34	59	84	109	134	159	184	209	234
y	4	29	54	79	104	129	154	179	204	229	254	279	304	329	354	379	404

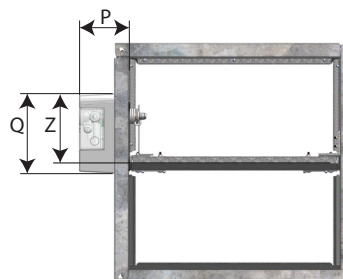
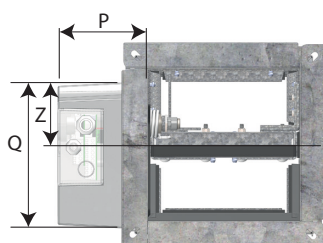
(W x H) mm	\geq	\leq
	200x200	1000x1000 and 1200x800



- 1. Duct
- 2. Sealing
- 3. PG30 flange
- 4. Mounting without duct extension
- 5. Mounting with duct extension
- 6. Inside dimensions casing (Wn-6) x (Hn-6)
- 7. Outside dimensions casing (Wn+24) x (Hn+24)

Hn < 300 mm

Hn ≥ 300 mm



	MANF	NF	SF	BEN		MANF	NF	SF	BEN
P	115	85	85	105	P	115	85	85	105
Q	190	100	100	80	Q	190	100	100	80
Z	85	105	105	70	Z	180	105	105	160

Evolution - kits



KIT BEN24

Servomotor BEN 24V



KIT BEN230

Servomotor BEN 230V



KIT BEN24-ST

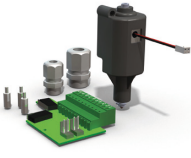
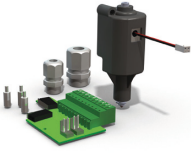

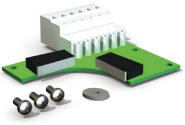


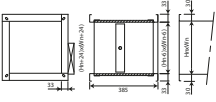
Servomotor BEN 24V with plug (ST)



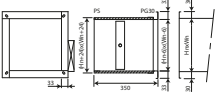
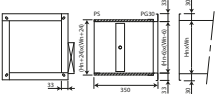
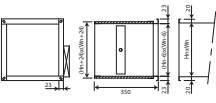
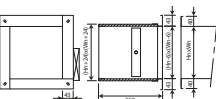
KIT NF24

Actuator NF 24V

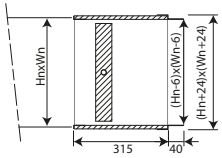
	KIT NF230	Actuator NF 230V
	KIT SF24	Actuator SF 24V
	KIT SF230	Actuator SF 230V
	KIT NF/SF-VD	NF/SF-VD module (NF24/SF24: 24-48 V DC). Only for France.
	KIT MANF EVO VD24 FDCU	Upgradeable remote controlled unlocking mechanism with natural magnet 24 V DC + FDCU
	KIT MANF EVO VD48 FDCU	Upgradeable remote controlled unlocking mechanism with natural magnet 48 V DC + FDCU
	KIT MANF EVO VM24 FDCU	Upgradeable remote controlled unlocking mechanism with electromagnet 24 V DC + FDCU
	KIT MANF EVO VM48 FDCU	Upgradeable remote controlled unlocking mechanism with electromagnet 48 V DC + FDCU
	KIT VD24 MAN EVO FDCU	Natural magnet 24 V DC + FDCU
	KIT VD48 MAN EVO FDCU	Natural magnet 48 V DC + FDCU

	KIT VM24 MAN EVO FDCU	Electromagnet 24 V DC + FDCU
	KIT VM48 MAN EVO FDCU	Electromagnet 48 V DC + FDCU
	KIT FDCU MAN	Limit switch 'open/closed'
	KIT FDCB MAN	Auxiliary limit switch 'open/closed'
	KIT ME MANF	Resetting motor ME 24V/48V
	MECT	Testbox for mechanisms 24/48 V (magnet, motor, beginning and end of range switches)
	PG30	Alternative connection to standard PS at the shaft side: PG30 connection to ducts with 30 mm flanges, with elliptical holes $\varnothing 8,5 \times 16$ mm.

Flange types - at the time of order

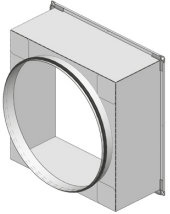
	PS	No connection (standard connection shaft side). Also possible on shaft side: PG30, PG20, PG40, PM.
	PG30	Connection to ducts with 30 mm flanges (either by sliding profile or with bolts). Also possible on shaft side instead of PS connection (at order time). Elliptical holes $\varnothing 8,5 \times 16$ mm.
	PG20	Connection to ducts with 20 mm flanges, elliptical holes $\varnothing 6,5 \times 16$ mm. Also possible on shaft side instead of PS connection (at order time).
	PG40	Connection to ducts with 40mm flanges, elliptical holes $\varnothing 8,5 \times 16$ mm. Also possible on shaft side instead of PS / PG30 connection (at order time).

8 Flange types - at the time of order



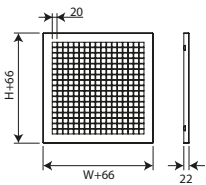
PM

Connection to ducts by insertion. This type of frame is used in case of lack of space for a standard PG30 frame. Possible on mechanism side instead of PG30 connection (at order time).



PRJ

Circular connection with rubber sealing ring on a rectangular damper with PG20 flange. Possible on mechanism side instead of PG30 connection (at order time).



PPT (+PG3V)

Grill, very well suited as protection grill on the end piece of a duct system. Includes PG3V elongated frame as soon as the damper blade exceeds the casing. Possible on mechanism side instead of PG30 connection (at order time).

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

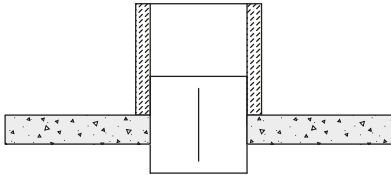
Installation

General points

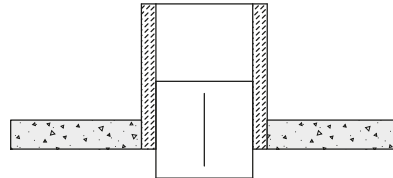
- The installation must comply with the installation manual and the classification report.
- The installation of the smoke control duct must comply with the classification report delivered by the manufacturer.
- Axis orientation: see the declaration of performance.
- Avoid the obstruction of adjoining 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.

Position in the duct

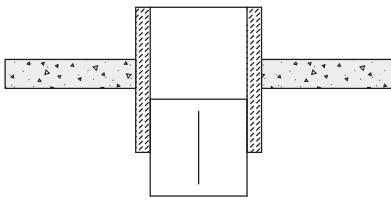
1



2

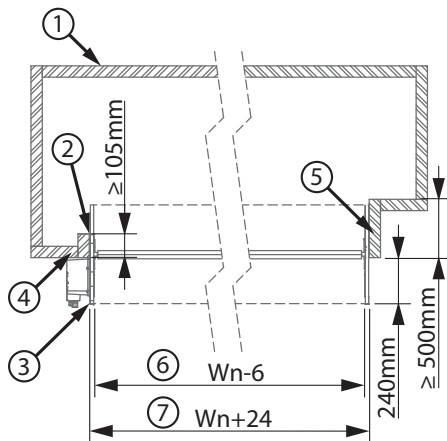


3



Installation in duct - cross section view

1

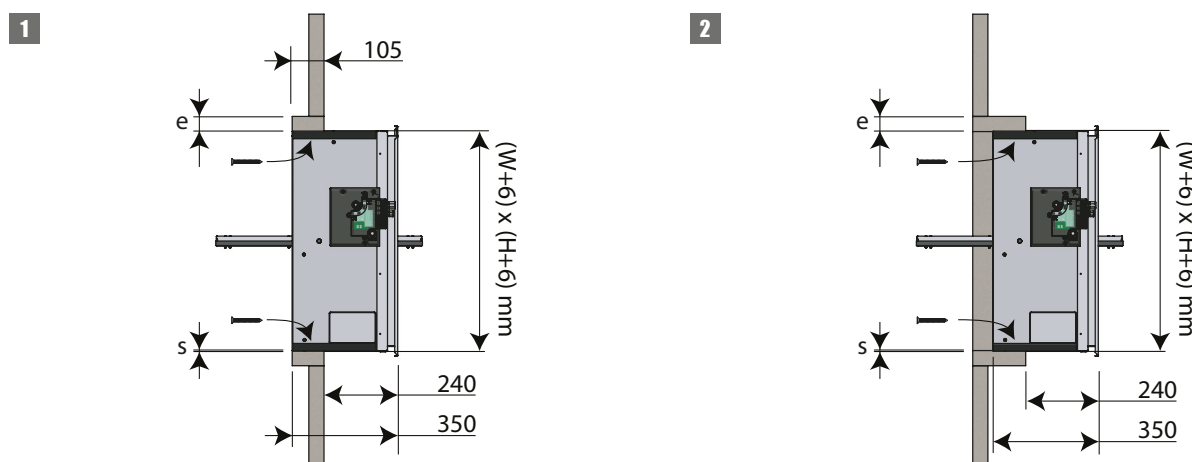


1. Duct
2. Sealing
3. PG30 flange
4. Mounting without duct extension
5. Mounting with duct extension
6. Inside dimensions casing (Wn-6) x (Hn-6)
7. Outside dimensions casing (Wn+24) x (Hn+24)

Installation into horizontal or vertical duct PROMATECT L500

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Promatect L500 ≥ 30 mm	EI 60 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Promatect L500 ≥ 40 mm	EI 90 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Promatect L500 ≥ 50 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi



1. Make an opening with dimensions $(W+A) \times (H+A)$ mm.

$A = 2 \times$ thickness sleeve $(e) + 6$ mm.

Fit a sleeve of the same type of material and thickness as the duct (thickness e) of minimum 105 mm deep in the opening. Fix the sleeve to the duct wall.

First coat the opening with Promacol S.

Position the damper in the opening and fix the damper using 12 screws $\varnothing 5 \times 60$ (horizontal duct) or using 10 screws $\varnothing 5 \times 60$ (vertical duct).

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

The seal between the casing and the duct (S) must be completely filled with refractory coating (type Promacol S). Support the tunnel or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material.

Fix the grill to the flange using glue type Polyflex.

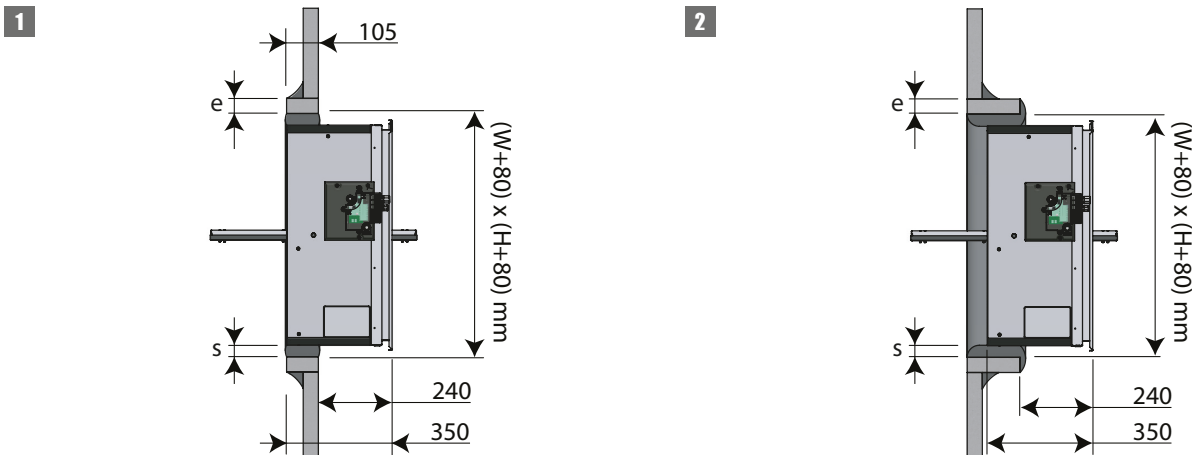
Check the movement of the damper blade.

Test the mechanism of the damper.

Installation into horizontal or vertical duct GEOFLAM (LIGHT)

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Geoflam ≥ 30 mm	EI 60 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Geoflam ≥ 35 mm	EI 90 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Geoflam ≥ 45 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Geoflam Light ≥ 35 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi



1. Make an opening with dimensions $(W+80) \times (H+80)$ mm. Fit a sleeve of the same type of material and thickness as 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.

The sealing between the casing and the duct (S) must be completely filled with fibre reinforced plaster. Support the tunnel or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material.

Fix the grill to the flange using glue type Polyflex.

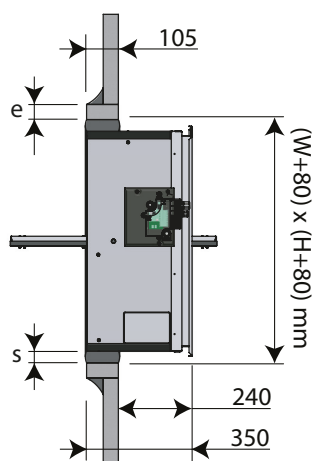
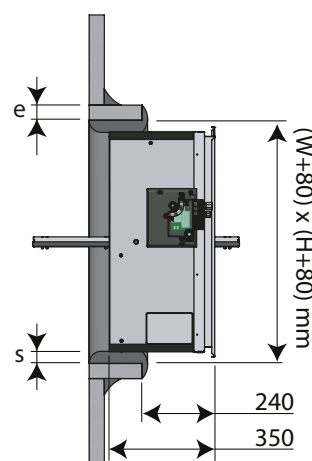
Check the movement of the damper blade.

Test the mechanism of the damper.

Installation into horizontal or vertical duct GEOTEC

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Geotec ≥ 30 mm	EI 60 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Geotec ≥ 45 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi

1

2


1. Make an opening with dimension $(W+80) \times (H+80)$ mm (if sealing with a mixture of plaster and sisal fibre) or an opening with dimension $(W+6) \times (H+6)$ mm (if sealing with glue and screws).

Fit a sleeve of the same type of material and thickness as 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 or attach the sleeve to the duct wall with adhesive and screws $\varnothing 5 \times (2 \times e)$ mm in 100 mm increments.

Mount the damper in the opening.

The sealing between the casing and the duct (S) must be completely filled with fibre reinforced plaster or with GEOCOL glue and screws. Support the tunnel or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material.

Fix the grill to the flange using glue type Polyflex.

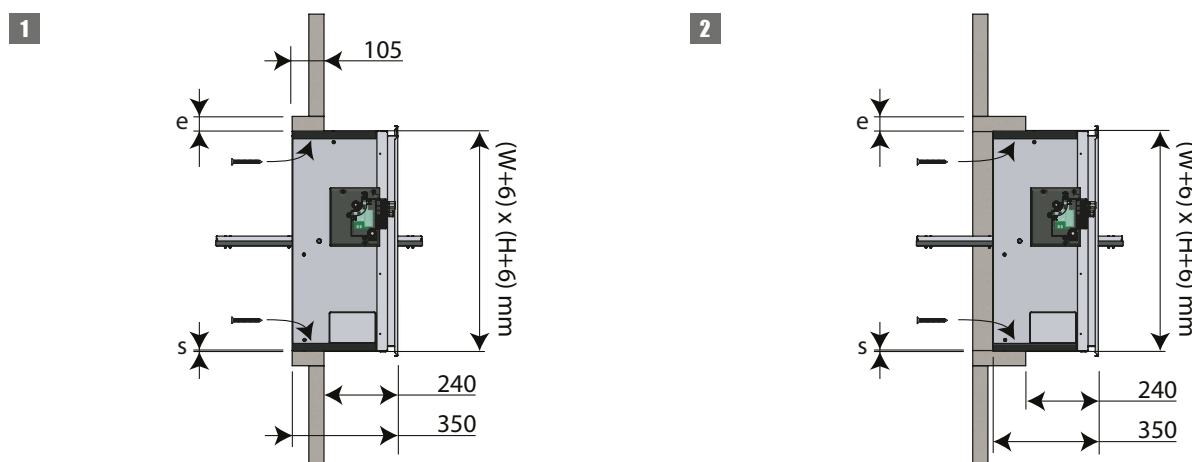
Check the movement of the damper blade.

Test the mechanism of the damper.

Installation into horizontal or vertical duct TECNIVER

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Tecniver ≥ 35 mm	EI 60 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Tecniver ≥ 45 mm	EI 90 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Tecniver ≥ 50 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi



1. Make an opening with dimensions $(W+A) \times (H+A)$ mm.

$A = 2 \times$ thickness sleeve $(e) + 6$ mm.

Fit a sleeve of the same type of material and thickness as the duct (thickness e) of minimum 105 mm deep in the opening.

Fix the sleeve to the duct wall.

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

Position the damper in the opening and fix the damper using 12 screws $\varnothing 5 \times 60$ (horizontal duct) or using 10 screws $\varnothing 5 \times 60$ (vertical duct).

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

The seal between the casing and the duct (S) must be completely filled with glue (type type CF glue). Support the tunnel or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material.

Fix the grill to the flange using glue type Polyflex.

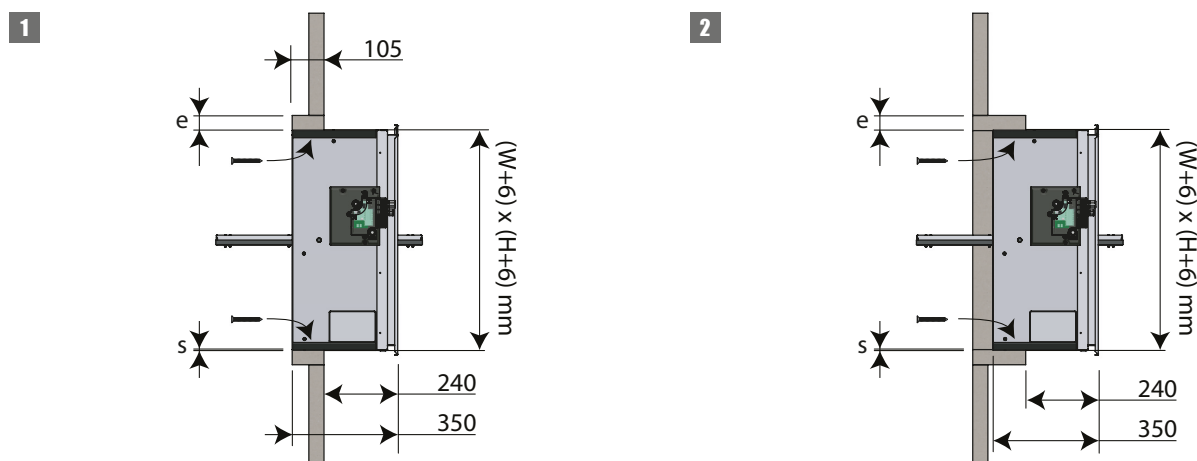
Check the movement of the damper blade.

Test the mechanism of the damper.

Installation into horizontal or vertical duct GLASROC F V500

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Glasroc F V500 ≥ 35 mm	EI 60 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Glasroc F V500 ≥ 50 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi



1. Make an opening with dimensions $(W+A) \times (H+A)$ mm.
 $A = 2 \times \text{thickness sleeve } (e) + 6 \text{ mm.}$

Fit a sleeve of the same type of material and thickness as the duct (thickness e) of minimum 105 mm deep in the opening.
 Fix the sleeve to the duct wall.

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

Position the damper in the opening and fix the damper using 12 screws $\varnothing 5 \times 60$ (horizontal duct) or using 10 screws $\varnothing 5 \times 60$ (vertical duct).

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

The sealing between the casing and the duct (S) must be completely filled with glue (type Glasroc F V500). Support the casing or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material.

Fix the grill to the flange using glue type Polyflex.

Check the movement of the damper blade.

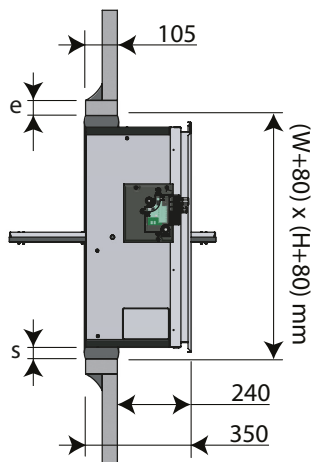
Test the mechanism of the damper.

Installation into horizontal or vertical duct EXTHAMAT

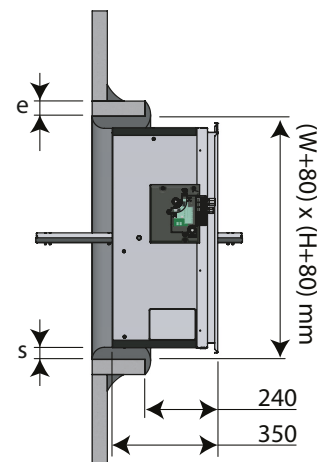
The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Exthamat ≥ 25 mm	EI 60 ($v_{ed} h_{o_d} i \leftrightarrow o$) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Exthamat ≥ 30 mm	EI 90 ($v_{ed} h_{o_d} i \leftrightarrow o$) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Exthamat ≥ 35 mm	EI 120 ($v_{ed} h_{o_d} i \leftrightarrow o$) S 1500 AA multi

1



2

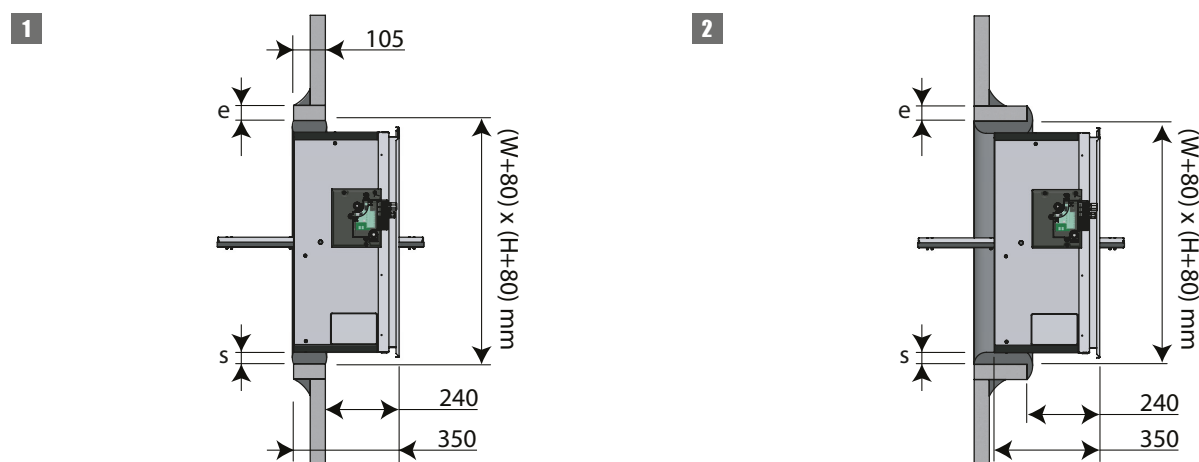


1. Make an opening with dimensions $(W+80) \times (H+80)$ mm. Fit a sleeve of the same type of material and thickness as the duct (thickness e) of minimum 105 mm deep in the opening. Seal the joints between uprights and cross pieces and between the lining and the wall with vegetable fibre caulking and plaster. The sealing between the casing and the duct (S) must be completely filled with fibre reinforced plaster. Support the tunnel or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material. Fix the grill to the flange using glue type Polyflex. Check the movement of the damper blade. Test the mechanism of the damper.

Installation into horizontal or vertical duct DESENFIRE (HD/THD/STR)

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Desenfire HD ≥ 25 mm	EI 60 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Desenfire HD ≥ 35 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Duct	Desenfire STR ≥ 25 mm	EI 120 (v _{ed} ho _d i ↔ o) S 1500 AA multi



1. Make an opening with dimensions $(W+80) \times (H+80)$ mm. Fit a sleeve of the same type of material and thickness as 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.

The sealing between the casing and the duct (S) must be completely filled with fibre reinforced plaster. Support the tunnel or tighten the blade in its closed position to prevent deformation of the casing during drying of the sealing material.

Fix the grill to the flange using glue type Polyflex.

Check the movement of the damper blade.

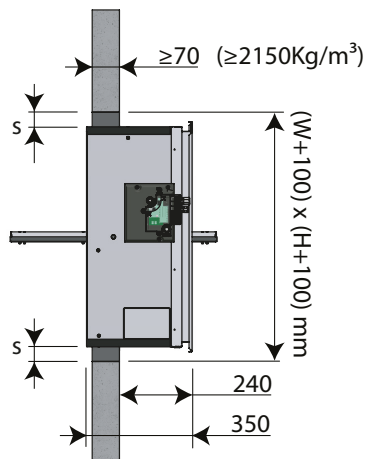
Test the mechanism of the damper.

Installation into vertical concrete shaft

The product was tested and approved in:

Range	Wall type	Sealing	Classification
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Shaft	Masonry, concrete blocks, concrete ≥ 100 mm	EI 120 (v _{ed} i ↔ o) S 1500 AA multi
200x200 mm ≤ VU120+MANF/BEN + grill ≤ 1200x800 mm; 1000x1000. 200x200 mm ≤ VU120+NF/SF + grill ≤ 1200x650 mm; 950x750 mm	Shaft	Reinforced concrete (≥ 2150 kg/m ³) ≥ 70 mm	EI 90 (v _{ed} i ↔ o) S 1500 AA multi

1



1. Make an opening with dimensions $(W+20) \times (H+20)$ mm till $(W+100) \times (H+100)$ mm.

Mount the damper in the opening. The joint between the damper and the shaft (S) needs to be filled right across the width of the duct with a standard concrete mortar.

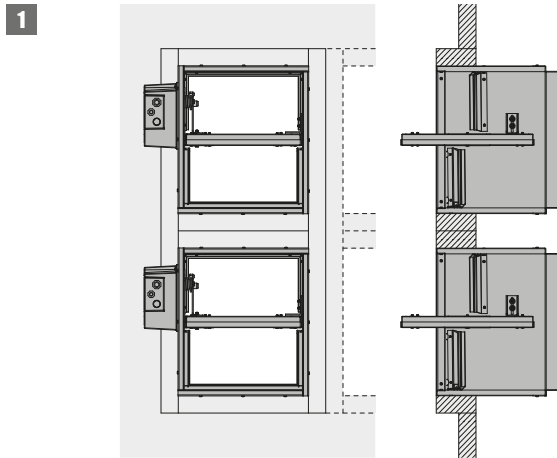
Support the body and block the damper blade in its closed position to prevent deformation of the body during the drying process of the sealing.

Fix the grill to the flange using glue type Polyflex.

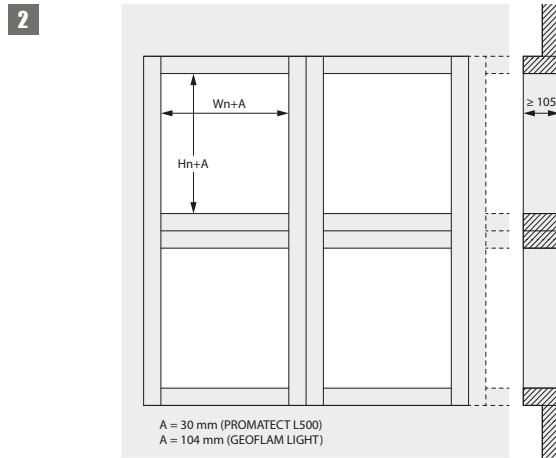
Check the movement of the damper blade.

Test the mechanism of the damper.

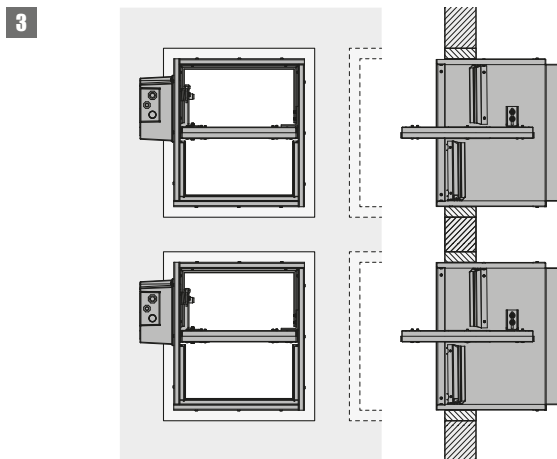
Installation at minimal distances



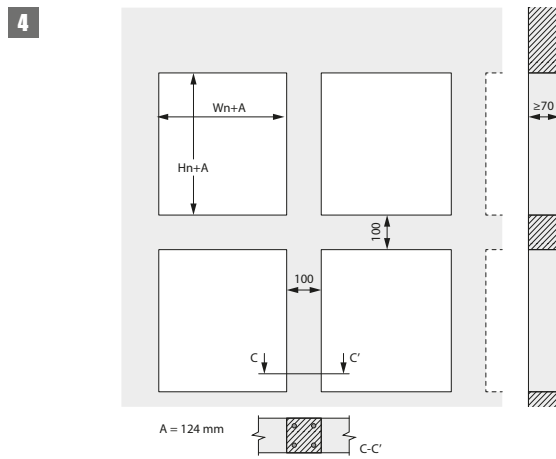
1. The smoke control dampers can be installed at minimal distance on top of or next to each other, if they are mounted in separate sleeves made from the duct material with the required fire resistance. It is advised not to exceed a 2 x 4 configuration (H x W).



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



3. When mounting more than 2 smoke control dampers in a concrete shaft, you need to provide a continuous reinforcement in the vertical columns of at least 4 x Ø 8 mm.



Maintenance

- No specific maintenance required.
- Schedule at least 2 visual checks each year.
- Remove dust and all other particles before use.
- Follow local maintenance regulations (i.e. BS9999 Annex V; NF S 61-933) and EN13306.

Operation and mechanisms



BEN Remotely controlled servomotor

The BEN servomotor is specifically designed for remote control of smoke control dampers.

1. access for manual operation



Options - at the time of order

BP FM Base plate for a bus communication module (Markage MB)

Unlocking

- **manual unlocking:** turn the enclosed handle anticlockwise (VRE; VU120) or clockwise (MARKAGE MB; VUW120).
- **remote unlocking:** power cables 1 and 2.

Caution:

⚠ Do not use a drill or powered screwdriver.

Resetting

- **manual resetting:** turn the enclosed handle clockwise (VRE; VU120) or anticlockwise (MARKAGE MB; VUW120).
- **motorised resetting:** power cables 1 and 3.

Caution:

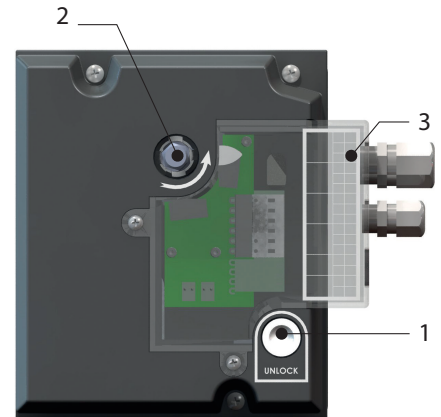
⚠ Do not use a drill or powered screwdriver.



MANF Upgradeable remote controlled unlocking mechanism

The unlocking mechanism MANF EVO unlatches the damper blade via remote control by sending an electric impulse (VD) or by interruption (VM) of the magnets power supply. A begin- and end of range switch (FDCU) is standard available. The blade can be reset manually (MANF EVO) or by an electric motor ME (option and kit).

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



Options - at the time of order

VD24	Natural magnet 24 V DC + FDCU
VD48	Natural magnet 48 V DC + FDCU
VM24	Electromagnet 24 V DC + FDCU
VM48	Electromagnet 48 V DC + FDCU
FDCU	Limit switch 'open/closed'
FDCB	Auxiliary limit switch 'open/closed'
ME	Resetting motor ME 24V/48V

Unlocking

- **manual unlocking:** use the unlocking button (1).
- **automatic unlocking:** n/a
- **remote unlocking:** (option VD/VM MAN EVO FDCU) by sending an electrical impulse (VD) or by interrupting the power supply (VM) to the magnet's entrance.

Resetting

- **manual resetting:** turn 90° counter-clockwise with a hex socket wrench 13 mm (2).
- **motorised resetting:** (option ME MANF) switch off the power supply for at least 10 sec. Power the actuator for at least 30 sec. (respect the prescribed voltage and polarity). The resetting stops automatically if a torque > 20 Nm is detected.

Caution:

- ⚠ Switch off the power supply after resetting.
- ⚠ Switch off the power supply for at least 15 sec. in between each resetting cycle.

Caution:

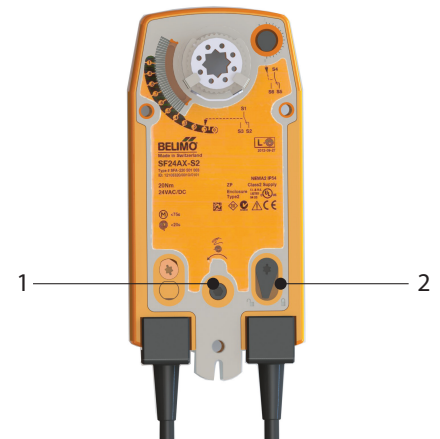
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.



NF Remotely controlled spring return actuator (for small dimensions)

The servomotor is designed to control smoke control dampers from a distance. This solution is suitable in case of counter-pressure. Beginning and end of range switches included.

1. access for manual resetting
2. locking button



Unlocking

- **manual unlocking:** use the enclosed handle and turn 1/4 turn counter-clockwise; push the locking button to the left.
- **automatic unlocking:** n/a
- **remote unlocking:** by interrupting the power supply (for dampers with NF/SF-VD module: by sending an electrical impulse).

Caution:

- ⚠ If the power supply to the motor is interrupted, the blade of the damper opens.

Resetting

- **manual resetting:** use the enclosed handle and turn counterclockwise. To block the motor, push the locking button to the right.
- **motorised resetting:** switch off the power supply for at least 10 sec (3 sec for NF/SF-VD module). Supply the actuator (respect the prescribed voltage) for at least 180 sec. The resetting stops automatically when the end of range is reached (damper closed).

Caution:

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

Caution:

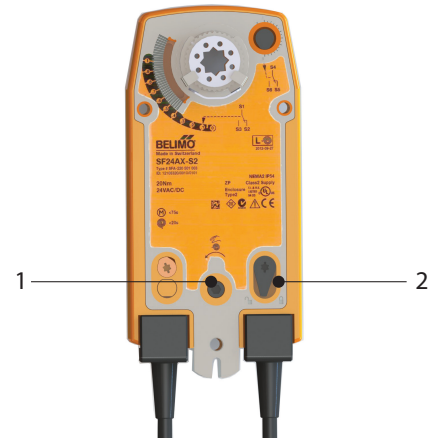
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.



SF Remotely controlled spring return actuator (for large dimensions)

The servomotor is designed to control smoke control dampers from a distance. This solution is suitable for use in case of counter-pressure. Beginning and end of range switches included.

1. access for manual resetting
2. locking button



Unlocking

- **manual unlocking:** use the enclosed handle and turn 1/4 turn counter-clockwise; push the locking button to the left.
- **automatic unlocking:** n/a
- **remote unlocking:** by interrupting the power supply (for dampers with NF/SF-VD module: by sending an electrical impulse).

Caution:

- ⚠ If the power supply to the motor is interrupted, the blade of the damper opens.

Resetting

- **manual resetting:** use the enclosed handle and turn counterclockwise. To block the motor, push the locking button to the right.
- **motorised resetting:** switch off the power supply for at least 10 sec (3 sec for NF/SF-VD module). Supply the actuator (respect the prescribed voltage) for at least 180 sec. The resetting stops automatically when the end of range is reached (damper closed).

Caution:

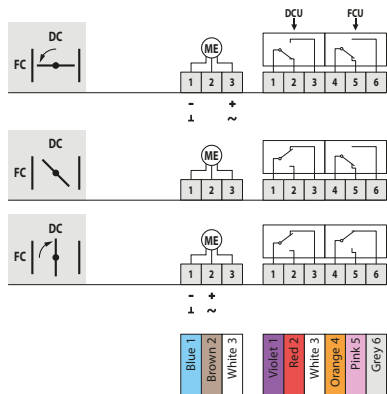
- ⚠ Do not use a drill or powered screwdriver.
- ⚠ Stop as soon as the motor is completely rearmed (end of range).

Caution:

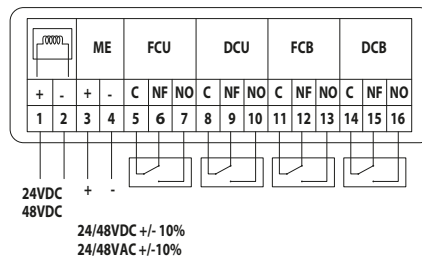
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.

Electrical connection

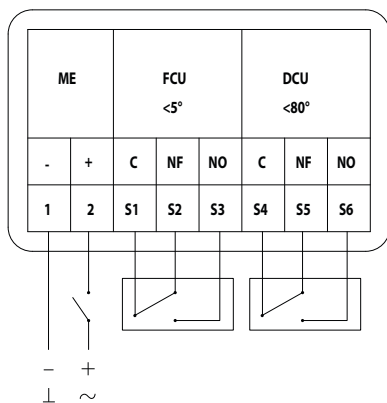
BEN



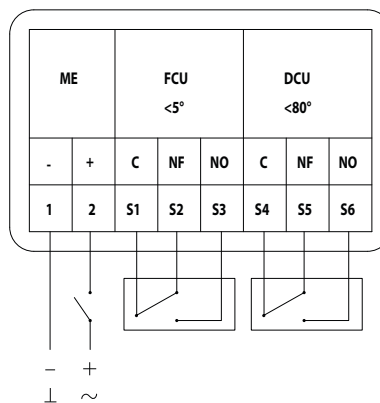
MANF



NF



SF



MEC	Nominal voltage motor	Nominal voltage magnet	Power consumption (stand-by)	Power consumption (operating)	Standard switches	Resetting time motor
BEN24	24 V AC/DC		0,1 W	3 W	1mA...3A, AC 250V	< 30 s (90°)
BEN230	230 V AC		0,4 W	4 W	1mA...3A, AC 250V	< 30 s (90°)
BEN24-ST	24 V AC/DC		0,1 W	3 W	1mA...3A, AC 250V	< 30 s (90°)
MANF EVO	24 V DC / 24 V AC / 48 V DC / 48 V AC	24/48 V DC	VM: 1,5W / VD: - / ME: -	VD: 3,5W / ME: Pmax 20W (24V)/40W (48V)	1mA...1A, DC 5V...AC 48V	< 30 s
NF24	24 V AC/DC		2,5 W	6 W	1mA...3(0.5A),AC250V	< 60 s
NF230	230 V AC		2,5 W	6 W	1mA...3(0.5A),AC250V	< 60 s
SF24	24 V AC/DC		2,5 W	5 W	1mA...3(0.5A),AC250V	< 60 s
SF230	230 V AC		3,5 W	6,5 W	1mA...3(0.5A),AC250V	< 60 s

MEC	Running time spring	Noise level motor	Noise level spring	Cable supply / control	Cable auxiliary switch	Protection class
BEN24		58 dB (A)		1 m, 3 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BEN230		58 dB (A)		1 m, 3 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
BEN24-ST		58 dB (A)		1 m, 3 x 0.75 mm ² (halogen-free), with plug connectors	1 m, 6 x 0.75 mm ² (halogen-free), with plug connectors	IP 54
MANF EVO	1 s	≤ 50 dB (A)	N/A			IP 42
NF24	20 s	≤ 45 dB (A)	ca. 63 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
NF230	20 s	≤ 45 dB (A)	ca. 63 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
SF24	20 s	≤ 45 dB (A)	ca. 63 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
SF230	20 s	≤ 45 dB (A)	ca. 63 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54

Weights

VU120 + BEN

Hn\Wn (mm)		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
200	kg	9,9	10,8	11,8	12,7	13,6	14,5	15,5	16,4	17,3	18,2	19,2	20,1	21,0	22,0	22,9	23,8	24,7	25,7	26,6	27,5	28,5
250	kg	10,8	11,8	12,8	13,8	14,7	15,7	16,7	17,7	18,7	19,7	20,7	21,7	22,7	23,7	24,7	25,7	26,7	27,7	28,7	29,6	30,6
300	kg	11,7	12,7	13,8	14,8	15,9	16,9	18,0	19,1	20,1	21,2	22,2	23,3	24,4	25,4	26,5	27,5	28,6	29,6	30,7	31,8	32,8
350	kg	12,5	13,7	14,8	15,9	17,0	18,2	19,3	20,4	21,5	22,6	23,8	24,9	26,0	27,1	28,3	29,4	30,5	31,6	32,8	33,9	35,0
400	kg	13,4	14,6	15,8	17,0	18,2	19,4	20,5	21,7	22,9	24,1	25,3	26,5	27,7	28,9	30,1	31,3	32,4	33,6	34,8	36,0	37,2
450	kg	14,3	15,5	16,8	18,1	19,3	20,6	21,8	23,1	24,3	25,6	26,8	28,1	29,3	30,6	31,9	33,1	34,4	35,6	36,9	38,1	39,4
500	kg	15,2	16,5	17,8	19,1	20,5	21,8	23,1	24,4	25,7	27,1	28,4	29,7	31,0	32,3	33,6	35,0	36,3	37,6	38,9	40,2	41,6
550	kg	16,1	17,4	18,8	20,2	21,6	23,0	24,4	25,7	27,1	28,5	29,9	31,3	32,7	34,1	35,4	36,8	38,2	39,6	41,0	42,4	43,8
600	kg	16,9	18,4	19,8	21,3	22,7	24,2	25,6	27,1	28,5	30,0	31,4	32,9	34,3	35,8	37,2	38,7	40,1	41,6	43,0	44,5	45,9
650	kg	17,8	19,3	20,8	22,4	23,9	25,4	26,9	28,4	29,9	31,5	33,0	34,5	36,0	37,5	39,0	40,5	42,1	43,6	45,1	46,6	48,1
700	kg	18,7	20,3	21,9	23,4	25,0	26,6	28,2	29,8	31,3	32,9	34,5	36,1	37,7	39,2	40,8	42,4	44,0	45,6	47,1	48,7	50,3
750	kg	19,6	21,2	22,9	24,5	26,2	27,8	29,5	31,1	32,7	34,4	36,0	37,7	39,3	41,0	42,6	44,3	45,9	47,6	49,2	50,8	52,5
800	kg	20,5	22,2	23,9	25,6	27,3	29,0	30,7	32,4	34,1	35,9	37,6	39,3	41,0	42,7	44,4	46,1	47,8	49,5	51,3	53,0	54,7
850	kg	21,3	23,1	24,9	26,7	28,4	30,2	32,0	33,8	35,5	37,3	39,1	40,9	42,7	44,4	46,2	48,0	49,8	51,5	53,3	55,1	
900	kg	22,2	24,1	25,9	27,7	29,6	31,4	33,3	35,1	36,9	38,8	40,6	42,5	44,3	46,2	48,0	49,8	51,7	53,5	55,4		
950	kg	23,1	25,0	26,9	28,8	30,7	32,6	34,5	36,4	38,4	40,3	42,2	44,1	46,0	47,9	49,8	51,7	53,6	55,5			
1000	kg	24,0	25,9	27,9	29,9	31,9	33,8	35,8	37,8	39,8	41,7	43,7	45,7	47,6	49,6	51,6	53,6	55,5				

VU120 + MANF EVO

Hn\Wn (mm)		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
200	kg	10,3	11,2	12,1	13,1	14,0	14,9	15,8	16,8	17,7	18,6	19,5	20,5	21,4	22,3	23,3	24,2	25,1	26,0	27,0	27,9	28,8
250	kg	11,1	12,1	13,1	14,1	15,1	16,1	17,1	18,1	19,1	20,1	21,1	22,1	23,1	24,1	25,1	26,0	27,0	28,0	29,0	30,0	31,0
300	kg	12,0	13,1	14,1	15,2	16,3	17,3	18,4	19,4	20,5	21,6	22,6	23,7	24,7	25,8	26,8	27,9	29,0	30,0	31,1	32,1	33,2
350	kg	12,9	14,0	15,2	16,3	17,4	18,5	19,6	20,8	21,9	23,0	24,1	25,3	26,4	27,5	28,6	29,8	30,9	32,0	33,1	34,3	35,4
400	kg	13,8	15,0	16,2	17,4	18,5	19,7	20,9	22,1	23,3	24,5	25,7	26,9	28,1	29,2	30,4	31,6	32,8	34,0	35,2	36,4	37,6
450	kg	14,7	15,9	17,2	18,4	19,7	20,9	22,2	23,4	24,7	26,0	27,2	28,5	29,7	31,0	32,2	33,5	34,7	36,0	37,2	38,5	39,8
500	kg	15,5	16,9	18,2	19,5	20,8	22,1	23,5	24,8	26,1	27,4	28,7	30,1	31,4	32,7	34,0	35,3	36,7	38,0	39,3	40,6	41,9
550	kg	16,4	17,8	19,2	20,6	22,0	23,3	24,7	26,1	27,5	28,9	30,3	31,7	33,0	34,4	35,8	37,2	38,6	40,0	41,4	42,7	44,1
600	kg	17,3	18,8	20,2	21,7	23,1	24,6	26,0	27,5	28,9	30,4	31,8	33,3	34,7	36,2	37,6	39,1	40,5	42,0	43,4	44,9	46,3
650	kg	18,2	19,7	21,2	22,7	24,2	25,8	27,3	28,8	30,3	31,8	33,3	34,9	36,4	37,9	39,4	40,9	42,4	43,9	45,5	47,0	48,5
700	kg	19,1	20,6	22,2	23,8	25,4	27,0	28,5	30,1	31,7	33,3	34,9	36,5	38,0	39,6	41,2	42,8	44,4	45,9	47,5	49,1	50,7
750	kg	19,9	21,6	23,2	24,9	26,5	28,2	29,8	31,5	33,1	34,8	36,4	38,0	39,7	41,3	43,0	44,6	46,3	47,9	49,6	51,2	52,9
800	kg	20,8	22,5	24,2	26,0	27,7	29,4	31,1	32,8	34,5	36,2	37,9	39,6	41,4	43,1	44,8	46,5	48,2	49,9	51,6	53,3	55,0
850	kg	21,7	23,5	25,3	27,0	28,8	30,6	32,4	34,1	35,9	37,7	39,5	41,2	43,0	44,8	46,6	48,4	50,1	51,9	53,7	55,5	
900	kg	22,6	24,4	26,3	28,1	30,0	31,8	33,6	35,5	37,3	39,2	41,0	42,8	44,7	46,5	48,4	50,2	52,1	53,9	55,7		
950	kg	23,5	25,4	27,3	29,2	31,1	33,0	34,9	36,8	38,7	40,6	42,5	44,4	46,3	48,3	50,2	52,1	54,0	55,9			
1000	kg	24,3	26,3	28,3	30,3	32,2	34,2	36,2	38,2	40,1	42,1	44,1	46,0	48,0	50,0	52,0	53,9	55,9				

Selection data

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

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
200	ζ [-]	1,71	1,43	1,24	1,1	1	0,92	0,85	0,79	0,74	0,7	0,66	0,63	0,6	0,58	0,56	0,53	0,52	0,5	0,48	0,47	0,45
250	ζ [-]	1,4	1,17	1,02	0,9	0,82	0,75	0,69	0,65	0,61	0,57	0,54	0,52	0,49	0,47	0,45	0,44	0,42	0,41	0,39	0,38	0,37
300	ζ [-]	1,21	1,01	0,87	0,78	0,7	0,64	0,59	0,55	0,52	0,49	0,46	0,44	0,42	0,4	0,39	0,37	0,36	0,35	0,34	0,33	0,32
350	ζ [-]	1,06	0,89	0,77	0,68	0,62	0,57	0,52	0,49	0,46	0,43	0,41	0,39	0,37	0,36	0,34	0,33	0,32	0,31	0,3	0,29	0,28
400	ζ [-]	0,96	0,8	0,69	0,61	0,56	0,51	0,47	0,44	0,41	0,39	0,37	0,35	0,33	0,32	0,31	0,3	0,29	0,28	0,27	0,26	0,25
450	ζ [-]	0,87	0,73	0,63	0,56	0,51	0,46	0,43	0,4	0,38	0,35	0,34	0,32	0,3	0,29	0,28	0,27	0,26	0,25	0,24	0,24	0,23
500	ζ [-]	0,81	0,67	0,58	0,52	0,47	0,43	0,4	0,37	0,35	0,33	0,31	0,29	0,28	0,27	0,26	0,25	0,24	0,23	0,22	0,22	0,21
550	ζ [-]	0,75	0,62	0,54	0,48	0,43	0,4	0,37	0,34	0,32	0,3	0,29	0,27	0,26	0,25	0,24	0,23	0,22	0,22	0,21	0,2	0,2
600	ζ [-]	0,7	0,59	0,51	0,45	0,41	0,37	0,34	0,32	0,3	0,28	0,27	0,26	0,24	0,23	0,22	0,22	0,21	0,2	0,19	0,19	0,18
650	ζ [-]	0,66	0,55	0,48	0,42	0,38	0,35	0,32	0,3	0,28	0,27	0,25	0,24	0,23	0,22	0,21	0,2	0,2	0,19	0,18	0,18	0,17
700	ζ [-]	0,63	0,52	0,45	0,4	0,36	0,33	0,31	0,29	0,27	0,25	0,24	0,23	0,22	0,21	0,2	0,19	0,19	0,18	0,17	0,17	0,16
750	ζ [-]	0,6	0,5	0,43	0,38	0,34	0,32	0,29	0,27	0,25	0,24	0,23	0,22	0,21	0,2	0,19	0,18	0,18	0,17	0,16	0,16	0,16
800	ζ [-]	0,57	0,47	0,41	0,36	0,33	0,3	0,28	0,26	0,24	0,23	0,22	0,21	0,2	0,19	0,18	0,17	0,17	0,16	0,16	0,15	0,15
850	ζ [-]	0,54	0,45	0,39	0,35	0,31	0,29	0,27	0,25	0,23	0,22	0,21	0,2	0,19	0,18	0,17	0,17	0,16	0,16	0,15	0,15	
900	ζ [-]	0,52	0,43	0,38	0,33	0,3	0,28	0,25	0,24	0,22	0,21	0,2	0,19	0,18	0,17	0,17	0,16	0,15	0,15	0,14		
950	ζ [-]	0,5	0,42	0,36	0,32	0,29	0,27	0,25	0,23	0,21	0,2	0,19	0,18	0,17	0,17	0,16	0,15	0,15	0,14			
1000	ζ [-]	0,48	0,4	0,35	0,31	0,28	0,26	0,24	0,22	0,21	0,19	0,18	0,18	0,17	0,16	0,15	0,15	0,14				

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Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700
200	Sn [m ²]	0,0244	0,0313	0,0382	0,0451	0,0520	0,0588	0,0657	0,0726	0,0795	0,0864	0,0932
250	Sn [m ²]	0,0330	0,0423	0,0517	0,0611	0,0705	0,0798	0,0892	0,0986	0,1080	0,1174	0,1267
300	Sn [m ²]	0,0415	0,0533	0,0652	0,0771	0,0890	0,1009	0,1127	0,1246	0,1365	0,1484	0,1602
350	Sn [m ²]	0,0500	0,0644	0,0787	0,0931	0,1075	0,1219	0,1362	0,1506	0,1650	0,1794	0,1938
400	Sn [m ²]	0,0585	0,0754	0,0922	0,1091	0,1260	0,1429	0,1597	0,1766	0,1935	0,2104	0,2273
450	Sn [m ²]	0,0670	0,0864	0,1057	0,1251	0,1445	0,1639	0,1833	0,2026	0,2220	0,2414	0,2608
500	Sn [m ²]	0,0755	0,0974	0,1193	0,1411	0,1630	0,1849	0,2068	0,2286	0,2505	0,2724	0,2943
550	Sn [m ²]	0,0840	0,1084	0,1328	0,1571	0,1815	0,2059	0,2303	0,2547	0,2790	0,3034	0,3278
600	Sn [m ²]	0,0925	0,1194	0,1463	0,1731	0,2000	0,2269	0,2538	0,2807	0,3075	0,3344	0,3613
650	Sn [m ²]	0,1010	0,1304	0,1598	0,1892	0,2185	0,2479	0,2773	0,3067	0,3360	0,3654	0,3948
700	Sn [m ²]	0,1095	0,1414	0,1733	0,2052	0,2370	0,2689	0,3008	0,3327	0,3646	0,3964	0,4283
750	Sn [m ²]	0,1180	0,1524	0,1868	0,2212	0,2555	0,2899	0,3243	0,3587	0,3931	0,4274	0,4618
800	Sn [m ²]	0,1265	0,1634	0,2003	0,2372	0,2741	0,3109	0,3478	0,3847	0,4216	0,4584	0,4953
850	Sn [m ²]	0,1351	0,1744	0,2138	0,2532	0,2926	0,3319	0,3713	0,4107	0,4501	0,4895	0,5288
900	Sn [m ²]	0,1436	0,1854	0,2273	0,2692	0,3111	0,3530	0,3948	0,4367	0,4786	0,5205	0,5623
950	Sn [m ²]	0,1521	0,1964	0,2408	0,2852	0,3296	0,3740	0,4183	0,4627	0,5071	0,5515	0,5958
1000	Sn [m ²]	0,1606	0,2075	0,2543	0,3012	0,3481	0,3950	0,4418	0,4887	0,5356	0,5825	0,6294

Hn\Wn [mm]		750	800	850	900	950	1000	1050	1100	1150	1200
200	Sn [m ²]	0,1001	0,1070	0,1139	0,1207	0,1276	0,1345	0,1414	0,1483	0,1551	0,1620
250	Sn [m ²]	0,1361	0,1455	0,1549	0,1642	0,1736	0,1830	0,1924	0,2018	0,2111	0,2205
300	Sn [m ²]	0,1721	0,1840	0,1959	0,2078	0,2196	0,2315	0,2434	0,2553	0,2671	0,2790
350	Sn [m ²]	0,2081	0,2225	0,2369	0,2513	0,2656	0,2800	0,2944	0,3088	0,3232	0,3375
400	Sn [m ²]	0,2441	0,2610	0,2779	0,2948	0,3117	0,3285	0,3454	0,3623	0,3792	0,3960
450	Sn [m ²]	0,2801	0,2995	0,3189	0,3383	0,3577	0,3770	0,3964	0,4158	0,4352	0,4545
500	Sn [m ²]	0,3162	0,3380	0,3599	0,3818	0,4037	0,4255	0,4474	0,4693	0,4912	0,5131
550	Sn [m ²]	0,3522	0,3765	0,4009	0,4253	0,4497	0,4741	0,4984	0,5228	0,5472	0,5716
600	Sn [m ²]	0,3882	0,4150	0,4419	0,4688	0,4957	0,5226	0,5494	0,5763	0,6032	0,6301
650	Sn [m ²]	0,4242	0,4536	0,4829	0,5123	0,5417	0,5711	0,6004	0,6298	0,6592	0,6886
700	Sn [m ²]	0,4602	0,4921	0,5239	0,5558	0,5877	0,6196	0,6515	0,6833	0,7152	0,7471
750	Sn [m ²]	0,4962	0,5306	0,5650	0,5993	0,6337	0,6681	0,7025	0,7368	0,7712	0,8056
800	Sn [m ²]	0,5322	0,5691	0,6060	0,6428	0,6797	0,7166	0,7535	0,7903	0,8272	0,8641
850	Sn [m ²]	0,5682	0,6076	0,6470	0,6863	0,7257	0,7651	0,8045	0,8439	0,8832	
900	Sn [m ²]	0,6042	0,6461	0,6880	0,7299	0,7717	0,8136	0,8555	0,8974		
950	Sn [m ²]	0,6402	0,6846	0,7290	0,7734	0,8177	0,8621	0,9065			
1000	Sn [m ²]	0,6762	0,7231	0,7700	0,8169	0,8637	0,9106				

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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- 1812-CPR-1595

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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

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!