

# 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" 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)	KIT = kit (delivered separately for repair or upgrade)
I = thermal insulation	Sn = free air passage	DAS MOD = modular product
S = smoke leakage	$\zeta$ [-] = pressure loss coefficient	dB(A) = A-weighted decibel value
Pa = pascal	Q = air flow	Lw oct = sound power level per octave midband
ve = vertical wall penetration	$\Delta P$ = static pressure drop	$\Delta L$ = correction factor
ho = horizontal floor penetration	v = air speed in the duct	
i <-> o = fire side not important	Lwa = A-weighted sound power level	



fast installation

# DECLARATION OF PERFORMANCE

CE\_DoP\_Rf-t\_S2\_EN - D-12/2017

1. Unique identification code of the product-type:	SC
2. Intended use/s:	Circular fire damper to be used in conjunction with partitions to maintain fire compartments in heating, ventilating and air conditioning installations.
3. Manufacturer:	RF-Technologies NV, Lange Ambachstraat 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-BCI-606-0464-15650.08-2517
6. Declared performance according to	(Fire resistance according to EN 1365-2 and classifications according to EN 13501-3)

Range	Essential characteristics			Sealing	Installation	Performance Classification
	Wall type	Wall	Wall			
SC(V)Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110mm	Mortar	1	E 120 (V <sub>e</sub> , o → i) S - (300Pa)	
	Rigid floor	Reinforced concrete ≥ 150mm	Mortar	1	E 120 (h <sub>o</sub> , o → i) S - (300Pa)	
	Rigid wall	Reinforced concrete ≥ 110mm	Mortar	1	EI 60 (V <sub>e</sub> , o → i) S - (300Pa)	
	Rigid floor	Reinforced concrete ≥ 110mm	Mortar	1	EI 60 (h <sub>o</sub> , o → i) S - (300Pa)	
SC(V)60 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100mm	Stone wool ≥ 40 kg/m <sup>3</sup> + cover plates Gypsum	1	EI 60 (V <sub>e</sub> , o → i) S - (300Pa)	
	Rigid wall	Reinforced concrete ≥ 110mm	Mortar	1	EI 90 (V <sub>e</sub> , o → i) S - (300Pa)	
	Rigid floor	Reinforced concrete ≥ 150mm	Mortar	1	EI 90 (h <sub>o</sub> , o → i) S - (300Pa)	
	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	Stone wool ≥ 40 kg/m <sup>3</sup> + cover plates	1	EI 90 (V <sub>e</sub> , o → i) S - (300Pa)	
SC(V)120 Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110mm	Mortar	1	EI 120 (V <sub>e</sub> , o → i) S - (300Pa)	
	Rigid floor	Aerated concrete ≥ 150mm	Mortar	1	EI 120 (V <sub>e</sub> , o → i) S - (300Pa)	
	Rigid wall	Reinforced concrete ≥ 150mm	Mortar	1	EI 120 (h <sub>o</sub> , o → i) S - (300Pa)	
	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	Stone wool ≥ 40 kg/m <sup>3</sup> + cover plates	1	EI 120 (V <sub>e</sub> , o → i) S - (300Pa)	

1	Type of installation: built-in inside a duct, 0-360°; Fire side = side opposite to the fusible link		
Nominal activation conditions/sensitivity:			
Response delay (response time): closure time			
Operational reliability: cycling			
Durability of operational reliability:			
Durability of response delay:			
Protection against corrosion according to EN 60068-2-52:			
Damper casing leakage according to EN 1751:			
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 Verlinden**, Product Manager  
  
 Oosterzele, 12/2017



## Product presentation SC

Circular fire damper cartridge with a fire resistance up to 120 minutes. The fire side is the side opposite to the fusible link. 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.

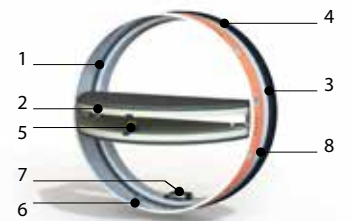
The circular fire damper cartridge is a compact fire resistant product for ducts with a small diameter. It is inserted inside ventilation ducts that cross walls in order to stop the propagation of fire. It is characterised by its easy installation. Two versions are available: the standard fire damper 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



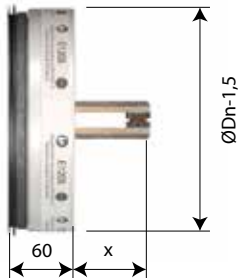
- lightweight
- tested according to EN 1366-2 up to 300 Pa
- suitable for rigid wall, rigid floor and light wall (metal stud gypsum plasterboard wall)
- maintenance-free
- for indoor use
- ambient temperature below 50°C

1. steel tunnel
2. two semi-circular blades
3. intumescent strip around the tunnel
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 SC0

Circular fire damper cartridge tested in one direction and without thermal insulation (I).  
exceeding blade: X

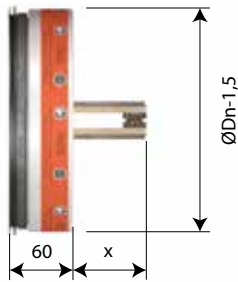


ØDn (mm)	100	125	160	200
x	18	31	49	69
y	-	-	-	-

ØDn (mm)	100	125	160	200
ØDn (mm)	100	125	160	200

## Range and dimensions SC60

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

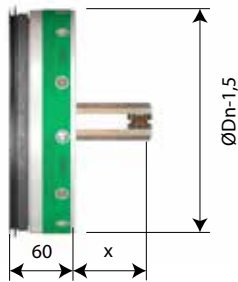


ØDn (mm)	100	125	150	160	200
x	18	31	42	49	69
y	-	-	-	-	-

ØDn (mm)	100	125	150	160	200
ØDn (mm)	100	125	150	160	200

## Range and dimensions SC90

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

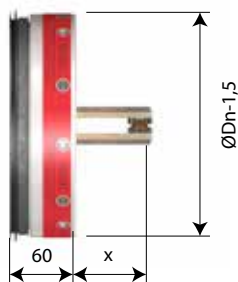


ØDn (mm)	80	100	125	160	200
x	8	20	33	51	71
y	-	-	-	-	-

ØDn (mm)	80	100	125	160	200
ØDn (mm)	80	100	125	160	200

## Range and dimensions SC120

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
ØDn (mm)	100	125	160	200

## Evolution - kits



KITSFTSC

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

## Storage and handling

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

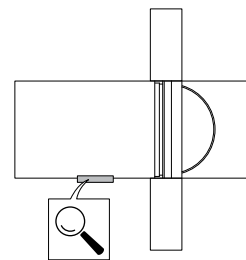
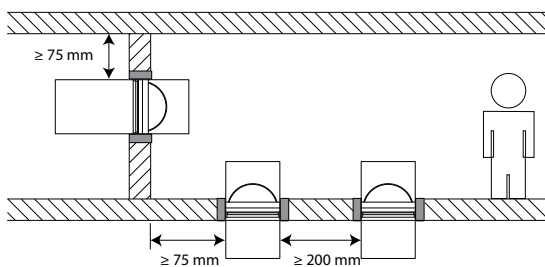
### Avoid:

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

## Installation

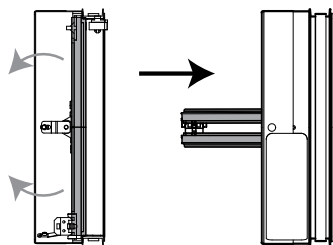
### General points

- 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.

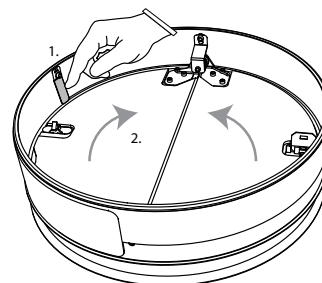


## Operation: manual opening

1

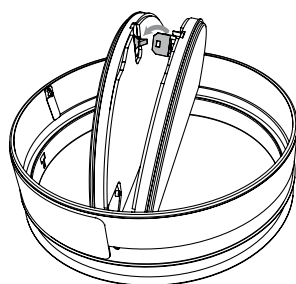


2



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

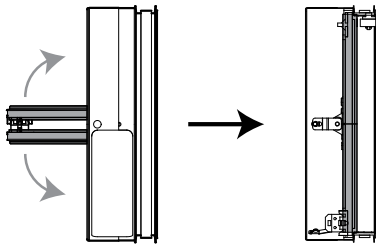
3



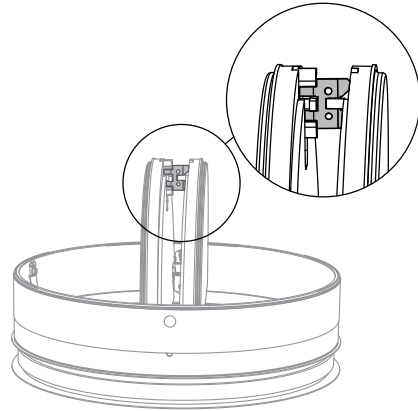
3. Click the fusible link into the holder to lock the blades.

## Operation: manual closing

1

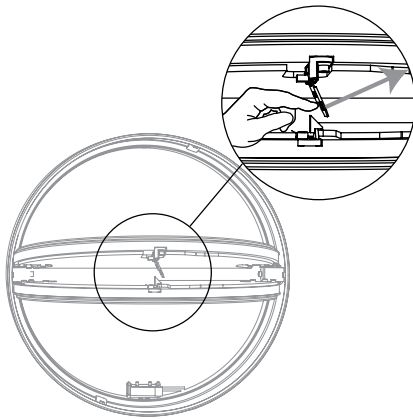


2



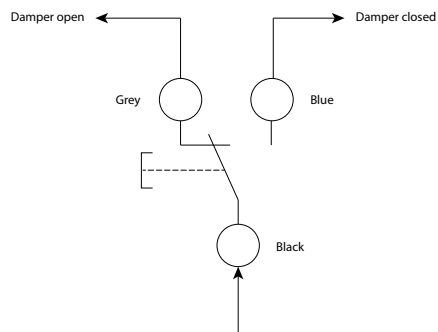
2. Unlock (close) the damper blades by pushing them towards each other. Carefully unlock the fusible link by pushing it sideways.

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.

Stick the tape around the assembled collar.

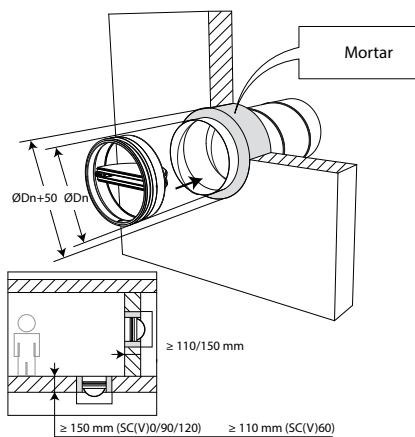


## Installation in rigid wall and floor

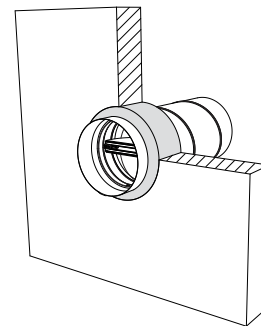
The product was tested and approved in:

Range	Wall type	Sealing	Classification	
SC(V)0 Ø 100-200 mm	Rigid wall	Reinforced concrete $\geq 110$ mm	Mortar	E 120 ( $v_e$ o $\rightarrow$ i) S - (300Pa)
SC(V)0 Ø 100-200 mm	Rigid floor	Reinforced concrete $\geq 150$ mm	Mortar	E 120 ( $h_o$ o $\rightarrow$ i) S - (300Pa)
SC(V)60 Ø 100-200 mm	Rigid wall	Reinforced concrete $\geq 110$ mm	Mortar	EI 60 ( $v_e$ o $\rightarrow$ i) S - (300Pa)
SC(V)60 Ø 100-200 mm	Rigid floor	Reinforced concrete $\geq 110$ mm	Mortar	EI 60 ( $h_o$ o $\rightarrow$ i) S - (300Pa)
SC(V)90 Ø 80-200 mm	Rigid wall	Reinforced concrete $\geq 110$ mm	Mortar	EI 90 ( $v_e$ o $\rightarrow$ i) S - (300Pa)
SC(V)90 Ø 80-200 mm	Rigid floor	Reinforced concrete $\geq 150$ mm	Mortar	EI 90 ( $h_o$ o $\rightarrow$ i) S - (300Pa)
SC(V)120 Ø 100-200 mm	Rigid wall	Reinforced concrete $\geq 110$ mm	Mortar	EI 120 ( $v_e$ o $\rightarrow$ i) S - (300Pa)
SC(V)120 Ø 100-200 mm	Rigid wall	Aerated concrete $\geq 150$ mm	Mortar	EI 120 ( $v_e$ o $\rightarrow$ i) S - (300Pa)
SC(V)120 Ø 100-200 mm	Rigid floor	Reinforced concrete $\geq 150$ mm	Mortar	EI 120 ( $h_o$ o $\rightarrow$ i) S - (300Pa)

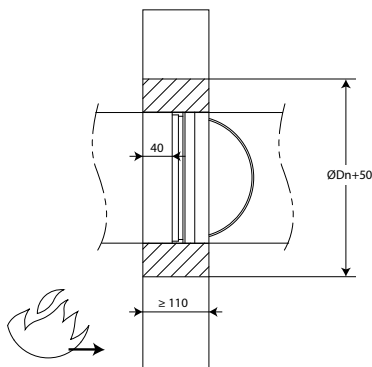
1



2



3

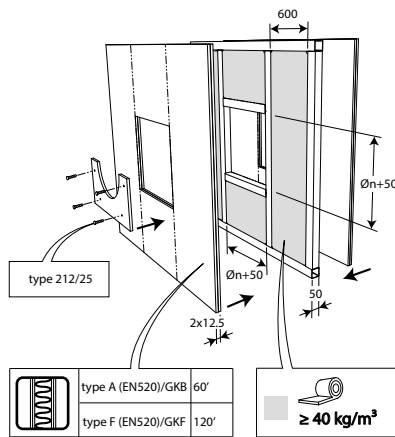


### Installation in flexible wall (metal stud gypsum plasterboard wall)

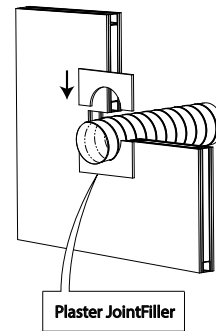
The product was tested and approved in:

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 $\geq 40$ kg/m <sup>3</sup> + cover plates EI 60 (v <sub>e</sub> o → i) S - (300Pa)
SC(V)90 Ø 80-200 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100$ mm	Stone wool $\geq 40$ kg/m <sup>3</sup> + cover plates EI 90 (v <sub>e</sub> o → i) S - (300Pa)
SC(V)120 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100$ mm	Stone wool $\geq 40$ kg/m <sup>3</sup> + cover plates EI 120 (v <sub>e</sub> o → i) S - (300Pa)

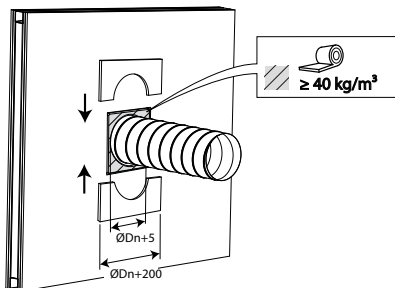
1



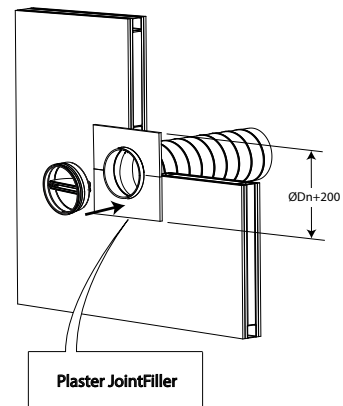
2



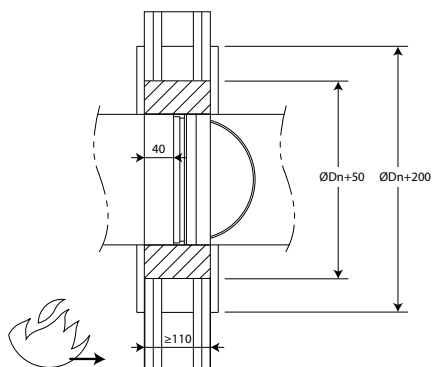
3



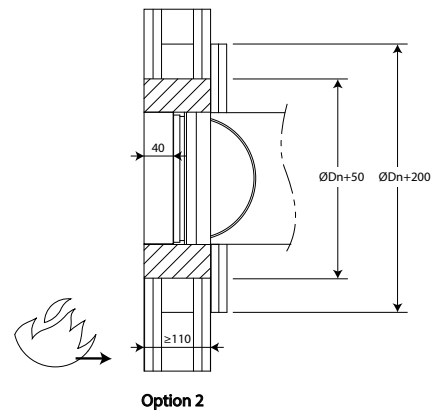
4



5



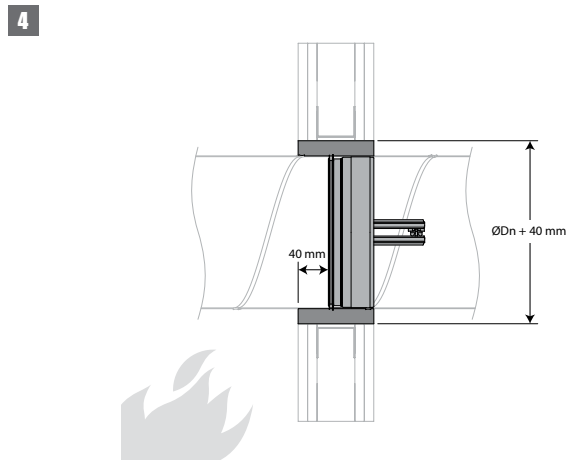
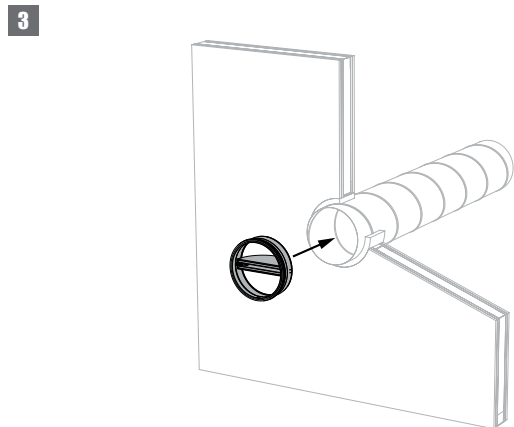
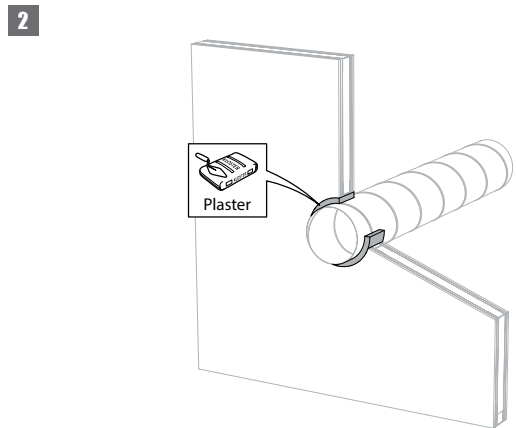
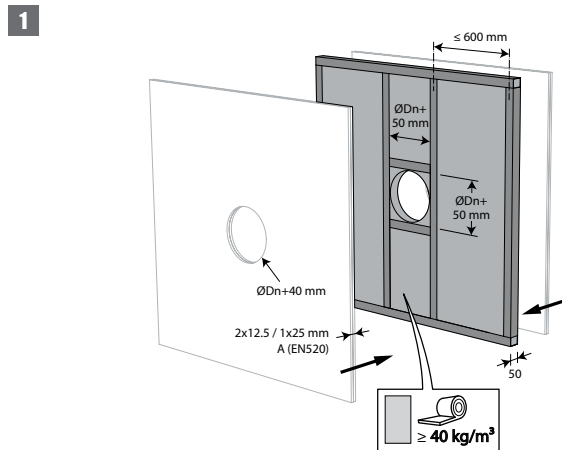
6



## Installation in flexible wall (metal stud gypsum plasterboard wall), sealing with gypsum

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	Gypsum
			El 60 (v <sub>e</sub> o → i) S - (300Pa)



## 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

## SC0

ØDn [mm]	100	125	160	200					
kg	0,2	0,3	0,3	0,3					

## SC60

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

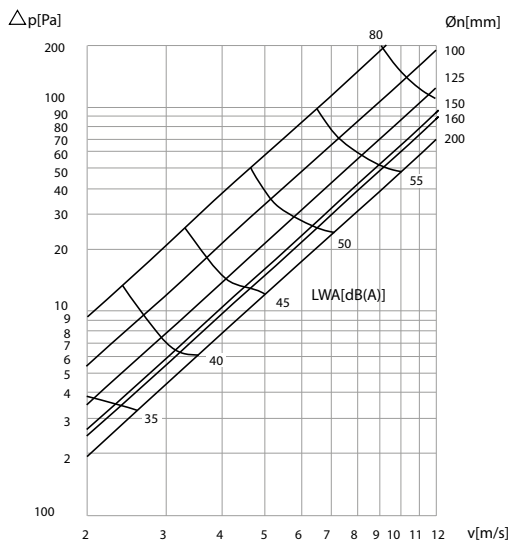
## SC90

ØDn [mm]	80	100	125	160	200				
kg	0,1	0,2	0,3	0,4	0,5				

## SC120

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

## Selection graphs



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

## SC0

ØDn [mm]	100	125	160	200					
$\zeta$ [-]	2,08	1,36	0,97	0,78					

## SC60

ØDn [mm]	100	125	150	160	200				
$\zeta$ [-]	2,080680911	1,363004496	1,019880857	0,972554471	0,777862814				

## SC90

ØDn [mm]	80	100	125	160	200				
$\zeta$ [-]	4,346268589	2,186620142	1,439761102	1,003422744	0,802767188				

## SC120

ØDn [mm]	100	125	160	200					
$\zeta$ [-]	2,186620142	1,439761102	1,003422744	0,802767188					

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

SC0 - A-weighted sound power level in the duct

$\varnothing Dn$ [mm]	100	125	160	200						
Sn [m <sup>2</sup> ]	0,0037	0,0070	0,0133	0,0228						
Sn [%]	46,61	56,88	65,90	72,58						
Q [m <sup>3</sup> /h]	295,00	518,00	950,00	1.617,00						60 dB
$\Delta p$ [Pa]	136,00	112,00	100,00	95,00						
Q [m <sup>3</sup> /h]	209,00	367,00	673,00	1.146,00						55 dB
$\Delta p$ [Pa]	68,00	56,00	50,00	48,00						
Q [m <sup>3</sup> /h]	148,00	260,00	477,00	812,00						50 dB
$\Delta p$ [Pa]	34,00	28,00	25,00	24,00						
Q [m <sup>3</sup> /h]	105,00	184,00	338,00	576,00						45 dB
$\Delta p$ [Pa]	17,00	14,00	13,00	12,00						
Q [m <sup>3</sup> /h]	74,00	131,00	240,00	408,00						40 dB
$\Delta p$ [Pa]	9,00	7,00	6,00	6,00						
Q [m <sup>3</sup> /h]	53,00	93,00	170,00	289,00						35 dB
$\Delta p$ [Pa]	4,00	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.

SC60 - A-weighted sound power level in the duct

$\varnothing Dn$ [mm]	100	125	150	160	200					
Sn [m <sup>2</sup> ]	0,0037	0,0070	0,0113	0,0133	0,0228					
Sn [%]	46,61	56,88	63,69	65,90	72,58					
Q [m <sup>3</sup> /h]	295,00	518,00	801,00	950,00	1.617,00					60 dB
$\Delta p$ [Pa]	136,00	112,00	104,00	100,00	95,00					
Q [m <sup>3</sup> /h]	209,00	367,00	568,00	673,00	1.146,00					55 dB
$\Delta p$ [Pa]	68,00	56,00	52,00	50,00	48,00					
Q [m <sup>3</sup> /h]	148,00	260,00	402,00	477,00	812,00					50 dB
$\Delta p$ [Pa]	34,00	28,00	26,00	25,00	24,00					
Q [m <sup>3</sup> /h]	105,00	187,00	185,00	338,00	576,00					45 dB
$\Delta p$ [Pa]	17,00	14,00	13,00	13,00	12,00					
Q [m <sup>3</sup> /h]	74,00	131,00	202,00	240,00	408,00					40 dB
$\Delta p$ [Pa]	9,00	7,00	7,00	6,00	6,00					
Q [m <sup>3</sup> /h]	53,00	93,00	147,00	240,00	408,00					35 dB
$\Delta p$ [Pa]	9,00	7,00	3,00	6,00	6,00					

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 $\Delta L$

### SC90 - A-weighted sound power level in the duct

$\varnothing D_n$ [mm]	80	100	125	160	200							
$S_n$ [m <sup>2</sup> ]	0,0014	0,0032	0,0064	0,0125	0,0219							
$S_n$ [%]	27,39	41,01	52,23	62,16	69,52							
$Q$ [m <sup>3</sup> /h]	162,00	291,00	509,00	939,00	1.597,00							60 dB
$\Delta p$ [Pa]	209,00	139,00	115,00	101,00	96,00							
$Q$ [m <sup>3</sup> /h]	115,00	206,00	361,00	666,00	1.132,00							55 dB
$\Delta p$ [Pa]	105,00	70,00	68,00	51,00	48,00							
$Q$ [m <sup>3</sup> /h]	81,00	146,00	256,00	172,00	802,00							50 dB
$\Delta p$ [Pa]	53,00	35,00	29,00	26,00	24,00							
$Q$ [m <sup>3</sup> /h]	58,00	104,00	181,00	334,00	569,00							45 dB
$\Delta p$ [Pa]	26,00	18,00	15,00	13,00	12,00							
$Q$ [m <sup>3</sup> /h]	41,00	73,00	128,00	237,00	403,00							40 dB
$\Delta p$ [Pa]	13,00	9,00	7,00	6,00	6,00							
$Q$ [m <sup>3</sup> /h]	41,00	73,00	128,00	237,00	403,00							35 dB
$\Delta p$ [Pa]	13,00	9,00	7,00	6,00	6,00							

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

### SC120 - A-weighted sound power level in the duct

$\varnothing D_n$ [mm]	100	125	160	200							
$S_n$ [m <sup>2</sup> ]	0,0032	0,0064	0,0125	0,0219							
$S_n$ [%]	41,01	52,23	62,16	69,52							
$Q$ [m <sup>3</sup> /h]	291,00	509,00	939,00	1.597,00							60 dB
$\Delta p$ [Pa]	139,00	115,00	101,00	96,00							
$Q$ [m <sup>3</sup> /h]	206,00	361,00	666,00	1.132,00							55 dB
$\Delta p$ [Pa]	70,00	68,00	51,00	48,00							
$Q$ [m <sup>3</sup> /h]	146,00	256,00	172,00	802,00							50 dB
$\Delta p$ [Pa]	35,00	29,00	26,00	24,00							
$Q$ [m <sup>3</sup> /h]	104,00	181,00	334,00	569,00							45 dB
$\Delta p$ [Pa]	18,00	15,00	13,00	12,00							
$Q$ [m <sup>3</sup> /h]	73,00	128,00	237,00	403,00							40 dB
$\Delta p$ [Pa]	9,00	7,00	6,00	6,00							
$Q$ [m <sup>3</sup> /h]	73,00	128,00	237,00	403,00							35 dB
$\Delta p$ [Pa]	9,00	7,00	6,00	6,00							

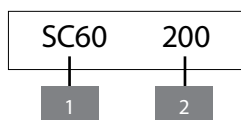
Every air flow lower than the above mentioned maximum value, will meet the listed A-weighted sound power level for the respective dimension.

### 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



1. product
2. diameter

## 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.



BCCA-0749-CPR-BC1-606-0464-15650.08-2517



18.27

The NF-label guarantees: conformity with the standard NF S 61-937 Parts 1 and 5: "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:certification@afnor.org)