

SC+

Circular fire damper cartridge.



CE



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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	Cal-Sil = calcium silicate
S = smoke leakage	ζ [-] = pressure loss coefficient	DAS MOD = modular product
Pa = pascal	Q = air flow	dB(A)a = A-weighted decibel value
ve = vertical wall penetration	ΔP = static pressure drop	Lw oct = sound power level per octave midband
ho = horizontal floor penetration	v = air speed in the duct	ΔL = correction factor
i <-> o = fire side not important	Lwa = A-weighted sound power level	

	fast installation		
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DECLARATION OF PERFORMANCE

CE_DoP_Rf-t_S3_EN ■ F-02/2015

1. Unique identification code of the product-type:	Circular fire damper cartridge		
2. Identification of the construction product:	SC+		
3. Intended use(s) of the construction product:	Circular fire damper to be used in conjunction with partitions to maintain fire compartments in heating, ventilating and air conditioning installations.		
4. Name and contact address of the manufacturer:	Rf-Technologies NV, Lange Ambachtstraat 40, B-9860 Oosterzele		
5. System of assessment and verification of constancy of performance of the construction product:	System 1		
6. In case of the declaration of performance concerning a construction product covered by a harmonised standard:	Notified factory production control certification body BCCA with identification number 0749 performed the determination of the product type on the basis of type testing (including sampling), the initial inspection of the manufacturing plant and of factory production control and continuous surveillance, assessment and evaluation of factory production control under system 1 and issued the certificate of constancy of performance BC1-606-0464-15650-09-2517		
7. Declared performance according to	(Fire resistance according to EN 1366-2 and classifications according to EN 13501-3)		

Essential characteristics				Performance		Harmonised standard		
Range	Wall type	Wall	Sealing	Installation	Classification			
SC(V)+60 Ø 100-200 mm	Rigid wall	Aerated concrete ≥ 100mm	Mortar	1	EI 60 (v ₂ , i ↔ o) S - (300Pa)	EN 1366-2		
	Rigid floor	Aerated concrete ≥ 150mm	Mortar	1	EI 60 (h ₂ , i ↔ o) S - (300Pa)			
	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100mm	Mineral wool ≥ 40 kg/m³ + cover plates	1	EI 60 (v ₂ , i ↔ o) S - (300Pa)			
SC(V)+90 Ø 100-200 mm	Rigid wall	Aerated concrete ≥ 100mm	Mortar	1	EI 90 (v ₂ , i ↔ o) S - (300Pa)			
	Rigid floor	Aerated concrete ≥ 150mm	Mineral wool + coating ≥ 150 kg/m³ + endothermic coated duct	1	EI 90 (v ₂ , i ↔ o) S - (300Pa)			
	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	Mineral wool ≥ 40 kg/m³ + gypsum + cover plates	1	EI 90 (h ₂ , i ↔ o) S - (300Pa)			
SC+120 Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110mm	Mortar	1	EI 90 (v ₂ , i ↔ o) S - (300Pa)		EN 1366-2	
	Rigid floor	Reinforced concrete ≥ 110mm	Mineral wool + coating ≥ 150 kg/m³ + endothermic coated duct	1	EI 90 (v ₂ , i ↔ o) S - (300Pa)			
	Flexible wall	Reinforced concrete ≥ 150mm	Mortar	1	EI 120 (v ₂ , i ↔ o) S - (300Pa)			
SC(V) Ø 100-200 mm	Rigid wall	Reinforced concrete ≥ 110mm	Mortar	1	EI 120 (v ₂ , o → i) S - (300Pa)			EN 1366-2
	Rigid floor	Reinforced concrete ≥ 150mm	Mortar	1	E 120 (h ₂ , o → i) S - (300Pa)			
	Flexible wall	Reinforced concrete ≥ 150mm	Mortar	1	E 120 (h ₂ , o → i) S - (300Pa)			
1	Type of installation: built-in inside a duct, 0-360°					EN 1366-2		
Nominal activation conditions/sensitivity:								
Response delay (response time): closure time								
Operational reliability: cycling								
Durability of response delay:								
Durability of operational reliability:								
Protection against corrosion according to EN 60068-2-52:								
Damper casing leakage according to EN 1751:								
8. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 7. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.								

Signed for and on behalf of the manufacturer by:
Barbara Willems, Technical Manager

 Oosterzele, 02/2015



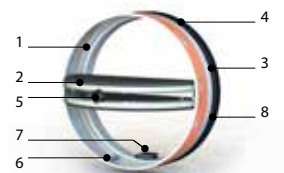
Product presentation SC+

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 characterized 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.

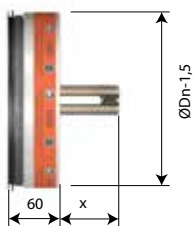
- ✓ easy to install
- ✓ no space is lost at the wall crossing
- lightweight
- tested according to EN 1366-2 up to 300 Pa
- suitable for rigid wall, rigid floor and light wall (metal stud gypsum plasterboard wall)
- maintenance-free
- for indoor use

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

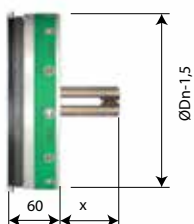
exceeding blade: X



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

Range and dimensions SC+90

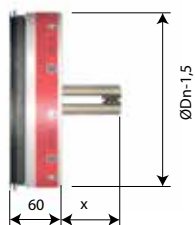
exceeding blade: X



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

Range and dimensions SC+120

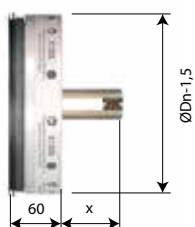
exceeding blade: X



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

Range and dimensions SC0

exceeding blade: X



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

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

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

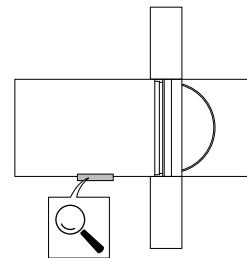
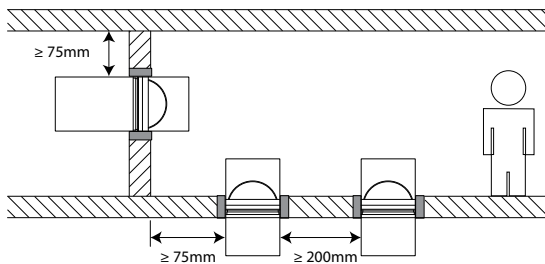
Avoid:

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

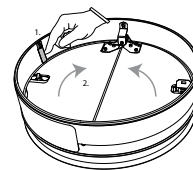
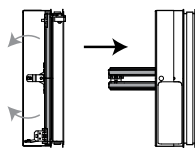
Installation

General points

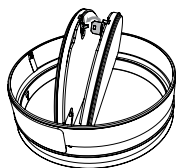
- The installation must comply with the classification report and the installation manual delivered with the product.
- Verify if the blade can move freely.
- mounting direction: mounting possible with the axis in any position (0-360°)
- direction of the air flow: discretionary
- Rf-t fire damper cartridges are always tested in standardized 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

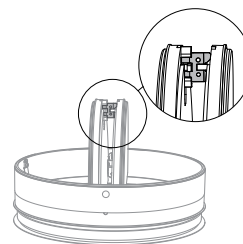
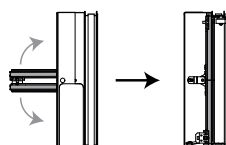


Press the two blocking hooks carefully to unlock the blades.

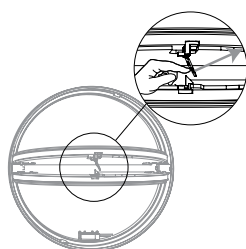


Click the fusible link into the holder to lock the blades.

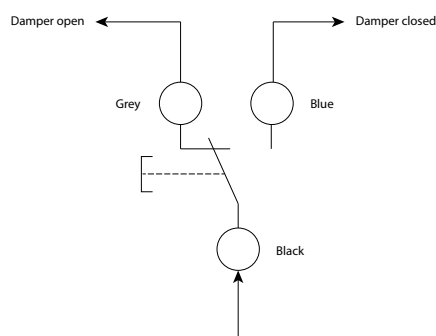
Operation: manual closing



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



Electrical connection



An end of range switch 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.

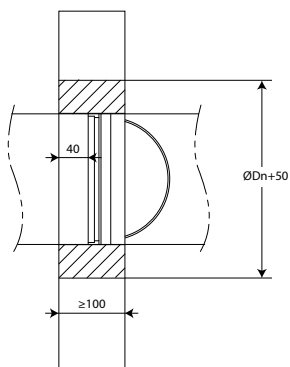
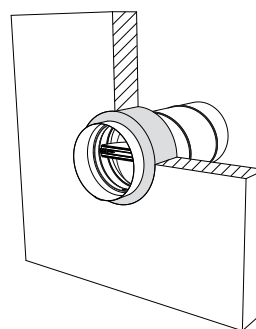
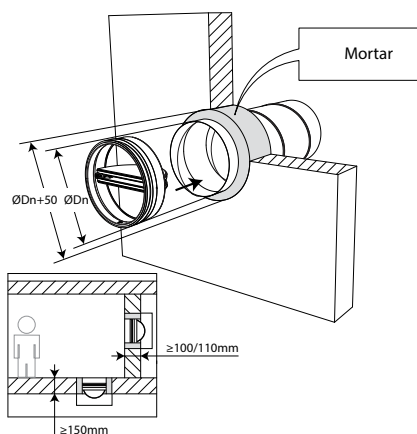
Maintenance

- No specific maintenance required.
- Schedule at least two running 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.

Installation in rigid wall and floor

The product was tested and approved in:

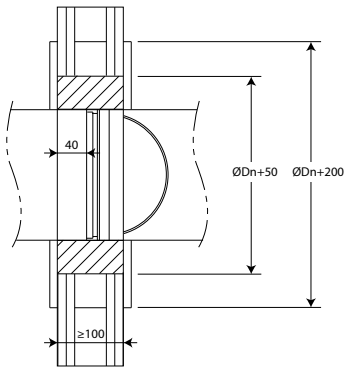
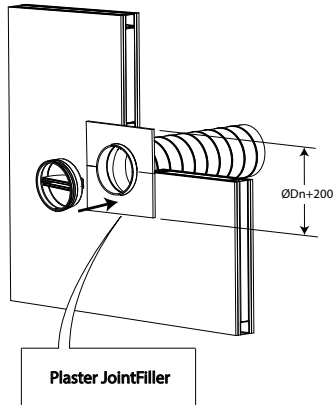
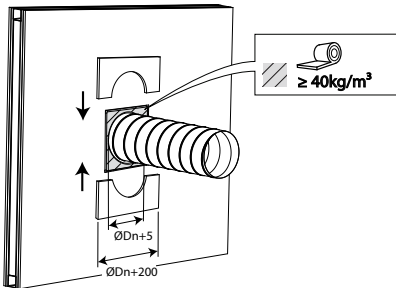
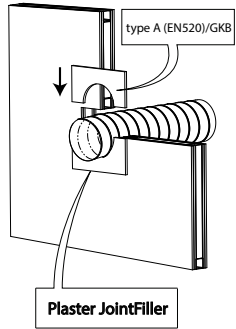
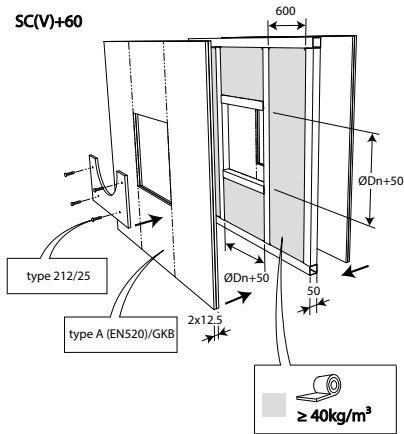
Range	Wall type		Sealing	Classification
SC(V)+60 Ø 100-200 mm	Rigid wall	Aerated concrete $\geq 100\text{mm}$	Mortar	EI 60 ($v_e i \leftrightarrow o$) S - (300Pa)
SC(V)+60 Ø 100-200 mm	Rigid floor	Aerated concrete $\geq 150\text{mm}$	Mortar	EI 60 ($h_o i \leftrightarrow o$) S - (300Pa)
SC(V)+90 Ø 100-200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



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

The product was tested and approved in:

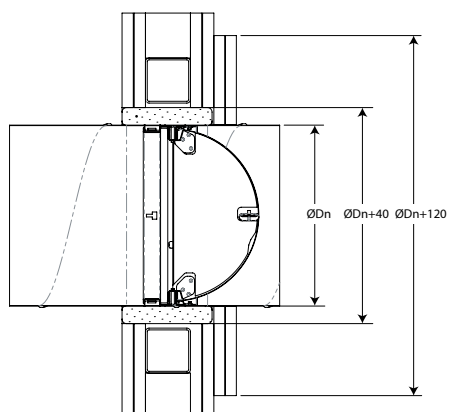
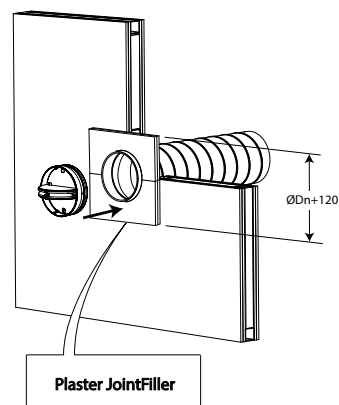
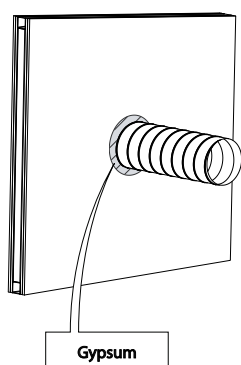
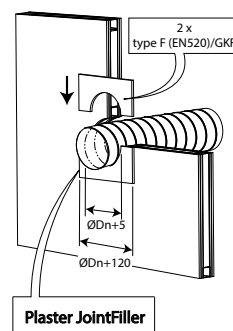
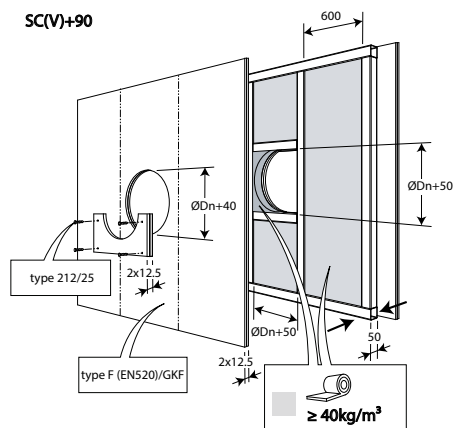
Range	Wall type	Sealing	Classification
SC(V)+60 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100mm Stone wool ≥ 40 kg/m ³ + cover plates	El 60 (v _e i ↔ o) S - (300Pa)



Installation in flexible wall - applicable for SC(V)+90

The product was tested and approved in:

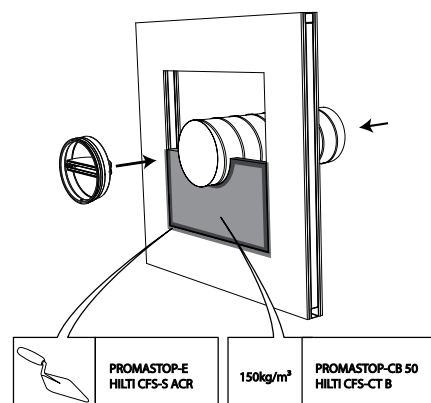
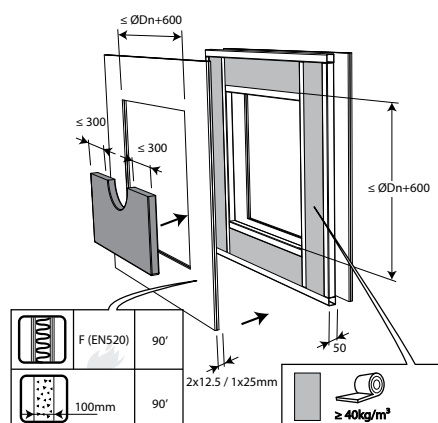
Range	Wall type	Sealing	Classification
SC(V)+90 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100\text{mm}$	Stone wool $\geq 40\text{ kg/m}^3$ + gypsum + cover plates



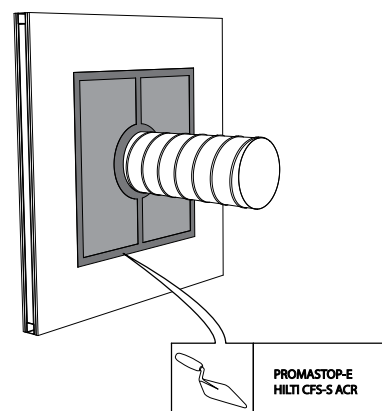
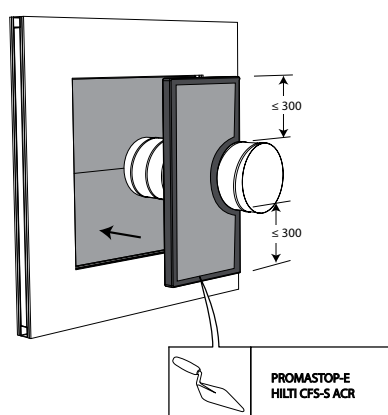
Installation in flexible and rigid wall, sealing with rigid rock wool boards with coating

The product was tested and approved in:

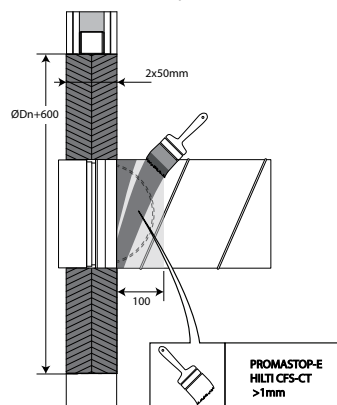
Range	Wall type	Sealing	Classification
SC(V)+90 Ø 100-200 mm	Rigid wall	Aerated concrete $\geq 100\text{mm}$	Stone wool + coating $\geq 150 \text{ kg/m}^3$ + endothermic coated duct
SC(V)+90 Ø 100-200 mm	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100\text{mm}$	Stone wool + coating $\geq 150 \text{ kg/m}^3$ + endothermic coated duct



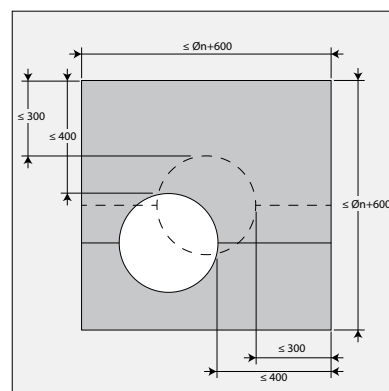
The opening in the wall around the duct in which the fire damper cartridge is mounted, is sealed with 2 layers of 50 mm-thick stone wool panels with fire resistant coating on one side (type PROMASTOP-CB 50 or HILTI CFS-CT B).



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



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



The duct in which the damper is inserted must not 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.

Weights

SC+60

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

SC+90

ØDn [mm]	100	125	150	160	200					
kg	0,2	0,4	0,4	0,5	0,7					

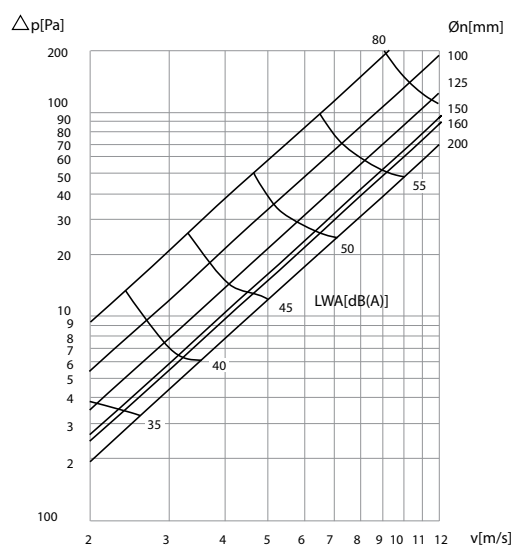
SC+120

ØDn [mm]	100	125	160	200						
kg	0,2	0,4	0,5	0,7						

SC0

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

Selection graphs



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

SC+60

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

SC+90

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

SC+120

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

SCO

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

Selection data

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

ØDn [mm]	100	125	150	160	200						
Sn [m²]	0,0035	0,0067	0,0109	0,0129	0,0223						
Sn [%]	44,02	54,49	61,52	63,81	70,78						
Q [m³/h]	287,00	505,00	801,00	934,00	1.597,00						60 dB
Δp [Pa]	143,00	116,00	104,00	102,00	96,00						
Q [m³/h]	204,00	358,00	568,00	662,00	1.132,00						55 dB
Δp [Pa]	72,00	58,00	52,00	51,00	48,00						
Q [m³/h]	144,00	254,00	402,00	469,00	802,00						50 dB
Δp [Pa]	36,00	29,00	26,00	26,00	24,00						
Q [m³/h]	102,00	180,00	285,00	332,00	569,00						45 dB
Δp [Pa]	18,00	15,00	13,00	13,00	12,00						
Q [m³/h]	73,00	127,00	202,00	236,00	403,00						40 dB
Δp [Pa]	9,00	7,00	7,00	6,00	6,00						
Q [m³/h]	51,00	90,00	143,00	167,00	286,00						35 dB
Δp [Pa]	5,00	4,00	3,00	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.

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

ØDn [mm]	100	125	150	160	200						
Sn [m²]	0,0029	0,0060	0,0100	0,0119	0,0211						
Sn [%]	37,13	48,77	56,62	59,21	67,02						
Q [m³/h]	287,00	505,00	796,00	928,00	1.590,00						60 dB
Δp [Pa]	143,00	116,00	105,00	102,00	96,00						
Q [m³/h]	204,00	358,00	564,00	658,00	1.127,00						55 dB
Δp [Pa]	72,00	58,00	53,00	51,00	48,00						
Q [m³/h]	144,00	254,00	400,00	466,00	799,00						50 dB
Δp [Pa]	36,00	29,00	26,00	26,00	24,00						
Q [m³/h]	102,00	180,00	283,00	330,00	566,00						45 dB
Δp [Pa]	18,00	15,00	15,00	13,00	12,00						
Q [m³/h]	73,00	127,00	201,00	234,00	401,00						40 dB
Δp [Pa]	9,00	7,00	7,00	7,00	6,00						
Q [m³/h]	51,00	90,00	142,00	166,00	284,00						35 dB
Δp [Pa]	5,00	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.

Correction factor ΔL

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

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

SC0 - A-weighted sound power level in the duct

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

Correction factor ΔL

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		-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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