

# SC+

Circular fire damper cartridge.



CE  
0749



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## Explanation of the abbreviations and pictograms

Dn = nominal diameter	o -> i = meets the criteria from the outside (o) to the inside (i)	OP = option (delivered with the product)
E = integrity	GKB (type A) / GKF (type F): "GKB"	KIT = kit (delivered separately for repair or upgrade)
I = thermal insulation	stands for standard plasterboards (type A according to EN 520) while "GKF"	DAS MOD = modular product
S = smoke leakage	plasterboards offer a higher fire resistance for a similar plate thickness (type F according to EN 520)	dB(A) = A-weighted decibel value
Pa = pascal	Sn = free air passage	Lw oct = sound power level per octave midband
ve = vertical wall penetration	$\zeta$ [-] = pressure loss coefficient	$\Delta L$ = correction factor
ho = horizontal floor penetration	Q = air flow	
i <-> o = fire side not important	$\Delta P$ = static pressure drop	
	v = air speed in the duct	
	Lwa = A-weighted sound power level	



fast installation

# DECLARATION OF PERFORMANCE

CE\_DoP\_Rf-t\_S3\_EN - G-12/2017

1. Unique identification code of the product-type:	SC+
2. Intended use/es:	Circular fire damper to be used in conjunction with partitions to maintain fire compartments in heating, ventilating and air conditioning installations.
3. Manufacturer:	RFTechnologies NV, Lange Ambachtstraat 40, B-9860 Oosterzele
4. System/s of AVCP:	System 1
5. Harmonised standard / European Assessment Document: notified body / European Technical Assessment, Technical Assessment Body, notified body, certificate of constancy of performance:	EN 15650:2010, BCCA with identification number 0749; BCCA-0749-CPR-BC1-606-0464-15650.09-2517
6. Declared performance according to	(Fire resistance according to EN 1366-2 and classifications according to EN 13501-3)

Essential characteristics			Performance	
Range	Wall type	Wall	Installation	Classification
SC(V)+60 Ø 100-200 mm	Rigid wall	Aerated concrete ≥ 100mm	1	EI 60 (V <sub>e,i</sub> ↔ o) S - (300Pa)
	Rigid floor	Aerated concrete ≥ 150mm	1	EI 60 (h <sub>o,i</sub> ↔ o) S - (300Pa)
	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100mm	1	EI 60 (V <sub>e,i</sub> ↔ o) S - (300Pa)
SC(V)+90 Ø 100-200 mm	Rigid wall	Aerated concrete ≥ 100mm	1	EI 60 (V <sub>e,i</sub> ↔ o) S - (300Pa)
	Rigid floor	Aerated concrete ≥ 150mm	1	EI 90 (h <sub>o,i</sub> ↔ o) S - (300Pa)
	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	1	EI 90 (V <sub>e,i</sub> ↔ o) S - (300Pa)
SC+120 Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110mm	1	EI 120 (V <sub>e,i</sub> ↔ o) S - (300Pa)
	Rigid wall	Reinforced concrete ≥ 110mm	1	E 120 (V <sub>e,o</sub> → i) S - (300Pa)
SC(V)0 Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 150mm	1	E 120 (h <sub>o</sub> → i) S - (300Pa)
	Rigid floor	Reinforced concrete ≥ 150mm	1	E 120 (h <sub>o</sub> → i) S - (300Pa)

1 Type of installation: built-in inside a duct, 0-360°



Nominal activation conditions/sensitivity:	Pass
Response delay (response time): closure time	Pass
Operational reliability: cycling	50 cycles
Durability of response delay:	Pass
Durability of operational reliability:	Pass
Protection against corrosion according to EN 60068-2-52:	NPD (no performance determined)
Damper casing leakage according to EN 1751:	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:

Frank Verfinden, Product Manager

Oosterzele, 12/2017



### Product presentation SC+

Circular fire damper cartridge with a fire resistance up to 120 minutes. The SC0 variant has a classification only for fire integrity and smoke leakage (ES). The circular fire damper cartridges are equipped with a fusible link that holds the two parts of the blade in the open position. When the temperature in the duct rises above 72°C, the fusible link melts and releases the two semi circular blades. The damper is now closed and two blocking hooks keep the blades in their safety position, which prevents any smoke or flames from passing through. The cartridge is inserted in a metal ventilation duct of the same diameter and stays in place thanks to its rubber sealing ring.

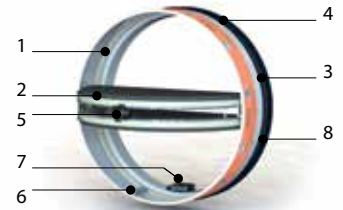
The circular fire damper cartridge is a compact fire resistant product for ducts with a small diameter. It is inserted inside ventilation ducts that cross walls in order to stop the propagation of fire. It is characterised by its easy installation. Two versions are available: the standard fire damper cartridge (technical datasheet S2/S3) and the cartridge equipped with a finishing ventilation valve 'V' (technical datasheet S4/S5) for installation at duct ends.

- ☑ easy to install
- ☑ no space is lost at the wall crossing



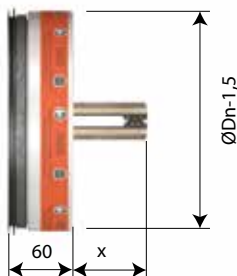
- lightweight
- tested according to EN 1366-2 up to 300 Pa
- suitable for rigid wall, rigid floor and light wall (metal stud gypsum plasterboard wall)
- maintenance-free
- for indoor use
- ambient temperature below 50°C

1. steel tunnel
2. two semi-circular blades
3. intumescent strip
4. rubber sealing ring
5. fusible link 72°C
6. 2 blocking hooks
7. end of range switch (option)
8. product identification



### Range and dimensions SC+60

Circular fire damper cartridge with a fire resistance of 60 minutes.  
exceeding blade: X

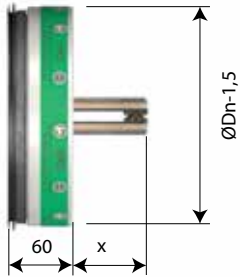


ØDn (mm)	100	125	150	160	200
x	18	31	40	49	69
y	-	-	-	-	-

ØDn (mm)	100	125	150	160	200

## Range and dimensions SC+90

Circular fire damper cartridge with a fire resistance of 90 minutes.  
exceeding blade: X

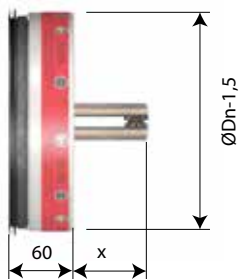


ØDn (mm)	100	125	150	160	200
x	20	33	42	51	71
y	-	-	-	-	-

ØDn (mm)	100	125	150	160	200

## Range and dimensions SC+120

Circular fire damper cartridge with a fire resistance of 120 minutes.  
exceeding blade: X



ØDn (mm)	100	125	160	200
x	20	33	51	71
y	-	-	-	-

ØDn (mm)	100	125	160	200

## Evolution - kits



**KITS FCU SC**

Unipolar end of range switch



**KITS FT SC**

Fusible link 72°C (per set of 5 pieces)

## Options - at the time of order



**FCU SC**

Unipolar end of range switch (pre-mounted)

## Storage and handling

### Storage and handling

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

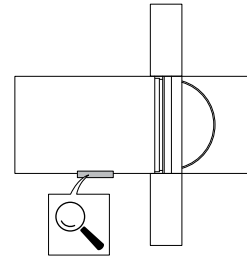
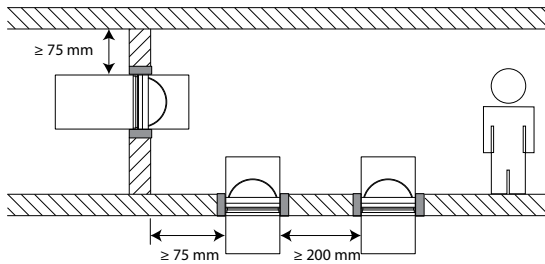
#### Avoid:

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

### Installation

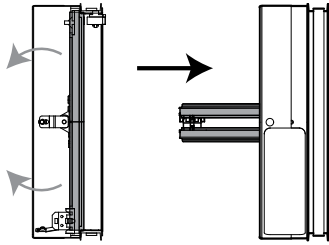
#### General points

- The installation must comply with the installation manual and the classification report.
- Verify if the blade can move freely.
- Mounting direction: mounting possible with the axis in any position (0-360°)
- Direction of the air flow: discretionary
- Rf-t fire damper cartridges are always tested in standardised constructions according to EN 1366-2. The achieved results are valid for similar supporting constructions with a fire resistance, thickness and density equal or superior to the supporting construction used during the test.
- The fire damper cartridge must remain accessible for inspection and maintenance.
- Please observe safety distances with respect to other construction elements.

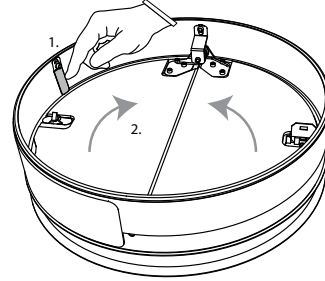


## Operation: manual opening

1

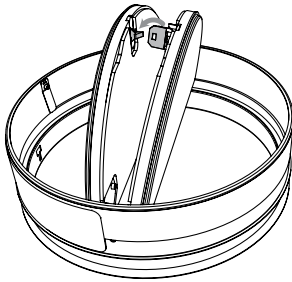


2



2. Press the two blocking hooks carefully to unlock the blades.

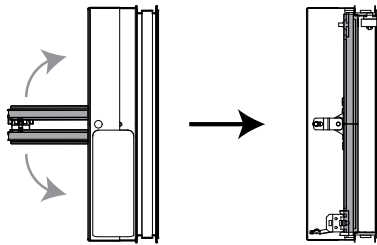
3



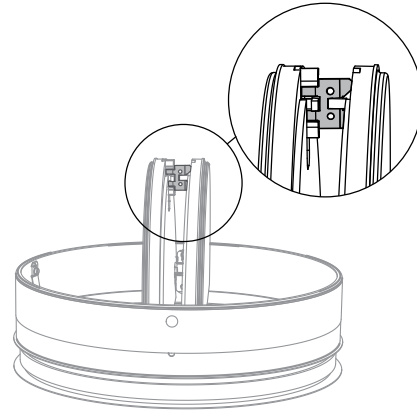
3. Click the fusible link into the holder to lock the blades.

## Operation: manual closing

1

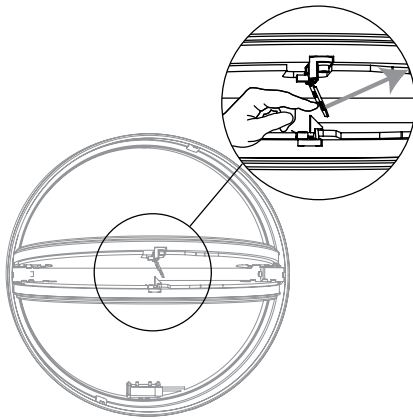


2



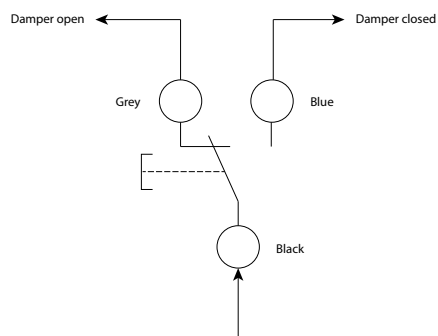
2. Unlock (close) the damper blades by pushing them towards each other. Carefully unlock the fusible link by pushing it sideways.

3



## Electrical connection

1



1. An end of range switch (FCU) can be mounted on the metal body. The purpose is to determine the position of the circular fire damper cartridge from a distance. 1mA...6A DC 5V... AC250V.

COM: black; NF: grey; NO: blue.

Power supply: Max 250V; Power consumption : Max 6A; Degree of protection: IP65; Length of cable: 500 mm.

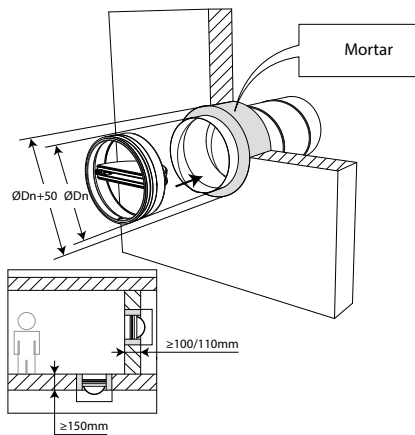


## Installation in rigid wall and floor

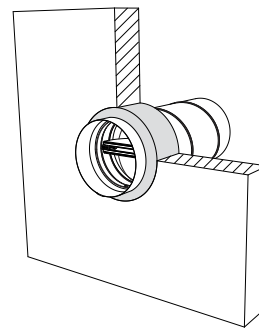
The product was tested and approved in:

Range	Wall type	Sealing	Classification
SC(V)+60 Ø 100-200 mm	Rigid wall	Aerated concrete ≥ 100 mm	EI 60 (v <sub>e</sub> i ↔ o) S - (300 Pa)
SC(V)+60 Ø 100-200 mm	Rigid floor	Aerated concrete ≥ 150 mm	EI 60 (h <sub>o</sub> i ↔ o) S - (300 Pa)
SC(V)+90 Ø 100-200 mm	Rigid wall	Aerated concrete ≥ 100 mm	EI 90 (v <sub>e</sub> i ↔ o) S - (300 Pa)
SC(V)+90 Ø 100-200 mm	Rigid floor	Aerated concrete ≥ 150 mm	EI 90 (h <sub>o</sub> i ↔ o) S - (300 Pa)
SC+120 Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110 mm	EI 120 (v <sub>e</sub> i ↔ o) S - (300 Pa)
SC(V)0 Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110 mm	E 120 (v <sub>e</sub> o → i) S - (300 Pa)
SC(V)0 Ø 100-200 mm	Rigid floor	Reinforced concrete ≥ 150 mm	E 120 (h <sub>o</sub> o → i) S - (300 Pa)

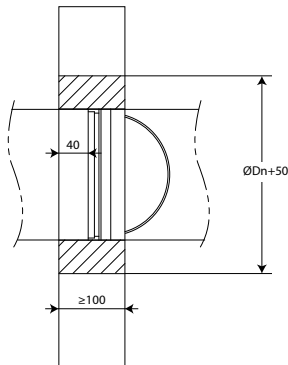
1



2



3

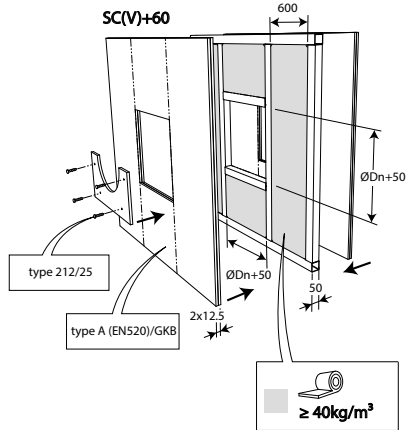


### Installation in flexible wall applicable for SC(V)+60

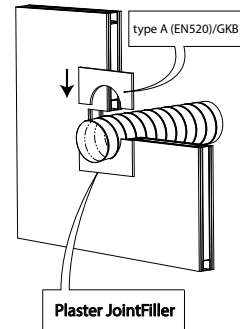
The product was tested and approved in:

Range	Wall type	Sealing	Classification
SC(V)+60 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) $\geq 100$ mm	Stone wool $\geq 40 \text{ kg/m}^3$ + cover plates
			El 60 ( $v_e \text{ i } \leftrightarrow \text{ o}$ ) S - (300Pa)

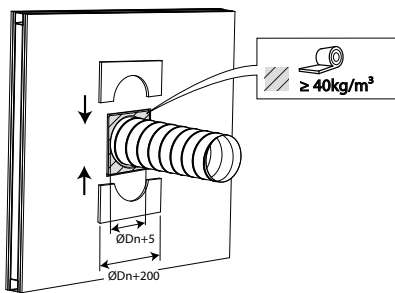
1



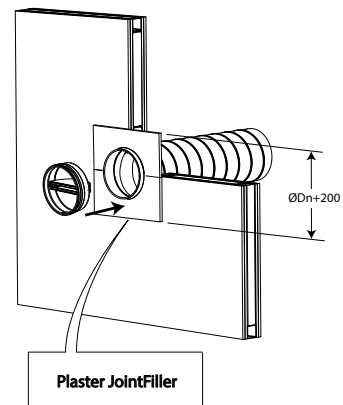
2



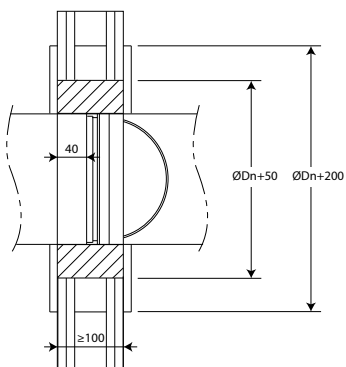
3



4



5

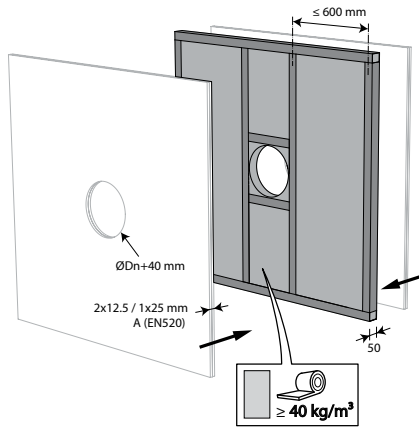


## Installation in flexible wall with gypsum sealing applicable for SC(V)+60

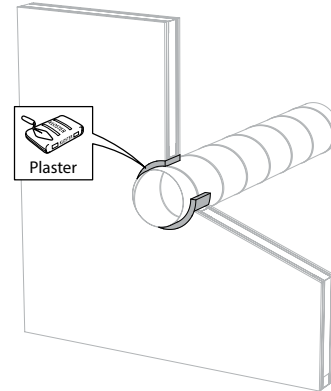
The product was tested and approved in:

Range	Wall type	Sealing	Classification
SC(V)+60 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100 mm	El 60 (v <sub>e</sub> i ↔ o) S - (300Pa)

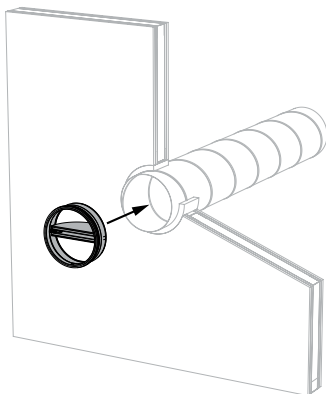
1



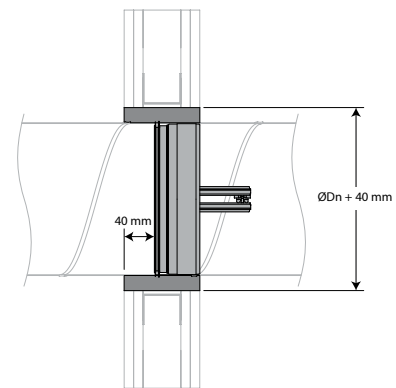
2



3



4

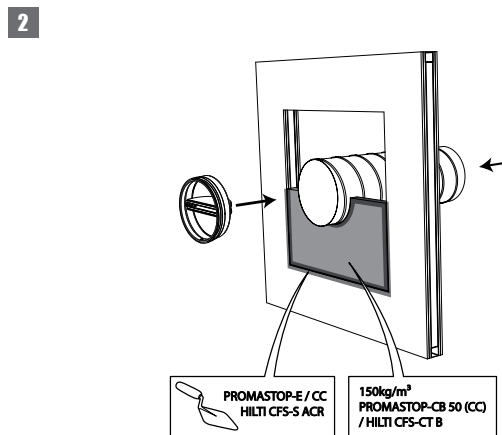
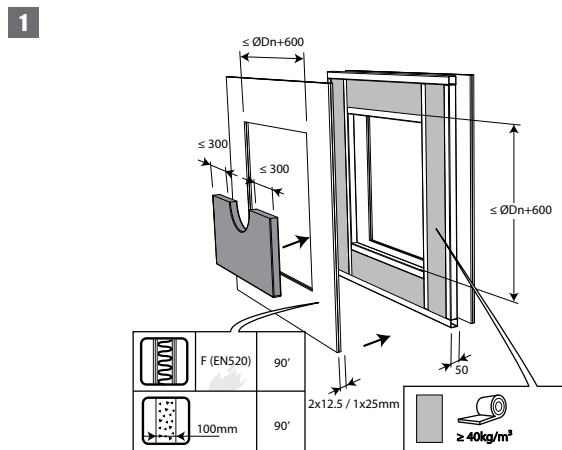




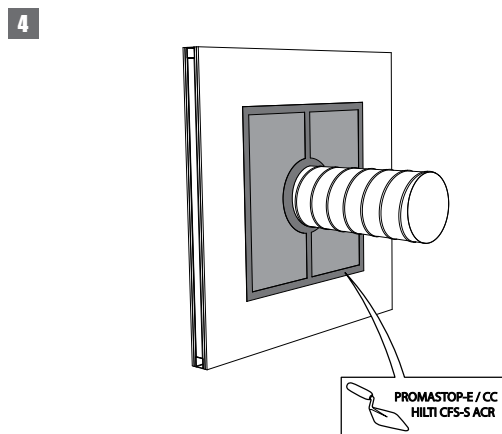
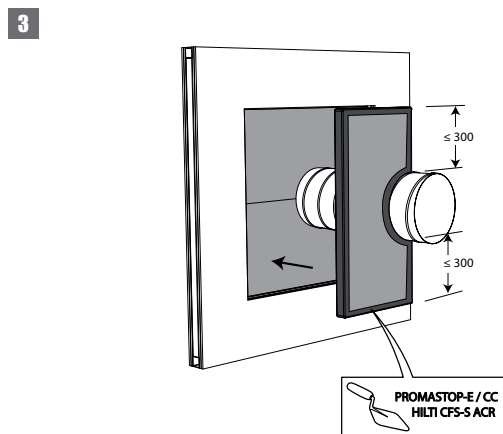
## Installation in flexible and rigid wall, sealing with rigid rock wool boards with coating

The product was tested and approved in:

Range	Wall type	Sealing	Classification
SC(V)+90 Ø 100-200 mm	Rigid wall	Aerated concrete $\geq 100$ mm	EI 90 ( $v_e$ i $\leftrightarrow$ o) S - (300Pa)
SC(V)+90 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100$ mm	EI 90 ( $v_e$ i $\leftrightarrow$ o) S - (300Pa)

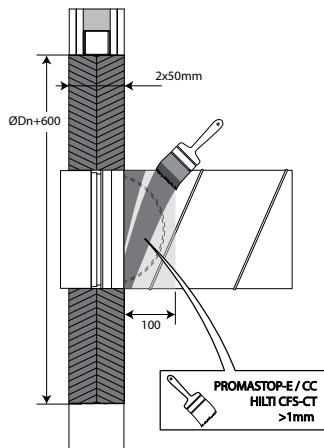


2. The opening in the wall around the duct in which the fire damper cartridge is mounted, is sealed with 2 layers of 50 mm-thick stone wool panels with fire resistant coating on one side (type PROMASTOP-CB 50 / PROMASTOP-CB/CC 50 / HILTI CFS-CT B).



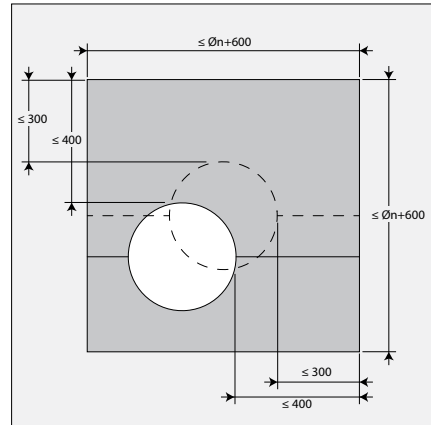
3. The joints on these 2 layers must be installed staggered and covered all around the edge with coating (type PROMASTOP-E / PROMASTOP-CC / HILTI CFS-S-ACR).

5



5. The duct is coated with a layer (>1,5 mm) of endothermic coating (type PROMASTOP-E / PROMASTOP-CC / HILTI CFS-CT) on a width of 100 mm at the side the open damper blade exceeds.

6



6. The duct in which the damper is inserted doesn't need be centered in the opening (with max dimensions duct + 600 mm). The maximal distance between the damper and the edge of the opening is 400 mm.

## 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.
- Warning: butterfly dampers, in their closed position, can move in the duct when placed under too high pressure.

## Weights

## SC+60

ØDn [mm]	100	125	150	160	200					
kg	0,2	0,3	0,4	0,5	0,6					

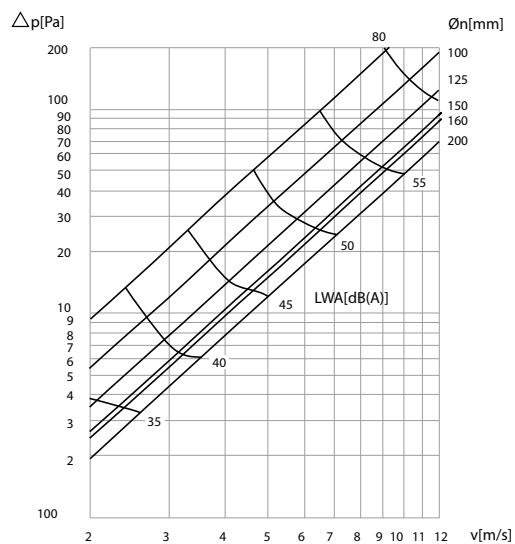
## SC+90

ØDn [mm]	100	125	150	160	200					
kg	0,3	0,4	0,5	0,5	0,7					

## SC+120

ØDn [mm]	100	125	160	200						
kg	0,3	0,4	0,5	0,8						

## Selection graphs



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

## SC+60

ØDn [mm]	100	125	150	160	200					
$\zeta$ [-]	2,31	1,48	1,09	1,02	0,8					

## SC+90

ØDn [mm]	100	125	150	160	200					
$\zeta$ [-]	2,31	1,48	1,11	1,04	0,81					

## SC+120

ØDn [mm]	100	125	160	200						
$\zeta$ [-]	2,31	1,48	1,04	0,81						

## Example

### Example

#### Data

Dn= 125 mm (SC0), v= 5 m/s

#### Required

$\Delta p$ = ca. 21 Pa (Cfr. selectiegrafiek)

LWA= ca. 47.5 dB(A)

#### Calculation

$\Delta p = 1.36 * (5 \text{ m/s})^2 * 0.6 = 20.4 \text{ Pa}$

### Selection data

#### SC+60 - A-weighted sound power level in the duct

$\varnothing D_n$ [mm]	100	125	150	160	200						
$S_n$ [m <sup>2</sup> ]	0,0035	0,0067	0,0109	0,0129	0,0223						
$S_n$ [%]	44,02	54,49	61,52	63,81	70,78						
Q [m <sup>3</sup> /h]	287,00	505,00	801,00	934,00	1.597,00						
$\Delta p$ [Pa]	143,00	116,00	104,00	102,00	96,00						60 dB
Q [m <sup>3</sup> /h]	204,00	358,00	568,00	662,00	1.132,00						
$\Delta p$ [Pa]	72,00	58,00	52,00	51,00	48,00						55 dB
Q [m <sup>3</sup> /h]	144,00	254,00	402,00	469,00	802,00						
$\Delta p$ [Pa]	36,00	29,00	26,00	26,00	24,00						50 dB
Q [m <sup>3</sup> /h]	102,00	180,00	285,00	332,00	569,00						
$\Delta p$ [Pa]	18,00	15,00	13,00	13,00	12,00						45 dB
Q [m <sup>3</sup> /h]	73,00	127,00	202,00	236,00	403,00						
$\Delta p$ [Pa]	9,00	7,00	7,00	6,00	6,00						40 dB
Q [m <sup>3</sup> /h]	51,00	90,00	143,00	167,00	286,00						
$\Delta p$ [Pa]	5,00	4,00	3,00	3,00	3,00						35 dB

Every air flow lower than the above mentioned maximum value, will meet the listed A-weighted sound power level for the respective dimension.

#### SC+90 - A-weighted sound power level in the duct

$\varnothing D_n$ [mm]	100	125	150	160	200						
$S_n$ [m <sup>2</sup> ]	0,0029	0,0060	0,0100	0,0119	0,0211						
$S_n$ [%]	37,13	48,77	56,62	59,21	67,02						
Q [m <sup>3</sup> /h]	287,00	505,00	796,00	928,00	1.590,00						
$\Delta p$ [Pa]	143,00	116,00	105,00	102,00	96,00						60 dB
Q [m <sup>3</sup> /h]	204,00	358,00	564,00	658,00	1.127,00						
$\Delta p$ [Pa]	72,00	58,00	53,00	51,00	48,00						55 dB
Q [m <sup>3</sup> /h]	144,00	254,00	400,00	466,00	799,00						
$\Delta p$ [Pa]	36,00	29,00	26,00	26,00	24,00						50 dB
Q [m <sup>3</sup> /h]	102,00	180,00	283,00	330,00	566,00						
$\Delta p$ [Pa]	18,00	15,00	15,00	13,00	12,00						45 dB
Q [m <sup>3</sup> /h]	73,00	127,00	201,00	234,00	401,00						
$\Delta p$ [Pa]	9,00	7,00	7,00	7,00	6,00						40 dB
Q [m <sup>3</sup> /h]	51,00	90,00	142,00	166,00	284,00						
$\Delta p$ [Pa]	5,00	4,00	4,00	3,00	3,00						35 dB

Every air flow lower than the above mentioned maximum value, will meet the listed A-weighted sound power level for the respective dimension.



## SC+120 - A-weighted sound power level in the duct

$\varnothing D_n$ [mm]	100	125	160	200						
$S_n$ [m <sup>2</sup> ]	0,0029	0,0060	0,0119	0,0211						
$S_n$ [%]	37,13	48,77	59,21	67,02						
Q [m <sup>3</sup> /h]	287,00	505,00	928,00	1.590,00						60 dB
$\Delta p$ [Pa]	143,00	116,00	102,00	96,00						
Q [m <sup>3</sup> /h]	204,00	358,00	658,00	1.127,00						55 dB
$\Delta p$ [Pa]	72,00	58,00	51,00	48,00						
Q [m <sup>3</sup> /h]	144,00	254,00	466,00	799,00						50 dB
$\Delta p$ [Pa]	36,00	29,00	26,00	24,00						
Q [m <sup>3</sup> /h]	102,00	180,00	330,00	566,00						45 dB
$\Delta p$ [Pa]	18,00	15,00	13,00	12,00						
Q [m <sup>3</sup> /h]	73,00	127,00	234,00	401,00						40 dB
$\Delta p$ [Pa]	9,00	7,00	7,00	6,00						
Q [m <sup>3</sup> /h]	51,00	90,00	166,00	284,00						35 dB
$\Delta p$ [Pa]	5,00	4,00	3,00	3,00						

Every air flow lower than the above mentioned maximum value, will meet the listed A-weighted sound power level for the respective dimension.

Correction factor  $\Delta L$ 

To obtain the sound power level for the octave midband:  $LW_{oct} = \Delta L + L_{wa}$

[Hz]	63	125	250	500	1000	2000	4000	8000
2 - 4 m/s	25	3	-7	-13	-22	-27	-28	-24
6 - 8 m/s	18	5	1	-3	-8	-11	-14	-20
10 - 12 m/s	13	2	0	-3	-7	-9	-10	-15

## Sample order

SC+60	200	FCU
1	2	3

1. product
2. diameter
3. option: unipolar end of range switch

## 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 our dampers.



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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!*