

CU2

Wide-ranging rectangular fire damper up to 120'

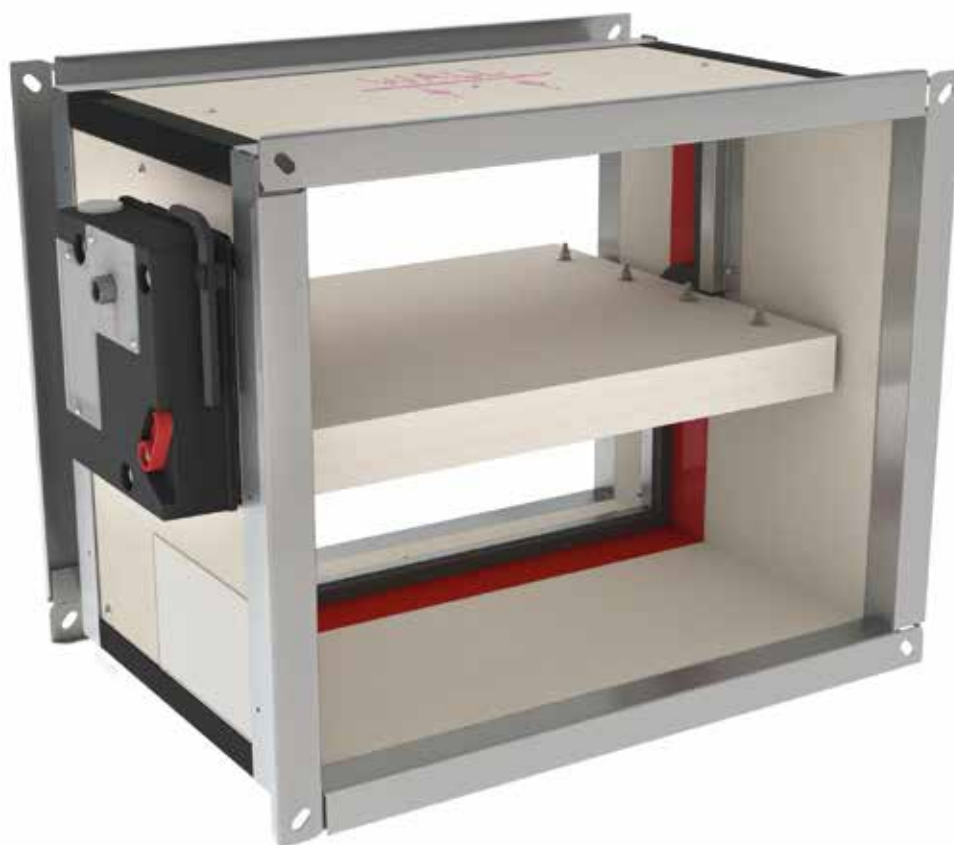


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Explanation of the abbreviations and pictograms

Wn = nominal width	V DC = Volt direct current	KIT = kit (delivered separately for repair or upgrade)
Hn = nominal height	E.ALIM = power supply magnet	PG = connection flange to the duct
Dn = nominal diameter	E.TELE = power supply motor	Sn = free air passage
E = integrity	V = volt	$\zeta [-]$ = pressure loss coefficient
I = thermal insulation	W = watt	Q = air flow
S = smoke leakage	Auto = automatic	ΔP = static pressure drop
Pa = pascal	Tele = remote controlled	v = air speed in the duct
ve = vertical wall penetration	Pnom = nominal capacity	Lwa = A-weighted sound power level
ho = horizontal floor penetration	Pmax = maximum capacity	Lw oct = sound power level per octave midband
o -> i = meets the criteria from the outside (o) to the inside (i)	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)	dB(A)a = A-weighted decibel value
i <-> o = fire side not important	Cal-Sil = calcium silicate	ΔL = correction factor
V AC = Volt alternating current	OP = option (delivered with the product)	

	large dimensions		battery assembly tested in rigid wall
	air tightness in accordance with EN 1751: class B (class C in option)		suitable for built-in installation
	intermediate dimensions on request		sealing with fire resistant stone wool boards allowed, also for asymmetric opening

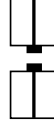
DECLARATION OF PERFORMANCE

CE DoP Rf-t C2 EN D-02/2015

1. Unique identification code of the product-type:	Rectangular fire damper
2. Identification of the construction product:	CU2
3. Intended use(s) of the construction product:	Rectangular 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:	RfTechnologies 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 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 BC1-606-0464-15650.03-0464; BC1-606-0464-15650.13-2517 (Fire resistance according to EN 1366-2 and classifications according to EN 13501-3)
7. Declared performance according to EN 15650:2010	

Essential characteristics				Performance	
Range	Wall type	Wall	Sealing	Installation	Classification
200x200 mm ≤ CU2 ≤ 1200x800 mm	Rigid wall	Aerated concrete ≥ 100mm	Mortar	1	EI 120 (V _{e,i} ↔ o) S - (500 Pa)
	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) ≥ 100mm	Mineral wool + coating ≥ 150 kg/m³	1	EI 90 (V _{e,i} ↔ o) S - (300 Pa)
			Mineral wool ≥ 40 kg/m³ + cover plates	2	EI 90 (V _{e,i} ↔ o) S - (500 Pa)
			Mineral wool + coating ≥ 150 kg/m³	1	EI 60 (V _{e,i} ↔ o) S - (300 Pa)
200x200 mm ≤ CU2 ≤ 1500x1000 mm	Rigid floor	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	Mineral wool + coating ≥ 150 kg/m³	1	EI 90 (V _{e,i} ↔ o) S - (300 Pa)
		Gypsum blocks ≥ 70mm	Block glue	2	EI 120 (V _{e,i} ↔ o) S - (500 Pa)
		Aerated concrete ≥ 150mm	Mortar	1	EI 120 (f _{b,i} ↔ o) S - (500 Pa)
	Rigid wall	Aerated concrete ≥ 100mm	Mineral wool + coating ≥ 150 kg/m³	1	EI 90 (f _{b,i} ↔ o) S - (300 Pa)
	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	Mortar	1	EI 60 (V _{e,i} ↔ o) S - (500 Pa)
			Aerated concrete ≥ 100mm	1	E 120 (V _{e,i} ↔ o) S - (500 Pa)
Mortar			1	EI 90 (V _{e,i} ↔ o) S - (300 Pa)	
200x200 mm ≤ CU2 ≤ 1500x800 mm	Rigid wall	Aerated concrete ≥ 100mm	Mineral wool ≥ 40 kg/m³ + cover plates	2	EI 90 (V _{e,i} ↔ o) S - (300 Pa)
	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) ≥ 100mm	Mortar	2	E 120 (V _{e,i} ↔ o) S - (300 Pa)
			Mortar	1	EI 120 (f _{b,i} ↔ o) S - (300 Pa)
1	Type of installation: built-in 0/90/180/270°			2	Type of installation: built-in 0/180°

Type of installation: built-in 0/180°



Nominal activation conditions/sensitivity:	Pass
Response delay (response time): closure time	Pass
Operational reliability: cycling	CFTH - 50 cycles; MANO - 300 cycles; BLUF(T) - 10000 cycles; BFL(T) - 10000 cycles; BFN(T) - 10000 cycles
Durability of response delay:	Pass
Durability of operational reliability:	Pass
Protection against corrosion according to EN 6068-2-52:	Pass
Damper casing leakage according to EN 1751:	Pass
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.	≥ class B

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

 Oosterzele, 02/2015



Product presentation CU2

Product presentation CU2

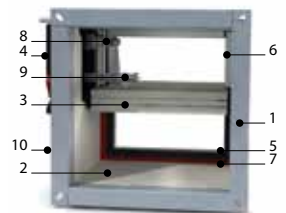
Rectangular fire damper available in the largest dimensions, with battery conform to the European norm up to 2450x1650 mm. Fire resistance up to 120 minutes. The refractory casing is made of asbestos-free panels, which are resistant to humidity. Its many options make the CU2 damper a universal reference on the market.

Fire dampers are installed where air ducts penetrate fire-resistant compartment walls. Their role is to restore the fire resistance grade of the penetrated wall and to prevent smoke propagation. Fire dampers are distinguished by their degree of fire resistance, by their aerodynamic properties as well as by their installation ease. Rf-Technologies' fire dampers are all CE marked. They can be equipped with various types of mechanisms depending on the specific needs linked to the project or to the local regulations.

- ✓ large dimensions
- ✓ many options and variants
- ✓ battery assembly tested in rigid wall
- ✓ model available for use in potentially explosive atmospheres
- suitable for built-in installation
- suitable for rigid wall, rigid floor and light wall (metal stud gypsum plasterboard wall, gypsum blocks)
- sealing with fire resistant stone wool boards allowed, also for asymmetric opening
- air tightness in accordance with EN 1751: class B (class C in option)
- tested according to EN 1366-2 up to 500 Pa
- operating mechanism outside the wall
- maintenance-free
- for indoor use
- operating temperature: max. 50°C
- intermediate dimensions on request

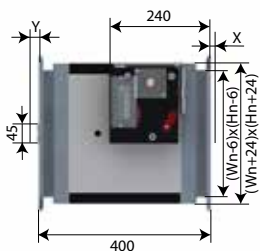


1. connection flange PG30
2. casing made of refractory material
3. damper blade
4. operating mechanism
5. sealing cold smoke
6. blade bumper
7. intumescent strip
8. transmission with locking (open/closed)
9. fusible link
10. product identification



Range and dimensions CU2

W/H per step 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



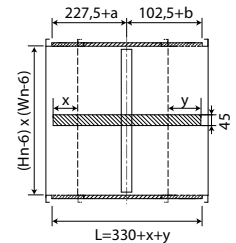
Hn (mm)	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
x	-	-	-	-	-	1	26	51	76	101	126	151	176	201	226
y	2	27	52	77	102	127	152	177	202	227	252	277	302	327	352

	$\geq$	$\leq$
(W x H) mm	200x200	1500x1000

Variant CU2L

Damper with a tunnel casing extension at one or both sides so that the damper blade does not exceed the tunnel. This version allows to connect a grill or a bend directly on the damper flange or to use a circular connection.

- extension: $a = H_n/2 - 230$ mm (on the side of the mechanism);
 $b = H_n/2 - 100$ mm (on the wall side)



Range and dimensions CU2L

W/H per step 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

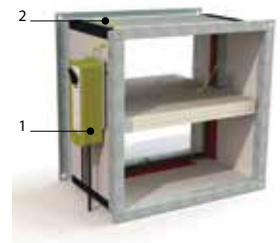
	$\geq$	$\leq$
(W x H) mm	200x200	1500x1000

Variant CU2 ATEX

Explosion protected fire damper for use in zone 1,2 (gas) and zone 21,22 (combustible dust). The option is available on all dimensions of the CU2.

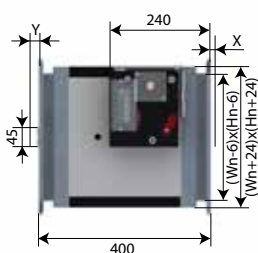
- ATEX certificate TÜV 14 ATEX 7540 X
- battery assembly tested in rigid wall

- explosion proof mechanism
- equipotential connection



Range and dimensions CU2 ATEX

W/H per step 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



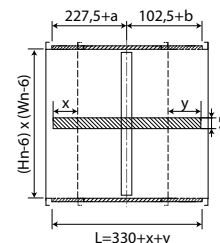
Hn (mm)	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
x	-	-	-	-	-	1	26	51	76	101	126	151	176	201	226
y	2	27	52	77	102	127	152	177	202	227	252	277	302	327	352

	$\geq$	$\leq$
(W x H) mm	200x200	1500x1000

Variant CU2L ATEX

Explosion protected fire damper for use in zone 1,2 (gas) and zone 21,22 (combustible dust) with a tunnel casing extension at one or both sides so that the damper blade does not exceed the tunnel. This extension makes it possible to use a circular connection (PR flange).

- ☑ ATEX certificate TÜV 14 ATEX 7540 X
- extension: $a = H_n/2 - 230$ mm (on the side of the mechanism);
 $b = H_n/2 - 100$ mm (on the wall side)

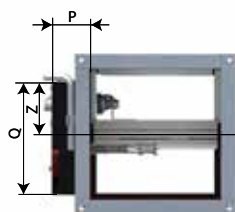


Range and dimensions CU2L ATEX

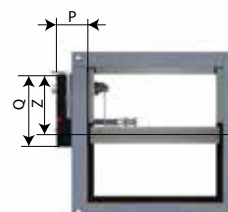
W/H per step of 50 mm; intermediate dimensions are subject to extra cost (heights between ≥ 275 and ≤ 299 mm are not possible).
 Exceeding blade: X = on the mechanism side, Y = on the wall side

	$\geq$	$\leq$
(W x H) mm	200x200	1500x1000

$H_n < 300$ mm



$H_n \geq 300$ mm



	CFTH	MANO	BFL(T)	E/RMEX(T)		CFTH	MANO	BFL(T)	BFN(T)	E/RMEX(T)
P	65	115	95	118	P	65	115	95	100	118
Q	180	190	80	95	Q	180	190	80	100	95
Z	60	85	65	72,5	Z	155	180	160	170	167,5

Evolution - kits

	KITS CFTH	Automatic unlocking mechanism CFTH with FCU and without FTH 72
	KITS MANO EVO	Upgradeable automatically unlocking mechanism
	KITS BFL24	Spring return actuator BFL 24V
	KITS BFL24-ST	Spring return actuator BFL 24V with plug (ST)
	KITS BFLT24	Spring return actuator BFL 24V with thermo-electric fuse (T)
	KITS BFLT24-ST	Spring return actuator BFL 24V with thermo-electric fuse (T) and plug (ST)
	KITS BFL230	Spring return actuator BFL 230V
	KITS BFLT230	Spring return actuator BFL 230V with thermo-electric fuse (T)
	KITS BFN24	Spring return actuator BFN 24V (BFN kits must be used instead of BFL kits for fire dampers produced before 1/7/2015)


KITS BFN24

Spring return actuator BFN 24V

KITS BFN24-ST

Spring return actuator BFN 24V with plug (ST)

KITS BFNT24

Spring return actuator BFN 24V with thermo-electric fuse (T)

KITS BFNT24-ST

Spring return actuator BFN 24V with thermo-electric fuse (T) and plug (ST)

KITS BFN230

Spring return actuator BFN 230V

KITS BFNT230

Spring return actuator BFN 230V with thermo-electric fuse (T)

KITS BF24

Spring return actuator BF 24V (BF kits must be used instead of BFN kits for fire dampers produced before 1/7/2015)

KITS VD24 MAN EVO FDCU

Natural magnet 24 V DC + FDCU

KITS VD48 MAN EVO FDCU

Natural magnet 48 V DC + FDCU

KITS VM24 MAN EVO FDCU

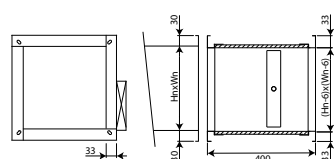
Electromagnet 24 V DC + FDCU

	KITS VM48 MAN EVO FDCU	Electromagnet 48 V DC + FDCU
	KITS FDC CFTH	1 Beginning or end of range switch FCU/DCU/FCB/DCB
	KITS FDCU MAN	Unipolar beginning and end of range switch
	KITS FDCB MAN	Bipolar beginning and end of range switch
	KITS SN2 BFL/BFN	Bipolar beginning and end of range switch
	KITS ME MANO EVO	Resetting motor ME 24V/48V (AC, DC)
	KITS FTH72	Fusible link FTH 72°C (for CFTH)
	KITS FT72 MANO EVO	Fusible link FTH 72°C
	KITS ZBAT 72	Black spare part for thermo-electric fuse for BFLT/BFNT
	MECT	Testbox for mechanisms (magnet, motor, beginning and end of range switches)
	KITS EQ	Kit equipotential connection (price per piece, sold per set of 5)

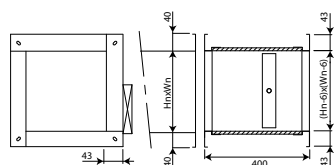
Options - at the time of order

	UL	Inspection shutter (set of 2)
	EQ	Equipotential connection
	EN1751_C	Air-tightness class C (note: for CU2 H>600 or W>800 / for CR2 Ø>315).

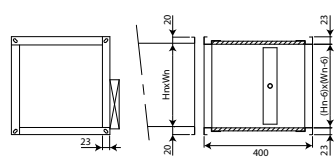
Flange types - at the time of order


PG30

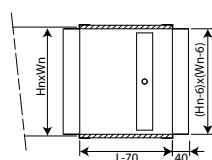
Connection to ducts with 30 mm flanges (either by sliding profile, or with bolts, or with clamps). Elliptical holes $\varnothing 8,5 \times 16$ mm.


PG40

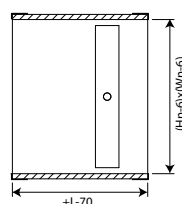
Connection to ducts with 40mm flanges. Elliptical holes $\varnothing 8,5 \times 16$ mm.


PG20

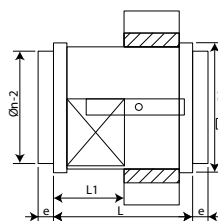
Connection to ducts with 20 mm flanges. Elliptical holes $\varnothing 6,5 \times 16$ m.


PM

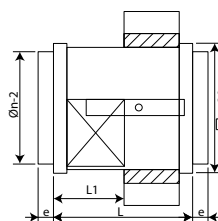
Connection to ducts by insertion. This type of frame is used in case of lack of space for a standard PG30 frame.


PP

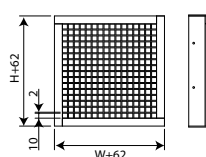
No connection. This type of frame is used on one side of a damper that ends into a room.


PR

Circular connection on a rectangular damper.


PRJ

Circular connection with rubber sealing ring.


PPT

Grill. Very well suited as protection grill on the end piece of a duct system.

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:

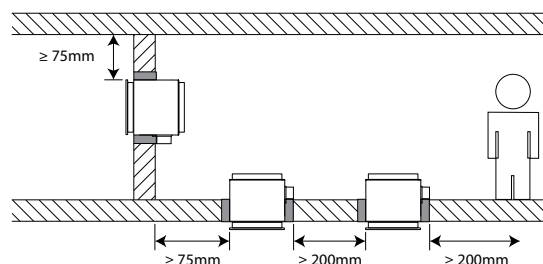
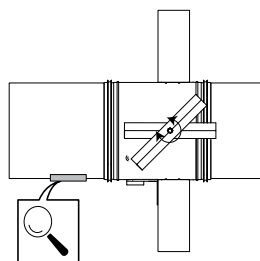
- to unload in a dry area
- not to flip or roll the product to move it
- not to use the damper as a scaffold, working table, etc.
- not to store smaller dampers inside larger ones

Installation

General points

- The installation must comply with the classification report and the installation manual delivered with the product.
- Axis orientation: see the declaration of performance.
- Avoid obstruction of adjoining ducts.
- Product installation: always with closed damper blade.
- Verify if the blade can move freely.
- Please observe safety distances with respect to other construction elements.
- The air tightness class will be maintained if the damper is installed according to the installation manual.
- Rf-t fire dampers 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 damper must remain accessible for inspection and maintenance.
- Schedule at least two running checks each year.

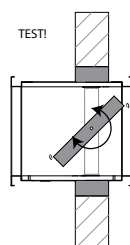
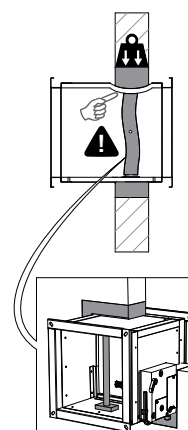
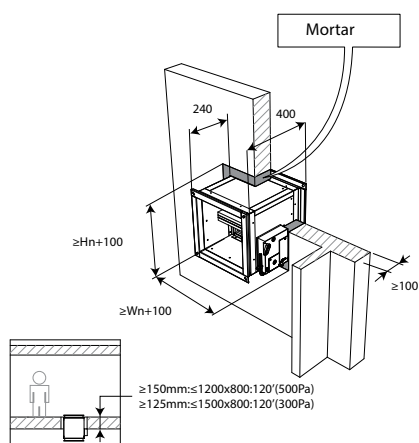
	TEST	
2015	☑	☑
2016	☑	☑
2017	☑	☐
2018	☐	☐
2019	☐	☐



Installation in rigid wall and floor

The product was tested and approved in:

Range	Wall type		Sealing	Classification
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Mortar	EI 120 ($v_e i \leftrightarrow o$) S - (500 Pa)
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1500 \times 1000 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Mortar	EI 60 ($v_e i \leftrightarrow o$) S - (500 Pa)
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1500 \times 1000 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Mortar	E 120 ($v_e i \leftrightarrow o$) S - (500 Pa)
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1500 \times 800 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Mortar	EI 90 ($v_e i \leftrightarrow o$) S - (300 Pa)
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Rigid floor	Aerated concrete $\geq 150 \text{ mm}$	Mortar	EI 120 ($h_o i \leftrightarrow o$) S - (500 Pa)
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1500 \times 800 \text{ mm}$	Rigid floor	Aerated concrete $\geq 125 \text{ mm}$	Mortar	EI 120 ($h_o i \leftrightarrow o$) S - (300 Pa)

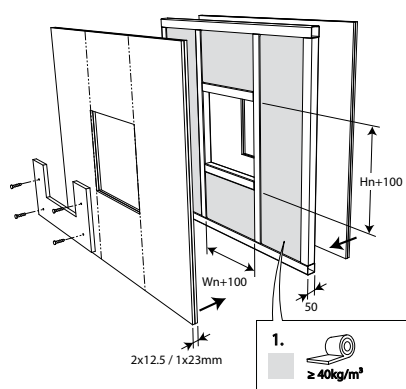


Installation in flexible wall - metal stud gypsum plasterboard wall

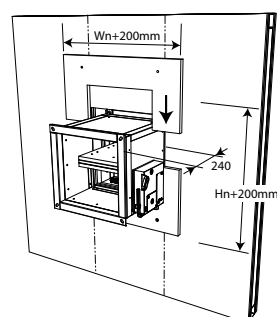
The product was tested and approved in:

Range	Wall type	Sealing	Classification
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) $\geq 100 \text{ mm}$	Stone wool $\geq 40 \text{ kg/m}^3$ + cover plates
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1500 \times 800 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100 \text{ mm}$	Stone wool $\geq 40 \text{ kg/m}^3$ + cover plates
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1500 \times 800 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100 \text{ mm}$	Stone wool $\geq 40 \text{ kg/m}^3$ + cover plates

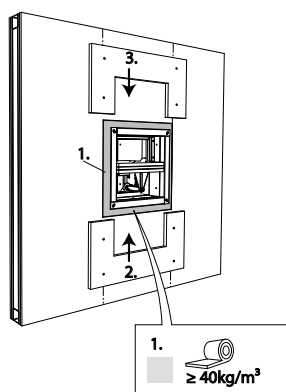
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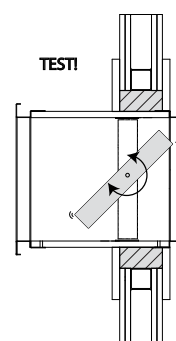
2.



3.



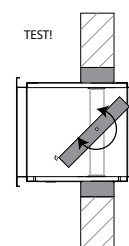
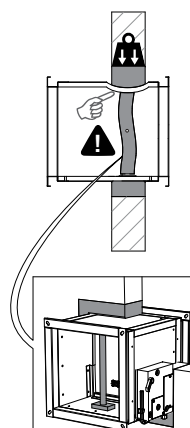
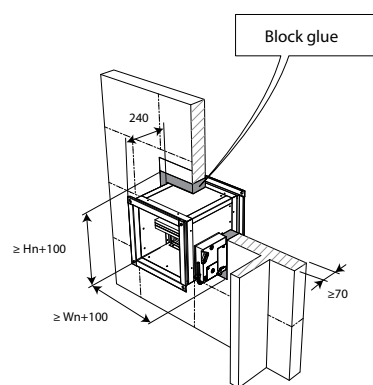
4.



Installation in gypsum block wall

The product was tested and approved in:

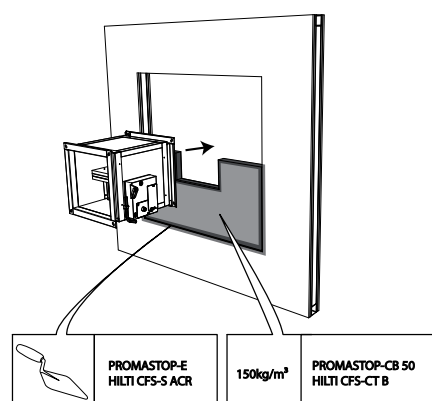
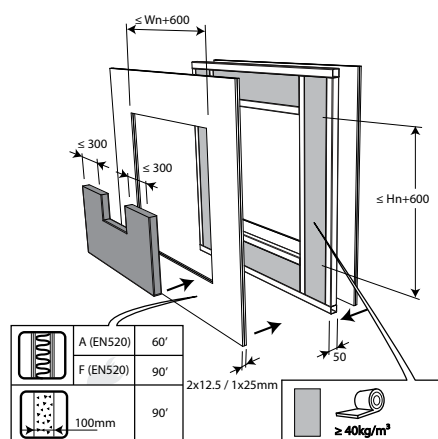
Range	Wall type	Sealing	Classification
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Flexible wall	Gypsum blocks $\geq 70 \text{ mm}$	Block glue
El 120 (v_e i $\leftrightarrow$ o) S - (500 Pa)			



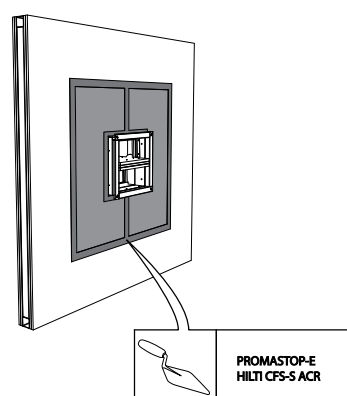
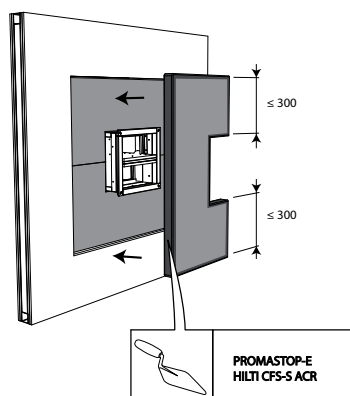
Installation in flexible and rigid wall, sealing with rigid rock wool boards with coating

The product was tested and approved in:

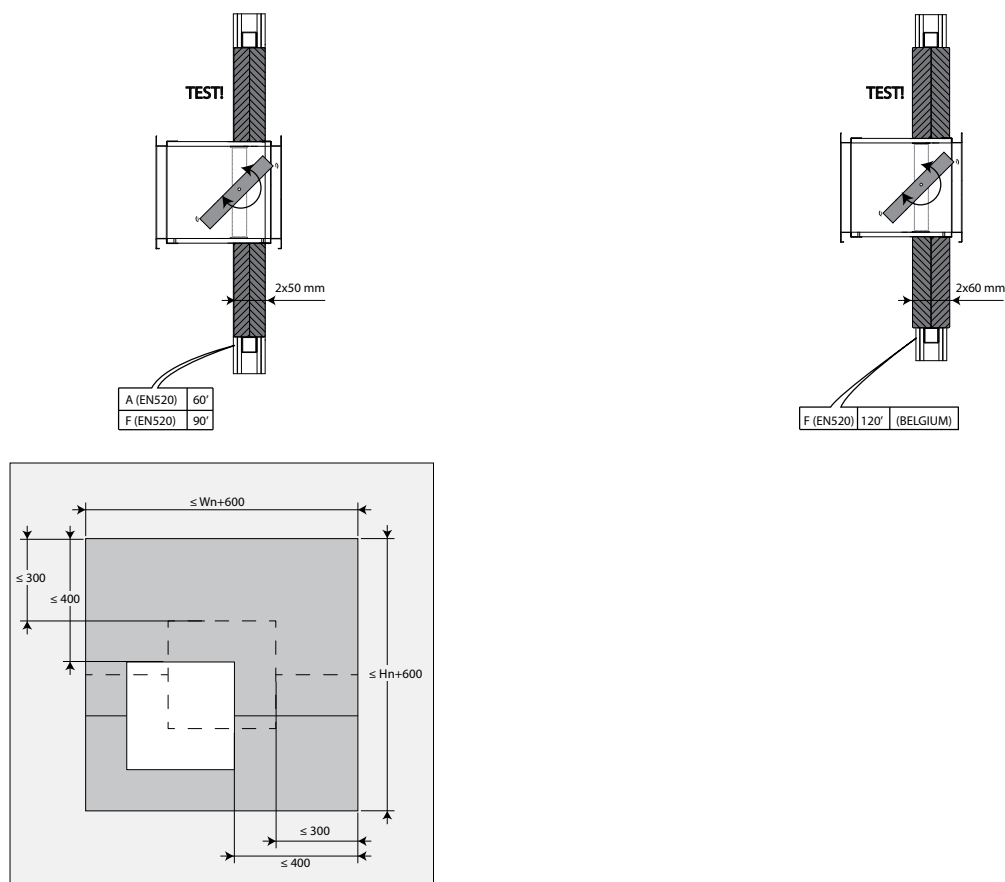
Range	Wall type	Sealing	Classification
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Rigid wall	Aerated concrete $\geq 100 \text{ mm}$	Stone wool + coating $\geq 150 \text{ kg/m}^3$
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type A (EN 520) $\geq 100 \text{ mm}$	Stone wool + coating $\geq 150 \text{ kg/m}^3$
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Flexible wall	Metal studs gypsum plasterboard Type F (EN 520) $\geq 100 \text{ mm}$	Stone wool + coating $\geq 150 \text{ kg/m}^3$



The opening around the damper is sealed with 2 layers of 50 mm-thick mineral 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).

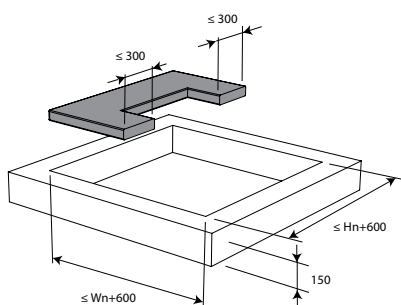


The damper does not need to be centered in the opening (with max dimensions fire damper + 600 mm). The maximal distance between the damper and the edge of the opening is 400 mm.

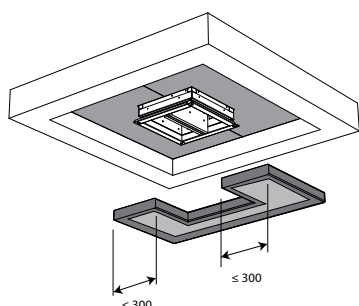
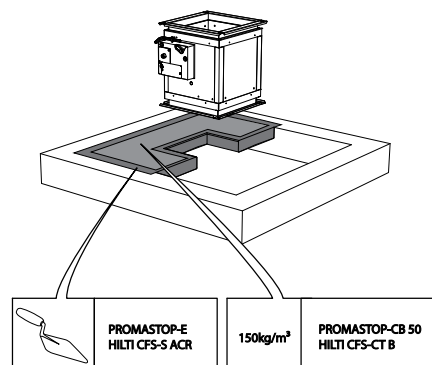
Installation in rigid floor, sealing with rigid rock wool boards with coating

The product was tested and approved in:

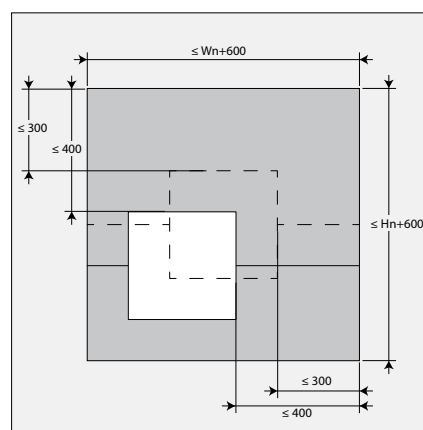
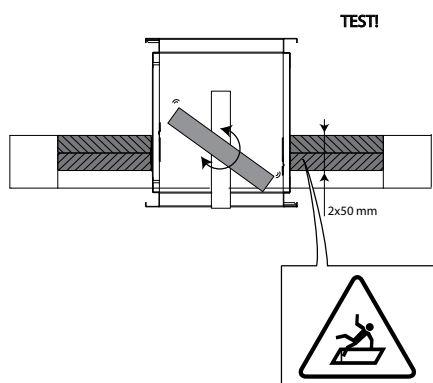
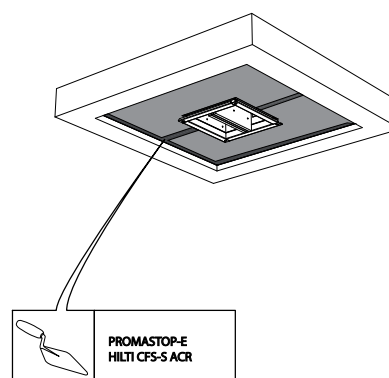
Range	Wall type	Sealing	Classification
$200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$	Rigid floor	Aerated concrete $\geq 150 \text{ mm}$ Stone wool + coating $\geq 150 \text{ kg/m}^3$	El 90 ($h_o \text{ i } \leftrightarrow o$) S - (300 Pa)



The opening around the damper is sealed with 2 layers of 50 mm-thick mineral 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).

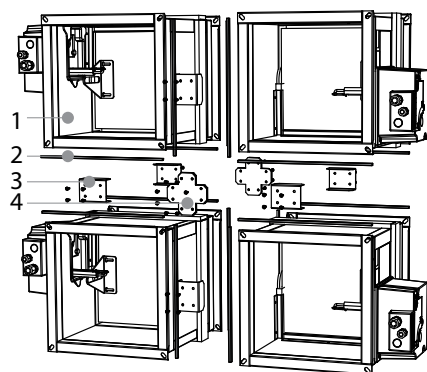


The damper does not need to be centered in the opening (with max dimensions fire damper + 600 mm). The maximal distance between the damper and the edge of the opening is 400 mm.

Battery assembly

The product was tested and approved in:

Range	Wall type	Sealing	Classification
CU2/B $\leq 4 \times$ CU2 ($200 \times 200 \text{ mm} \leq \text{CU2} \leq 1200 \times 800 \text{ mm}$)	Rigid wall	Reinforced concrete $\geq 110 \text{ mm}$ Mortar	El 120 ($v_e i \leftrightarrow o$) S - (500 Pa)



1. Individual damper CU2; 2. EPDM foam; 3. Connection piece; 4. Center plate - B22 (see technical note C31)

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.

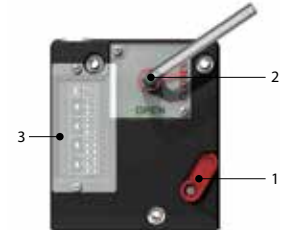
Operation and mechanisms



CFTH Automatically unlocking mechanism

The unlocking mechanism CFTH automatically unlatches the damper blade when the temperature in the duct rises above 72°C. The damper can also be unlocked and reset manually.

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



Options - at the time of order

FCU	Unipolar end of range switch
DCU	Unipolar beginning of range switch (order with FCU)
FCB	Bipolar end of range switch
DCB	Bipolar beginning of range switch (order with FCB)

Unlocking

- **manual unlocking:** use the unlocking button (1).
- **automatic unlocking:** when the fusible link melts at 72° C.
- **remote unlocking:** n/a

Resetting

- **manual resetting:** use the enclosed Hex key and turn clockwise(2).
- **motorised resetting:** n/a

Caution:

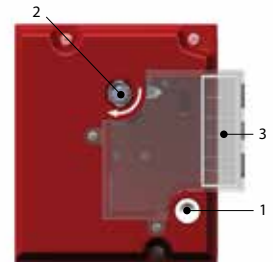
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.



MANO EVO Upgradeable automatically unlocking mechanism

The fusible link of the upgradeable unlocking mechanism MANO EVO automatically unlatches the damper blade when the temperature in the duct rises above 72°C. It is easy to upgrade the automatic MANO EVO mechanism into a remote controlled mechanism (remote electrical unlocking) or into a motorised mechanism (remote resetting).

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



Options - at the time of order

VD24	Natural magnet 24 VDC (order with FDCU)
VD48	Natural magnet 48 V DC (order with FDCU)
VM24	Electromagnet 24 V DC (order with FDCU)
VM48	Electromagnet 48 V DC (order with FDCU)
FDCU	Unipolar beginning and end of range switch
FDCB	Bipolar beginning and end of range switch (incl. FDCU)
ME	Resetting motor ME 24V/48V (AC, DC)

Unlocking

- **manual unlocking:** use the unlocking button (1).
- **automatic unlocking:** when the fusible link melts at 72° C.
- **remote unlocking:** (option VD/VM MAN EVO FDCU) by sending an electrical impulse (VD) or by interrupting the power supply (VM) to the magnet.

Resetting

- **manual resetting:** turn 90° clockwise with a Torcq key 13 mm (2).
- **motorised resetting:** (option ME MANO EVO) 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 > 15 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:

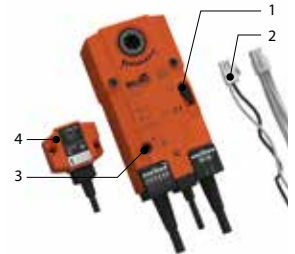
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.



BFL(T) Remotely controlled spring return actuator

The spring return actuator BFL(T) is specially designed to remotely control fire dampers. The BFL(T) model is intended for fire dampers with smaller dimensions ($\varnothing \leq 400$ mm or $W+H \leq 1200$ mm/1400 mm for CU-LT, CU-LT-1s).

1. locking button
2. plug (ST)
3. access for manual resetting
4. thermo-electric tripping device (T)



Options - at the time of order

SN2 BFL/BFN	Bipolar beginning and end of range switch
IXI-R1	Universal field controller (Modbus, BACnet or analog connection), pre-mounted on the damper.
IXI-R2	Universal field controller (Modbus, BACnet), pre-mounted on the damper and with a connection for a second damper.

Unlocking

- **manual unlocking:** place the locking button on "unlock". (In case of BFLT: the damper can alternatively be unlocked by pushing the "test" button on the thermo-electric fuse)
- **automatic unlocking:** the thermo-electric fuse reacts as soon as the temperature reaches 72°C (type BFLT).
- **remote unlocking:** by interrupting the power supply.

Caution:

- ⚠ The thermo-electric fuse will not move the damper into its safety position (when the temperature reaches 72°C) if the motor is not powered.

Resetting

- **manual resetting:** turn the enclosed handle anti-clockwise. To block the motor, place the locking button on "lock"
- **motorised resetting:** switch off the power supply for at least 10 seconds. Supply the actuator (respect the prescribed voltage) for at least 75 seconds. The resetting stops automatically when the end of range is reached (damper open) - it takes about 60 seconds to reset the damper - or when the power supply is interrupted.

Caution:

- ⚠ Do not use a drill or screwing machine.
- ⚠ 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.

	prod. < 1/7/2015				prod. ≥ 1/7/2015			
	CR60(1s) CR120	CU-LT CU-LT-1s	CR2≤400 CU2≤1200	CR2>400 CU2>1200	CR60(1s) CR120	CU-LT CU-LT-1s	CR2≤400 CU2≤1200	CR2>400 CU2>1200
Kit BFL	●	●	●		●	●	●	
Kit BFN								●
Kit BF				●				



BFN(T) Remotely controlled spring return actuator

The spring return actuator BFN(T) is specially designed to remotely control fire dampers. The BFN(T) model is intended for fire dampers with large dimensions ($\varnothing > 400$ mm (CR2) or $W+H > 1200$ mm (CU2, CA2, CU2_15, CU4)) or for dampers CU-LT(-1s), CR60, CR120 with a production date before 1 July 2015.

1. locking button
2. plug (ST)
3. access for manual resetting
4. thermo-electric tripping device (T)



Options - at the time of order

SN2 BFL/BN	Bipolar beginning and end of range switch
IXI-R1	Universal field controller (Modbus, BACnet or analog connection), pre-mounted on the damper.
IXI-R2	Universal field controller (Modbus, BACnet), pre-mounted on the damper and with a connection for a second damper.

Unlocking

- **manual unlocking:** place the locking button on "unlock". (In case of BFNT: the damper can alternatively be unlocked by pushing the "test" button on the thermo-electric fuse)
- **automatic unlocking:** the thermo-electric fuse reacts as soon as the temperature reaches 72°C (type BFNT).
- **remote unlocking:** by interrupting the power supply.

Caution:

- ⚠ The thermo-electric fuse will not move the damper into its safety position (when the temperature reaches 72°C) if the motor is not powered.

Resetting

- **manual resetting:** turn the enclosed handle anti-clockwise. To block the motor, place the locking button on "lock"
- **motorised resetting:** switch off the power supply for at least 10 seconds. Supply the actuator (respect the prescribed voltage) for at least 75 seconds. The resetting stops automatically when the end of range is reached (damper open) - it takes about 60 seconds to reset the damper - or when the power supply is interrupted.

Caution:

- ⚠ Do not use a drill or screwing machine.
- ⚠ 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.

	prod. < 1/7/2015				prod. ≥ 1/7/2015			
	CR60(1s) CR120	CU-LT CU-LT-1s	CR2≤400 CU2≤1200	CR2>400 CU2>1200	CR60(1s) CR120	CU-LT CU-LT-1s	CR2≤400 CU2≤1200	CR2>400 CU2>1200
Kit BFL					●	●	●	
Kit BFN	●	●	●					●
Kit BF				●				



Ex (ROTORK-SCHISCHEK) Explosion proof (ATEX) motor

Explosion proof (ATEX) motor for different risk areas:• Zone 1/21: average risk of explosion >100h/year explosive environment• Zone 2/22: low risk of explosion <10h/year of explosive environment

1. access for manual resetting
2. thermo-electric tripping device (T)
3. switch S (selection of the running time)



Unlocking

- **manual unlocking:** n.a.
- **automatic unlocking:** as soon as the reaction temperature (72°C) of the thermo-electric tripping device is reached (Types EMEXT/RMEXT).
- **remote unlocking:** by interrupting the power supply.

Caution:

- ⚠ Selection of running time spring return: the running time of 3 or 10 sec. spring return is selected by wiring (see electrical connection).

Resetting

- **manual resetting:** use the delivered socket wrench, turn in slow motion and apply enough torque/force.
- **motorised resetting:** supply the actuator (respect the prescribed voltage) for at least 60 sec. The resetting stops automatically.

Caution:

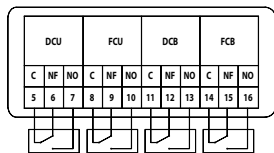
- ⚠ Selection of running time (resetting): place the switch (S) into the correct/selected position in accordance to the details below. The selected parameter will work at next operation of the actuator. Adjustment can be done even without supply voltage.
- ⚠ 3 sec./90°: S=00; 15 sec./90°: S=01; 30 sec./90°: S=02; 60 sec./90°: S=03; 120 sec./90°: S=04
- ⚠ If the motor is powered, turn the switch only if the actuator is not running !

Caution:

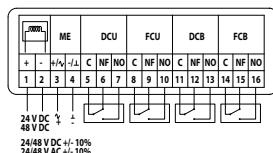
- ⚠ The mechanism may never be tested on its own, without being attached to the damper. Such a test might damage the mechanism or the operator might be injured.

Electrical connection

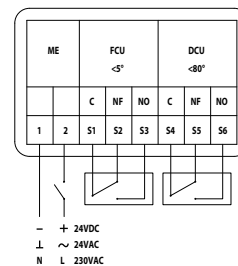
CFTH



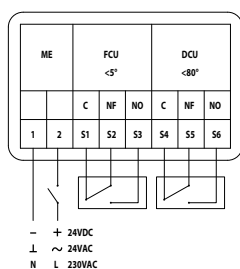
MANO EVO



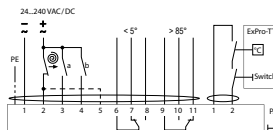
BFL(T)



BFN(T)



Ex (ROTORK-SCHISCHEK)



MEC	Nominal voltage motor	Nominal voltage magnet	Power consumption (stand-by)	Power consumption (operating)	standard switches	
CFTH	N/A	N/A	N/A	N/A	1mA...6A, DC 5V...AC 250V	
MANO 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	
BFL24	24 V AC / 24 V DC	N/A	0,7W	2,5W	1mA...3A, AC 250V	
BFL24-ST	24 V AC / 24 V DC	N/A	0,7W	2,5W	1mA...3A, AC 250V	
BFLT24	24 V AC / 24 V DC	N/A	0,8W	2,5W	1mA...3A, AC 250V	
BFLT24-ST	24 V AC / 24 V DC	N/A	0,8W	2,5W	1mA...3A, AC 250V	
BFL230	230 V AC	N/A	1,1W	3,5W	1mA...3A, AC 250V	
BFLT230	230 V AC	N/A	1,4W	4W	1mA...3A, AC 250V	
BFN24	24 V AC / 24 V DC	N/A	1W	4W	1mA...3A, AC 250V	
BFN24-ST	24 V AC / 24 V DC	N/A	1W	4W	1mA...3A, AC 250V	
BFNT24	24 V AC / 24 V DC	N/A	1,1W	4W	1mA...3A, AC 250V	
BFNT24-ST	24 V AC / 24 V DC	N/A	1,1W	4W	1mA...3A, AC 250V	
BFN230	230 V AC	N/A	1,5W	5W	1mA...3A, AC 250V	
BFNT230	230 V AC	N/A	1,8W	5,5W	1mA...3A, AC 250V	
RMEX	24...230 V AC / DC	N/A	5W	20W	max. 24V/3A, 230V/0,25A	
RMEXT	24...230 V AC / DC	N/A	5W	20W	max. 24V/3A, 230V/0,25A	
EMEX	24...230 V AC / DC	N/A	5W	20W	max. 24V/3A, 230V/0,25A	
EMEXT	24...230 V AC / DC	N/A	5W	20W	max. 24V/3A, 230V/0,25A	

	running time motor	running time spring	noise level motor	noise level spring	cable supply / control	cable auxiliary switch	Protection class
	N/A	1 s	N/A	N/A			IP 42
	< 30 s	1 s	≤ 50 dB (A)	N/A			IP 42
	< 60 s	20 s	≤ 45 dB (A)	ca. 63 dB (A)	1 m, 2 x 0.34 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	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
	< 60 s	20 s	≤ 45 dB (A)	ca. 63 dB (A)	1 m, 2 x 0.34 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	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
	< 60 s	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
	< 60 s	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
	< 60 s	20 s	≤ 55 dB (A)	ca. 70 dB (A)	1 m, 2 x 0.34 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	20 s	≤ 55 dB (A)	ca. 70 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	20 s	≤ 55 dB (A)	ca. 70 dB (A)	1 m, 2 x 0.34 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	20 s	≤ 55 dB (A)	ca. 70 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	20 s	≤ 55 dB (A)	ca. 70 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	< 60 s	20 s	≤ 55 dB (A)	ca. 70 dB (A)	1 m, 2 x 0.75 mm ² (halogen-free)	1 m, 6 x 0.75 mm ² (halogen-free)	IP 54
	3/15/30/60/120s	3/10 s					IP 66
	3/15/30/60/120s	3/10 s					IP 66
	3/15/30/60/120s	3/10 s					IP 66
	3/15/30/60/120s	3/10 s					IP 66

CU2 + CFTH

[illegible]

CU2 + BFL

[illegible][illegible]

CU2 + BFN

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
200	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,1
400	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	30,7	32,0
450	kg	-	-	-	-	-	-	-	-	-	-	-	-	31,2	32,6	33,9
500	kg	-	-	-	-	-	-	-	-	-	-	-	31,5	33,0	34,4	35,9
550	kg	-	-	-	-	-	-	-	-	-	-	31,7	33,2	34,8	36,3	37,8
600	kg	-	-	-	-	-	-	-	-	-	31,8	33,4	35,0	36,5	38,1	39,7
650	kg	-	-	-	-	-	-	-	-	31,8	33,4	35,0	36,7	38,3	40,0	41,6
700	kg	-	-	-	-	-	-	-	31,6	33,3	35,0	36,7	38,4	40,1	41,8	43,5
750	kg	-	-	-	-	-	-	31,3	33,0	34,8	36,6	38,4	40,1	41,9	43,7	45,5
800	kg	-	-	-	-	-	30,8	32,7	34,5	36,3	38,2	40,0	41,9	43,7	45,5	47,4
850	kg	-	-	-	-	30,2	32,1	34,0	36,0	37,9	39,8	41,7	43,6	45,5	47,4	49,3
900	kg	-	-	-	29,5	31,5	33,5	35,4	37,4	39,4	41,4	43,3	45,3	47,3	49,2	51,2
950	kg	-	-	28,7	30,7	32,8	34,8	36,8	38,9	40,9	42,9	45,0	47,0	49,1	51,1	53,1
1000	kg	-	27,7	29,8	31,9	34,0	36,1	38,2	40,3	42,4	44,5	46,6	48,7	50,8	52,9	55,0

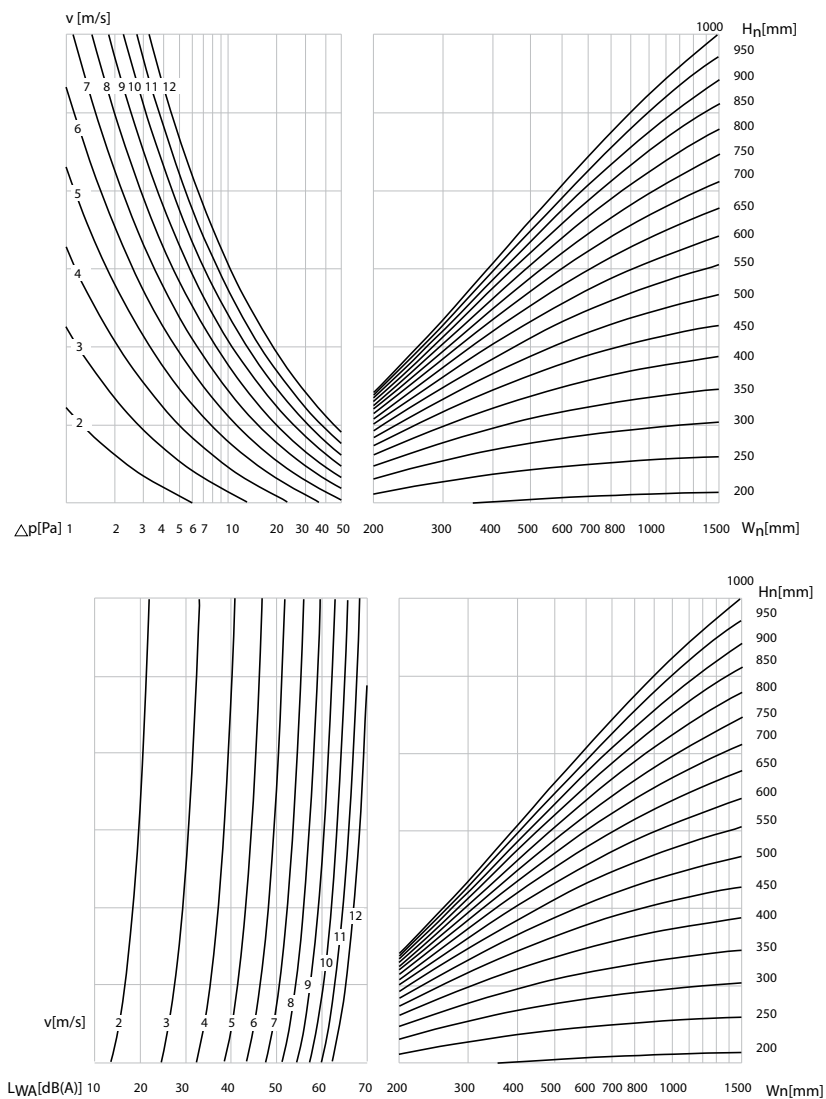
Hn\Wn [mm]		950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	kg	-	-	27,5	28,6	29,6	30,7	31,8	32,8	33,9	34,9	36,0	37,0
250	kg	-	28,5	29,6	30,8	31,9	33,0	34,1	35,2	36,4	37,5	38,6	39,7
300	kg	29,4	30,6	31,8	32,9	34,1	35,3	36,5	37,7	38,9	40,1	41,3	42,4
350	kg	31,4	32,6	33,9	35,1	36,4	37,6	38,9	40,1	41,4	42,6	43,9	45,1
400	kg	33,3	34,7	36,0	37,3	38,6	39,9	41,3	42,6	43,9	45,2	46,5	47,8
450	kg	35,3	36,7	38,1	39,5	40,9	42,2	43,6	45,0	46,4	47,8	49,2	50,5
500	kg	37,3	38,8	40,2	41,7	43,1	44,6	46,0	47,5	48,9	50,4	51,8	53,2
550	kg	39,3	40,8	42,3	43,8	45,4	46,9	48,4	49,9	51,4	52,9	54,4	55,9
600	kg	41,3	42,9	44,4	46,0	47,6	49,2	50,8	52,3	53,9	55,5	57,1	58,7
650	kg	43,3	44,9	46,6	48,2	49,8	51,5	53,1	54,8	56,4	58,1	59,7	61,4
700	kg	45,2	47,0	48,7	50,4	52,1	53,8	55,5	57,2	58,9	60,6	62,3	64,1
750	kg	47,2	49,0	50,8	52,6	54,3	56,1	57,9	59,7	61,4	63,2	65,0	66,8
800	kg	49,2	51,1	52,9	54,7	56,6	58,4	60,3	62,1	63,9	65,8	67,6	69,5
850	kg	51,2	53,1	55,0	56,9	58,8	60,7	62,6	64,5	66,4	68,3	70,3	72,2
900	kg	53,2	55,2	57,1	59,1	61,1	63,0	65,0	67,0	68,9	70,9	72,9	74,9
950	kg	55,2	57,2	59,2	61,3	63,3	65,3	67,4	69,4	71,5	73,5	75,5	77,6
1000	kg	57,1	59,3	61,4	63,5	65,6	67,7	69,8	71,9	74,0	76,1	78,2	80,3

CU2 + BFNT

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
200	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,2
400	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	30,8	32,1
450	kg	-	-	-	-	-	-	-	-	-	-	-	-	31,3	32,7	34,0
500	kg	-	-	-	-	-	-	-	-	-	-	-	31,6	33,1	34,5	36,0
550	kg	-	-	-	-	-	-	-	-	-	-	31,8	33,3	34,9	36,4	37,9
600	kg	-	-	-	-	-	-	-	-	-	31,9	33,5	35,1	36,6	38,2	39,8
650	kg	-	-	-	-	-	-	-	-	31,9	33,5	35,1	36,8	38,4	40,1	41,7
700	kg	-	-	-	-	-	-	-	31,7	33,4	35,1	36,8	38,5	40,2	41,9	43,6
750	kg	-	-	-	-	-	-	31,4	33,1	34,9	36,7	38,5	40,2	42,0	43,8	45,6
800	kg	-	-	-	-	-	30,9	32,8	34,6	36,4	38,3	40,1	42,0	43,8	45,6	47,5
850	kg	-	-	-	-	30,3	32,2	34,1	36,1	38,0	39,9	41,8	43,7	45,6	47,5	49,4
900	kg	-	-	-	29,6	31,6	33,6	35,5	37,5	39,5	41,5	43,4	45,4	47,4	49,3	51,3
950	kg	-	-	28,8	30,8	32,9	34,9	36,9	39,0	41,0	43,0	45,1	47,1	49,2	51,2	53,2
1000	kg	-	27,8	29,9	32,0	34,1	36,2	38,3	40,4	42,5	44,6	46,7	48,8	50,9	53,0	55,1

Hn\Wn [mm]		950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	kg	-	-	27,6	28,7	29,7	30,8	31,9	32,9	34,0	35,0	36,1	37,1
250	kg	-	28,6	29,7	30,9	32,0	33,1	34,2	35,3	36,5	37,6	38,7	39,8
300	kg	29,5	30,7	31,9	33,0	34,2	35,4	36,6	37,8	39,0	40,2	41,4	42,5
350	kg	31,5	32,7	34,0	35,2	36,5	37,7	39,0	40,2	41,5	42,7	44,0	45,2
400	kg	33,4	34,8	36,1	37,4	38,7	40,0	41,4	42,7	44,0	45,3	46,6	47,9
450	kg	35,4	36,8	38,2	39,6	41,0	42,3	43,7	45,1	46,5	47,9	49,3	50,6
500	kg	37,4	38,9	40,3	41,8	43,2	44,7	46,1	47,6	49,0	50,5	51,9	53,3
550	kg	39,4	40,9	42,4	43,9	45,5	47,0	48,5	50,0	51,5	53,0	54,5	56,0
600	kg	41,4	43,0	44,5	46,1	47,7	49,3	50,9	52,4	54,0	55,6	57,2	58,8
650	kg	43,4	45,0	46,7	48,3	49,9	51,6	53,2	54,9	56,5	58,2	59,8	61,5
700	kg	45,3	47,1	48,8	50,5	52,2	53,9	55,6	57,3	59,0	60,7	62,4	64,2
750	kg	47,3	49,1	50,9	52,7	54,4	56,2	58,0	59,8	61,5	63,3	65,1	66,9
800	kg	49,3	51,2	53,0	54,8	56,7	58,5	60,4	62,2	64,0	65,9	67,7	69,6
850	kg	51,3	53,2	55,1	57,0	58,9	60,8	62,7	64,6	66,5	68,4	70,4	72,3
900	kg	53,3	55,3	57,2	59,2	61,2	63,1	65,1	67,1	69,0	71,0	73,0	75,0
950	kg	55,3	57,3	59,3	61,4	63,4	65,4	67,5	69,5	71,6	73,6	75,6	77,7
1000	kg	57,2	59,4	61,5	63,6	65,7	67,8	69,9	72,0	74,1	76,2	78,3	80,4

Selection graphs



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

Hn\Wn [mm]	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
200 ζ [-]	3,42	2,92	2,64	2,46	2,34	2,25	2,18	2,12	2,07	2,04	2,01	1,98	1,96	1,94	1,92
250 ζ [-]	1,91	1,58	1,39	1,27	1,19	1,13	1,08	1,05	1,02	0,99	0,97	0,96	0,94	0,93	0,92
300 ζ [-]	1,31	1,05	0,91	0,82	0,75	0,71	0,67	0,65	0,62	0,61	0,59	0,58	0,57	0,56	0,55
350 ζ [-]	1,01	0,79	0,66	0,59	0,54	0,5	0,47	0,45	0,43	0,42	0,41	0,4	0,39	0,38	0,37
400 ζ [-]	0,82	0,63	0,52	0,46	0,41	0,38	0,36	0,34	0,32	0,31	0,3	0,29	0,29	0,28	0,27
450 ζ [-]	0,7	0,53	0,43	0,37	0,33	0,31	0,28	0,27	0,26	0,24	0,24	0,23	0,22	0,22	0,21
500 ζ [-]	0,62	0,46	0,37	0,32	0,28	0,25	0,24	0,22	0,21	0,2	0,19	0,18	0,18	0,17	0,17
550 ζ [-]	0,56	0,41	0,32	0,27	0,24	0,22	0,2	0,19	0,18	0,17	0,16	0,15	0,15	0,14	0,14
600 ζ [-]	0,51	0,37	0,29	0,24	0,21	0,19	0,17	0,16	0,15	0,14	0,14	0,13	0,13	0,12	0,12
650 ζ [-]	0,47	0,34	0,26	0,22	0,19	0,17	0,15	0,14	0,13	0,13	0,12	0,11	0,11	0,11	0,1
700 ζ [-]	0,44	0,31	0,24	0,2	0,17	0,15	0,14	0,13	0,12	0,11	0,11	0,1	0,1	0,09	0,09
750 ζ [-]	0,42	0,29	0,23	0,18	0,16	0,14	0,13	0,12	0,11	0,1	0,1	0,09	0,09	0,08	0,08
800 ζ [-]	0,4	0,28	0,21	0,17	0,15	0,13	0,12	0,11	0,1	0,09	0,09	0,08	0,08	0,08	0,07
850 ζ [-]	0,38	0,26	0,2	0,16	0,14	0,12	0,11	0,1	0,09	0,08	0,08	0,08	0,07	0,07	0,07
900 ζ [-]	0,37	0,25	0,19	0,15	0,13	0,11	0,1	0,09	0,08	0,08	0,07	0,07	0,07	0,06	0,06
950 ζ [-]	0,36	0,24	0,18	0,14	0,12	0,11	0,09	0,08	0,08	0,07	0,07	0,06	0,06	0,06	0,06
1000 ζ [-]	0,34	0,23	0,17	0,14	0,12	0,1	0,09	0,08	0,07	0,07	0,06	0,06	0,06	0,05	0,05

Hn\Wn [mm]	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200 ζ [-]	1,9	1,89	1,88	1,86	1,85	1,84	1,84	1,83	1,82	1,81	1,81	1,8
250 ζ [-]	0,91	0,9	0,89	0,88	0,88	0,87	0,87	0,86	0,86	0,85	0,85	0,85
300 ζ [-]	0,54	0,54	0,53	0,53	0,52	0,52	0,51	0,51	0,51	0,5	0,5	0,5
350 ζ [-]	0,37	0,36	0,36	0,35	0,35	0,35	0,34	0,34	0,34	0,33	0,33	0,33
400 ζ [-]	0,27	0,26	0,26	0,26	0,25	0,25	0,25	0,25	0,24	0,24	0,24	0,24
450 ζ [-]	0,21	0,2	0,2	0,2	0,19	0,19	0,19	0,19	0,19	0,18	0,18	0,18
500 ζ [-]	0,17	0,16	0,16	0,16	0,15	0,15	0,15	0,15	0,15	0,15	0,14	0,14
550 ζ [-]	0,14	0,13	0,13	0,13	0,13	0,13	0,12	0,12	0,12	0,12	0,12	0,12
600 ζ [-]	0,12	0,11	0,11	0,11	0,11	0,11	0,1	0,1	0,1	0,1	0,1	0,1
650 ζ [-]	0,1	0,1	0,1	0,09	0,09	0,09	0,09	0,09	0,09	0,08	0,08	0,08
700 ζ [-]	0,09	0,09	0,08	0,08	0,08	0,08	0,08	0,08	0,07	0,07	0,07	0,07
750 ζ [-]	0,08	0,08	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,06	0,06	0,06
800 ζ [-]	0,07	0,07	0,07	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
850 ζ [-]	0,06	0,06	0,06	0,06	0,06	0,06	0,05	0,05	0,05	0,05	0,05	0,05
900 ζ [-]	0,06	0,06	0,06	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
950 ζ [-]	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,04	0,04	0,04	0,04	0,04
1000 ζ [-]	0,05	0,05	0,05	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04

Example

Data

Hn= 550mm, Wn= 500mm, v= 9m/s

Required

Δp= ca. 9 Pa (Cfr. selection graph)

Calculation

Δp= 0.2 * (9m/s)² * 0.6 = 9.72Pa

Selection data

CU2 - A-weighted sound power level in the duct

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	
200	Sn [m ²]	0,0195	0,0255	0,0314	0,0374	0,0433	0,0493	0,0552	0,0612	0,0671	0,0731	0,0790	0,0850	0,0909	0,0969	
	Sn [%]	51,85	53,80	55,08	55,99	56,67	57,20	57,62	57,96	58,24	58,48	58,69	58,87	59,02	59,16	
	Q [m ³ /h]	940,00	1.170,00	1.390,00	1.610,00	1.830,00	2.060,00	2.280,00	2.500,00	2.730,00	2.950,00	3.170,00	3.400,00	3.620,00	3.840,00	45 dB
	Δp [Pa]	87,32	74,13	65,70	60,35	56,65	54,48	52,35	50,68	49,70	48,55	47,60	47,06	46,34	45,71	
	Q [m ³ /h]	790,00	970,00	1.160,00	1.340,00	1.530,00	1.710,00	1.900,00	2.080,00	2.270,00	2.450,00	2.640,00	2.830,00	3.010,00	3.200,00	40 dB
	Δp [Pa]	61,67	50,95	45,76	41,80	39,60	37,54	36,36	35,08	34,36	33,49	33,01	32,60	32,04	31,74	
	Q [m ³ /h]	650,00	810,00	960,00	1.120,00	1.270,00	1.430,00	1.580,00	1.730,00	1.890,00	2.040,00	2.200,00	2.350,00	2.510,00	2.660,00	35 dB
	Δp [Pa]	41,75	35,53	31,34	29,20	27,29	26,25	25,14	24,27	23,82	23,22	22,92	22,48	22,28	21,93	
	Q [m ³ /h]	540,00	670,00	800,00	930,00	1.060,00	1.190,00	1.310,00	1.440,00	1.570,00	1.700,00	1.830,00	1.960,00	2.090,00	2.210,00	30 dB
	Δp [Pa]	28,82	24,31	21,76	20,14	19,01	18,18	17,28	16,82	16,44	16,12	15,86	15,64	15,45	15,14	
	Q [m ³ /h]	450,00	560,00	670,00	770,00	880,00	990,00	1.090,00	1.200,00	1.310,00	1.420,00	1.520,00	1.630,00	1.740,00	1.840,00	25 dB
	Δp [Pa]	20,01	16,98	15,27	13,80	13,10	12,58	11,97	11,68	11,44	11,25	10,94	10,82	10,71	10,50	
250	Sn [m ²]	0,0277	0,0362	0,0446	0,0531	0,0615	0,0700	0,0784	0,0869	0,0953	0,1038	0,1122	0,1207	0,1291	0,1376	
	Sn [%]	58,55	60,75	62,19	63,22	63,99	64,58	65,06	65,44	65,76	66,04	66,27	66,47	66,65	66,80	
	Q [m ³ /h]	1.130,00	1.400,00	1.660,00	1.920,00	2.190,00	2.450,00	2.710,00	2.980,00	3.240,00	3.510,00	3.770,00	4.030,00	4.300,00	4.560,00	45 dB
	Δp [Pa]	45,15	36,64	31,54	28,35	26,41	24,80	23,58	22,78	22,00	21,48	20,93	20,47	20,17	19,82	
	Q [m ³ /h]	940,00	1.160,00	1.380,00	1.600,00	1.820,00	2.040,00	2.260,00	2.480,00	2.700,00	2.920,00	3.140,00	3.360,00	3.570,00	3.790,00	40 dB
	Δp [Pa]	31,24	25,15	21,80	19,69	18,24	17,19	16,40	15,78	15,28	14,86	14,52	14,23	13,90	13,69	
	Q [m ³ /h]	790,00	970,00	1.150,00	1.330,00	1.510,00	1.700,00	1.880,00	2.060,00	2.240,00	2.430,00	2.610,00	2.790,00	2.970,00	3.160,00	35 dB
	Δp [Pa]	22,07	17,59	15,14	13,60	12,56	11,94	11,35	10,88	10,51	10,29	10,03	9,81	9,62	9,52	
	Q [m ³ /h]	650,00	810,00	960,00	1.110,00	1.260,00	1.410,00	1.560,00	1.720,00	1.870,00	2.020,00	2.170,00	2.320,00	2.480,00	2.630,00	30 dB
	Δp [Pa]	14,94	12,26	10,55	9,47	8,74	8,21	7,81	7,59	7,33	7,11	6,94	6,78	6,71	6,59	
	Q [m ³ /h]	540,00	670,00	800,00	920,00	1.050,00	1.180,00	1.300,00	1.430,00	1.550,00	1.680,00	1.810,00	1.930,00	2.060,00	2.190,00	25 dB
	Δp [Pa]	10,31	8,39	7,32	6,51	6,07	5,75	5,43	5,25	5,03	4,92	4,83	4,70	4,63	4,57	
300	Sn [m ²]	0,0359	0,0469	0,0578	0,0688	0,0797	0,0907	0,1016	0,1126	0,1235	0,1345	0,1454	0,1564	0,1673	0,1783	
	Sn [%]	62,97	65,33	66,89	67,99	68,82	69,46	69,97	70,38	70,73	71,02	71,27	71,49	71,68	71,84	
	Q [m ³ /h]	1.320,00	1.630,00	1.930,00	2.230,00	2.540,00	2.840,00	3.150,00	3.450,00	3.750,00	4.060,00	4.360,00	4.660,00	4.970,00	5.270,00	45 dB
	Δp [Pa]	29,41	23,00	19,32	17,04	15,63	14,50	13,75	13,08	12,55	12,17	11,80	11,49	11,27	11,04	
	Q [m ³ /h]	1.100,00	1.350,00	1.610,00	1.860,00	2.110,00	2.370,00	2.620,00	2.870,00	3.120,00	3.380,00	3.630,00	3.880,00	4.130,00	4.390,00	40 dB
	Δp [Pa]	20,42	15,78	13,44	11,85	10,78	10,10	9,51	9,05	8,69	8,44	8,18	7,97	7,79	7,66	
	Q [m ³ /h]	920,00	1.130,00	1.340,00	1.550,00	1.760,00	1.970,00	2.180,00	2.390,00	2.600,00	2.810,00	3.020,00	3.230,00	3.440,00	3.650,00	35 dB
	Δp [Pa]	14,29	11,05	9,31	8,23	7,50	6,98	6,58	6,28	6,03	5,83	5,66	5,52	5,40	5,30	
	Q [m ³ /h]	760,00	940,00	1.110,00	1.290,00	1.460,00	1.640,00	1.810,00	1.990,00	2.160,00	2.340,00	2.510,00	2.690,00	2.860,00	3.040,00	30 dB
	Δp [Pa]	9,75	7,65	6,39	5,70	5,16	4,84	4,54	4,35	4,16	4,04	3,91	3,83	3,73	3,67	
	Q [m ³ /h]	640,00	780,00	930,00	1.070,00	1.220,00	1.360,00	1.510,00	1.650,00	1.800,00	1.950,00	2.090,00	2.240,00	2.380,00	2.530,00	25 dB
	Δp [Pa]	6,91	5,27	4,48	3,92	3,61	3,33	3,16	2,99	2,89	2,81	2,71	2,66	2,59	2,54	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	
350	Sn [m ²]	0,0441	0,0576	0,0710	0,0845	0,0979	0,1114	0,1248	0,1383	0,1517	0,1652	0,1786	0,1921	0,2055	0,2190	
	Sn [%]	66,11	68,58	70,22	71,38	72,24	72,91	73,45	73,89	74,25	74,55	74,82	75,04	75,24	75,42	
	Q [m ³ /h]	1.510,00	1.860,00	2.200,00	2.550,00	2.890,00	3.230,00	3.580,00	3.920,00	4.260,00	4.600,00	4.950,00	5.290,00	5.630,00	5.980,00	45 dB
	Δp [Pa]	21,67	16,44	13,51	11,82	10,61	9,74	9,15	8,64	8,24	7,91	7,67	7,44	7,24	7,10	
	Q [m ³ /h]	1.260,00	1.550,00	1.830,00	2.120,00	2.400,00	2.690,00	2.980,00	3.260,00	3.550,00	3.830,00	4.120,00	4.400,00	4.690,00	4.970,00	40 dB
	Δp [Pa]	15,09	11,41	9,35	8,17	7,32	6,76	6,34	5,98	5,72	5,49	5,32	5,15	5,03	4,90	
	Q [m ³ /h]	1.050,00	1.290,00	1.530,00	1.760,00	2.000,00	2.240,00	2.480,00	2.710,00	2.950,00	3.190,00	3.430,00	3.660,00	3.900,00	4.140,00	35 dB
	Δp [Pa]	10,48	7,91	6,54	5,63	5,08	4,69	4,39	4,13	3,95	3,81	3,68	3,56	3,48	3,40	
	Q [m ³ /h]	870,00	1.070,00	1.270,00	1.470,00	1.670,00	1.860,00	2.060,00	2.260,00	2.460,00	2.650,00	2.850,00	3.050,00	3.250,00	3.440,00	30 dB
	Δp [Pa]	7,19	5,44	4,50	3,93	3,54	3,23	3,03	2,87	2,75	2,63	2,54	2,47	2,41	2,35	
	Q [m ³ /h]	730,00	890,00	1.060,00	1.220,00	1.390,00	1.550,00	1.710,00	1.880,00	2.040,00	2.210,00	2.370,00	2.540,00	2.700,00	2.860,00	25 dB
	Δp [Pa]	5,06	3,76	3,14	2,71	2,45	2,24	2,09	1,99	1,89	1,83	1,76	1,72	1,67	1,62	
400	Sn [m ²]	0,0523	0,0683	0,0842	0,1002	0,1161	0,1321	0,1480	0,1640	0,1799	0,1959	0,2118	0,2278	0,2437	0,2597	
	Sn [%]	68,44	71,01	72,70	73,90	74,80	75,49	76,05	76,50	76,88	77,19	77,46	77,70	77,91	78,09	
	Q [m ³ /h]	1.700,00	2.090,00	2.470,00	2.850,00	3.240,00	3.620,00	4.000,00	4.380,00	4.770,00	5.150,00	5.530,00	5.910,00	6.290,00	6.670,00	45 dB
	Δp [Pa]	17,21	12,72	10,27	8,79	7,85	7,14	6,62	6,21	5,92	5,66	5,44	5,26	5,10	4,97	
	Q [m ³ /h]	1.420,00	1.740,00	2.060,00	2.380,00	2.690,00	3.010,00	3.330,00	3.650,00	3.970,00	4.280,00	4.600,00	4.920,00	5.240,00	5.550,00	40 dB
	Δp [Pa]	12,01	8,82	7,14	6,13	5,41	4,94	4,59	4,32	4,10	3,91	3,76	3,64	3,54	3,44	
	Q [m ³ /h]	1.180,00	1.450,00	1.710,00	1.980,00	2.240,00	2.510,00	2.770,00	3.040,00	3.300,00	3.560,00	3.830,00	4.090,00	4.360,00	4.620,00	35 dB
	Δp [Pa]	8,29	6,12	4,92	4,24	3,75	3,43	3,17	2,99	2,83	2,70	2,61	2,52	2,45	2,38	
	Q [m ³ /h]	980,00	1.200,00	1.430,00	1.650,00	1.870,00	2.090,00	2.310,00	2.530,00	2.750,00	2.970,00	3.190,00	3.400,00	3.620,00	3.840,00	30 dB
	Δp [Pa]	5,72	4,19	3,44	2,94	2,61	2,38	2,21	2,07	1,97	1,88	1,81	1,74	1,69	1,65	
	Q [m ³ /h]	820,00	1.000,00	1.190,00	1.370,00	1.550,00	1.740,00	1.920,00	2.100,00	2.280,00	2.470,00	2.650,00	2.830,00	3.020,00	3.200,00	25 dB
	Δp [Pa]	4,00	2,91	2,38	2,03	1,80	1,65	1,52	1,43	1,35	1,30	1,25	1,21	1,18	1,14	
450	Sn [m ²]	0,0605	0,0790	0,0974	0,1159	0,1343	0,1528	0,1712	0,1897	0,2081	0,2266	0,2450	0,2635	0,2819	0,3004	
	Sn [%]	70,26	72,89	74,63	75,86	76,78	77,49	78,06	78,52	78,91	79,24	79,52	79,76	79,97	80,15	
	Q [m ³ /h]	1.900,00	2.320,00	2.740,00	3.160,00	3.580,00	4.010,00	4.430,00	4.850,00	5.270,00	5.690,00	6.110,00	6.530,00	6.950,00	7.360,00	45 dB
	Δp [Pa]	14,52	10,39	8,25	6,97	6,13	5,56	5,11	4,77	4,50	4,28	4,10	3,95	3,83	3,71	
	Q [m ³ /h]	1.580,00	1.930,00	2.280,00	2.630,00	2.980,00	3.330,00	3.680,00	4.030,00	4.380,00	4.730,00	5.080,00	5.430,00	5.780,00	6.130,00	40 dB
	Δp [Pa]	10,04	7,19	5,71	4,83	4,24	3,83	3,53	3,29	3,11	2,96	2,84	2,73	2,65	2,57	
	Q [m ³ /h]	1.310,00	1.610,00	1.900,00	2.190,00	2.480,00	2.770,00	3.060,00	3.350,00	3.650,00	3.940,00	4.230,00	4.520,00	4.810,00	5.100,00	35 dB
	Δp [Pa]	6,90	5,00	3,97	3,35	2,94	2,65	2,44	2,28	2,16	2,05	1,97	1,89	1,83	1,78	
	Q [m ³ /h]	1.090,00	1.340,00	1.580,00	1.820,00	2.070,00	2.310,00	2.550,00	2.790,00	3.030,00	3.280,00	3.520,00	3.760,00	4.000,00	4.240,00	30 dB
	Δp [Pa]	4,78	3,46	2,74	2,31	2,05	1,84	1,69	1,58	1,49	1,42	1,36	1,31	1,27	1,23	
	Q [m ³ /h]	910,00	1.110,00	1.320,00	1.520,00	1.720,00	1.920,00	2.120,00	2.320,00	2.520,00	2.730,00	2.930,00	3.130,00	3.330,00	3.530,00	25 dB
	Δp [Pa]	3,33	2,38	1,91	1,61	1,41	1,27	1,17	1,09	1,03	0,99	0,94	0,91	0,88	0,85	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	
500	Sn [m ²]	0,0687	0,0897	0,1106	0,1316	0,1525	0,1735	0,1944	0,2154	0,2363	0,2573	0,2782	0,2992	0,3201	0,3411	
	Sn [%]	71,70	74,39	76,16	77,42	78,36	79,09	79,67	80,14	80,53	80,87	81,15	81,40	81,61	81,80	
	Q [m ³ /h]	2.090,00	2.550,00	3.010,00	3.470,00	3.930,00	4.390,00	4.850,00	5.310,00	5.760,00	6.220,00	6.680,00	7.140,00	7.590,00	8.050,00	45 dB
	Δp [Pa]	12,54	8,81	6,90	5,76	5,02	4,49	4,11	3,81	3,57	3,38	3,23	3,10	2,99	2,89	
	Q [m ³ /h]	1.740,00	2.120,00	2.510,00	2.890,00	3.270,00	3.650,00	4.030,00	4.410,00	4.800,00	5.180,00	5.560,00	5.940,00	6.320,00	6.700,00	40 dB
	Δp [Pa]	8,69	6,09	4,80	4,00	3,47	3,11	2,84	2,63	2,48	2,35	2,24	2,15	2,07	2,01	
	Q [m ³ /h]	1.450,00	1.770,00	2.080,00	2.400,00	2.720,00	3.040,00	3.360,00	3.670,00	3.990,00	4.310,00	4.620,00	4.940,00	5.260,00	5.570,00	35 dB
	Δp [Pa]	6,04	4,24	3,29	2,76	2,40	2,15	1,97	1,82	1,71	1,63	1,55	1,49	1,43	1,39	
	Q [m ³ /h]	1.200,00	1.470,00	1.740,00	2.000,00	2.260,00	2.530,00	2.790,00	3.060,00	3.320,00	3.580,00	3.850,00	4.110,00	4.370,00	4.640,00	30 dB
	Δp [Pa]	4,13	2,93	2,30	1,91	1,66	1,49	1,36	1,27	1,19	1,12	1,07	1,03	0,99	0,96	
	Q [m ³ /h]	1.000,00	1.220,00	1.440,00	1.660,00	1.880,00	2.100,00	2.320,00	2.540,00	2.760,00	2.980,00	3.200,00	3.420,00	3.640,00	3.860,00	25 dB
	Δp [Pa]	2,87	2,02	1,58	1,32	1,15	1,03	0,94	0,87	0,82	0,78	0,74	0,71	0,69	0,67	
550	Sn [m ²]	0,0769	0,1004	0,1238	0,1473	0,1707	0,1942	0,2176	0,2411	0,2645	0,2880	0,3114	0,3349	0,3583	0,3818	
	Sn [%]	72,88	75,61	77,42	78,69	79,65	80,39	80,98	81,46	81,86	82,20	82,49	82,74	82,96	83,15	
	Q [m ³ /h]	2.280,00	2.780,00	3.280,00	3.780,00	4.270,00	4.770,00	5.270,00	5.760,00	6.260,00	6.750,00	7.250,00	7.740,00	8.240,00	8.730,00	45 dB
	Δp [Pa]	11,11	7,68	5,94	4,91	4,22	3,75	3,41	3,14	2,94	2,77	2,64	2,52	2,42	2,34	
	Q [m ³ /h]	1.900,00	2.310,00	2.730,00	3.140,00	3.560,00	3.970,00	4.380,00	4.790,00	5.210,00	5.620,00	6.030,00	6.440,00	6.850,00	7.260,00	40 dB
	Δp [Pa]	7,71	5,30	4,11	3,39	2,93	2,60	2,36	2,17	2,04	1,92	1,82	1,74	1,67	1,62	
	Q [m ³ /h]	1.580,00	1.920,00	2.270,00	2.620,00	2.960,00	3.300,00	3.650,00	3.990,00	4.330,00	4.670,00	5.020,00	5.360,00	5.700,00	6.040,00	35 dB
	Δp [Pa]	5,33	3,66	2,84	2,36	2,03	1,80	1,64	1,51	1,41	1,33	1,26	1,21	1,16	1,12	
	Q [m ³ /h]	1.310,00	1.600,00	1.890,00	2.180,00	2.460,00	2.750,00	3.030,00	3.320,00	3.600,00	3.890,00	4.170,00	4.460,00	4.740,00	5.030,00	30 dB
	Δp [Pa]	3,67	2,54	1,97	1,63	1,40	1,25	1,13	1,04	0,97	0,92	0,87	0,84	0,80	0,78	
	Q [m ³ /h]	1.090,00	1.330,00	1.570,00	1.810,00	2.050,00	2.290,00	2.520,00	2.760,00	3.000,00	3.240,00	3.470,00	3.710,00	3.950,00	4.180,00	25 dB
	Δp [Pa]	2,54	1,76	1,36	1,13	0,97	0,87	0,78	0,72	0,68	0,64	0,60	0,58	0,56	0,54	
600	Sn [m ²]	0,0851	0,1111	0,1370	0,1630	0,1889	0,2149	0,2408	0,2668	0,2927	0,3187	0,3446	0,3706	0,3965	0,4225	
	Sn [%]	73,86	76,63	78,46	79,75	80,72	81,47	82,07	82,56	82,96	83,30	83,60	83,85	84,07	84,27	
	Q [m ³ /h]	2.470,00	3.010,00	3.550,00	4.080,00	4.620,00	5.150,00	5.680,00	6.220,00	6.750,00	7.280,00	7.810,00	8.340,00	8.870,00	9.410,00	45 dB
	Δp [Pa]	10,03	6,84	5,23	4,26	3,65	3,22	2,90	2,67	2,48	2,33	2,20	2,10	2,01	1,94	
	Q [m ³ /h]	2.050,00	2.500,00	2.950,00	3.400,00	3.840,00	4.290,00	4.730,00	5.170,00	5.620,00	6.060,00	6.500,00	6.940,00	7.380,00	7.830,00	40 dB
	Δp [Pa]	6,91	4,72	3,61	2,96	2,52	2,23	2,01	1,84	1,72	1,61	1,53	1,45	1,39	1,34	
	Q [m ³ /h]	1.710,00	2.080,00	2.460,00	2.830,00	3.200,00	3.570,00	3.940,00	4.300,00	4.670,00	5.040,00	5.410,00	5.780,00	6.140,00	6.510,00	35 dB
	Δp [Pa]	4,81	3,26	2,51	2,05	1,75	1,55	1,40	1,27	1,19	1,11	1,06	1,01	0,96	0,93	
	Q [m ³ /h]	1.420,00	1.730,00	2.040,00	2.350,00	2.660,00	2.970,00	3.270,00	3.580,00	3.890,00	4.190,00	4.500,00	4.810,00	5.110,00	5.420,00	30 dB
	Δp [Pa]	3,32	2,26	1,73	1,41	1,21	1,07	0,96	0,88	0,82	0,77	0,73	0,70	0,67	0,64	
	Q [m ³ /h]	1.180,00	1.440,00	1.700,00	1.960,00	2.210,00	2.470,00	2.720,00	2.980,00	3.230,00	3.490,00	3.740,00	4.000,00	4.250,00	4.510,00	25 dB
	Δp [Pa]	2,29	1,56	1,20	0,98	0,84	0,74	0,66	0,61	0,57	0,53	0,50	0,48	0,46	0,45	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	
650	Sn [m ²]	0,0933	0,1218	0,1502	0,1787	0,2071	0,2356	0,2640	0,2925	0,3209	0,3494	0,3778	0,4063	0,4347	0,4632	
	Sn [%]	74,69	77,49	79,34	80,65	81,63	82,38	82,99	83,48	83,89	84,24	84,53	84,79	85,02	85,21	
	Q [m ³ /h]	2.660,00	3.240,00	3.810,00	4.390,00	4.960,00	5.530,00	6.100,00	6.670,00	7.240,00	7.810,00	8.380,00	8.940,00	9.510,00	10.080,00	45 dB
	Δp [Pa]	9,20	6,19	4,66	3,79	3,21	2,81	2,52	2,30	2,13	2,00	1,89	1,79	1,71	1,64	
	Q [m ³ /h]	2.210,00	2.690,00	3.170,00	3.650,00	4.130,00	4.600,00	5.080,00	5.550,00	6.020,00	6.500,00	6.970,00	7.440,00	7.910,00	8.380,00	40 dB
	Δp [Pa]	6,35	4,27	3,23	2,62	2,23	1,95	1,75	1,60	1,48	1,38	1,30	1,24	1,18	1,14	
	Q [m ³ /h]	1.840,00	2.240,00	2.640,00	3.040,00	3.430,00	3.830,00	4.220,00	4.620,00	5.010,00	5.400,00	5.800,00	6.190,00	6.580,00	6.980,00	35 dB
	Δp [Pa]	4,40	2,96	2,24	1,82	1,54	1,35	1,21	1,11	1,02	0,95	0,90	0,86	0,82	0,79	
	Q [m ³ /h]	1.530,00	1.870,00	2.200,00	2.530,00	2.860,00	3.190,00	3.510,00	3.840,00	4.170,00	4.500,00	4.820,00	5.150,00	5.480,00	5.800,00	30 dB
	Δp [Pa]	3,04	2,06	1,55	1,26	1,07	0,94	0,84	0,76	0,71	0,66	0,62	0,59	0,57	0,54	
	Q [m ³ /h]	1.280,00	1.550,00	1.830,00	2.100,00	2.380,00	2.650,00	2.920,00	3.200,00	3.470,00	3.740,00	4.010,00	4.290,00	4.560,00	4.830,00	25 dB
	Δp [Pa]	2,13	1,42	1,07	0,87	0,74	0,65	0,58	0,53	0,49	0,46	0,43	0,41	0,39	0,38	
700	Sn [m ²]	0,1015	0,1325	0,1634	0,1944	0,2253	0,2563	0,2872	0,3182	0,3491	0,3801	0,4110	0,4420	0,4729	0,5039	
	Sn [%]	75,40	78,23	80,09	81,41	82,40	83,17	83,78	84,27	84,69	85,04	85,34	85,60	85,82	86,02	
	Q [m ³ /h]	2.850,00	3.470,00	4.080,00	4.690,00	5.300,00	5.910,00	6.520,00	7.120,00	7.730,00	8.330,00	8.940,00	9.540,00	10.140,00	10.750,00	45 dB
	Δp [Pa]	8,54	5,68	4,24	3,40	2,87	2,50	2,23	2,03	1,87	1,74	1,64	1,55	1,48	1,42	
	Q [m ³ /h]	2.370,00	2.880,00	3.400,00	3.900,00	4.410,00	4.920,00	5.420,00	5.930,00	6.430,00	6.930,00	7.430,00	7.940,00	8.440,00	8.940,00	40 dB
	Δp [Pa]	5,90	3,91	2,94	2,35	1,99	1,73	1,54	1,41	1,29	1,20	1,13	1,07	1,02	0,98	
	Q [m ³ /h]	1.970,00	2.400,00	2.830,00	3.250,00	3.670,00	4.090,00	4.510,00	4.930,00	5.350,00	5.770,00	6.190,00	6.600,00	7.020,00	7.440,00	35 dB
	Δp [Pa]	4,08	2,72	2,04	1,63	1,37	1,20	1,07	0,97	0,90	0,84	0,79	0,74	0,71	0,68	
	Q [m ³ /h]	1.640,00	2.000,00	2.350,00	2.700,00	3.050,00	3.400,00	3.750,00	4.100,00	4.450,00	4.800,00	5.150,00	5.490,00	5.840,00	6.190,00	30 dB
	Δp [Pa]	2,83	1,89	1,41	1,13	0,95	0,83	0,74	0,67	0,62	0,58	0,54	0,51	0,49	0,47	
	Q [m ³ /h]	1.370,00	1.660,00	1.960,00	2.250,00	2.540,00	2.830,00	3.120,00	3.410,00	3.700,00	3.990,00	4.280,00	4.570,00	4.860,00	5.150,00	25 dB
	Δp [Pa]	1,97	1,30	0,98	0,78	0,66	0,57	0,51	0,46	0,43	0,40	0,38	0,36	0,34	0,33	
750	Sn [m ²]	0,1097	0,1432	0,1766	0,2101	0,2435	0,2770	0,3104	0,3439	0,3773	0,4108	0,4442	0,4777	0,5111	0,5446	
	Sn [%]	76,01	78,86	80,74	82,08	83,07	83,84	84,46	84,96	85,38	85,73	86,03	86,29	86,52	86,72	
	Q [m ³ /h]	3.040,00	3.700,00	4.350,00	5.000,00	5.640,00	6.290,00	6.930,00	7.570,00	8.210,00	8.850,00	9.490,00	10.130,00	10.770,00	11.410,00	45 dB
	Δp [Pa]	8,00	5,26	3,90	3,11	2,59	2,25	2,00	1,81	1,66	1,54	1,44	1,36	1,30	1,24	
	Q [m ³ /h]	2.530,00	3.080,00	3.620,00	4.160,00	4.700,00	5.230,00	5.770,00	6.300,00	6.830,00	7.370,00	7.900,00	8.430,00	8.960,00	9.490,00	40 dB
	Δp [Pa]	5,54	3,65	2,70	2,15	1,80	1,56	1,38	1,25	1,15	1,07	1,00	0,94	0,90	0,86	
	Q [m ³ /h]	2.100,00	2.560,00	3.010,00	3.460,00	3.910,00	4.350,00	4.800,00	5.240,00	5.690,00	6.130,00	6.570,00	7.010,00	7.460,00	7.900,00	35 dB
	Δp [Pa]	3,82	2,52	1,86	1,49	1,25	1,08	0,96	0,87	0,80	0,74	0,69	0,65	0,62	0,59	
	Q [m ³ /h]	1.750,00	2.130,00	2.500,00	2.880,00	3.250,00	3.620,00	3.990,00	4.360,00	4.730,00	5.100,00	5.470,00	5.840,00	6.200,00	6.570,00	30 dB
	Δp [Pa]	2,65	1,74	1,29	1,03	0,86	0,75	0,66	0,60	0,55	0,51	0,48	0,45	0,43	0,41	
	Q [m ³ /h]	1.460,00	1.770,00	2.080,00	2.400,00	2.700,00	3.010,00	3.320,00	3.630,00	3.940,00	4.240,00	4.550,00	4.860,00	5.160,00	5.470,00	25 dB
	Δp [Pa]	1,84	1,20	0,89	0,72	0,59	0,52	0,46	0,42	0,38	0,35	0,33	0,31	0,30	0,29	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	
800	Sn [m ²]	0,1179	0,1539	0,1898	0,2258	0,2617	0,2977	0,3336	0,3696	0,4055	0,4415	0,4774	0,5134	0,5493	0,5853	
	Sn [%]	76,55	79,42	81,31	82,66	83,66	84,44	85,05	85,56	85,98	86,34	86,64	86,90	87,13	87,34	
	Q [m ³ /h]	3.230,00	3.920,00	4.610,00	5.300,00	5.980,00	6.660,00	7.340,00	8.020,00	8.700,00	9.380,00	10.050,00	10.730,00	11.400,00	12.070,00	45 dB
	Δp [Pa]	7,55	4,90	3,60	2,86	2,37	2,04	1,81	1,63	1,49	1,38	1,29	1,22	1,15	1,10	
	Q [m ³ /h]	2.690,00	3.270,00	3.840,00	4.410,00	4.980,00	5.540,00	6.110,00	6.670,00	7.240,00	7.800,00	8.360,00	8.920,00	9.480,00	10.040,00	40 dB
	Δp [Pa]	5,23	3,41	2,50	1,98	1,65	1,41	1,25	1,13	1,03	0,96	0,89	0,84	0,80	0,76	
	Q [m ³ /h]	2.240,00	2.720,00	3.190,00	3.670,00	4.140,00	4.610,00	5.080,00	5.550,00	6.020,00	6.490,00	6.960,00	7.420,00	7.890,00	8.360,00	35 dB
	Δp [Pa]	3,63	2,36	1,72	1,37	1,14	0,98	0,87	0,78	0,71	0,66	0,62	0,58	0,55	0,53	
	Q [m ³ /h]	1.860,00	2.260,00	2.660,00	3.050,00	3.450,00	3.840,00	4.230,00	4.620,00	5.010,00	5.400,00	5.790,00	6.180,00	6.560,00	6.950,00	30 dB
	Δp [Pa]	2,50	1,63	1,20	0,95	0,79	0,68	0,60	0,54	0,49	0,46	0,43	0,40	0,38	0,36	
	Q [m ³ /h]	1.550,00	1.880,00	2.210,00	2.540,00	2.870,00	3.190,00	3.520,00	3.840,00	4.170,00	4.490,00	4.820,00	5.140,00	5.460,00	5.780,00	25 dB
	Δp [Pa]	1,74	1,13	0,83	0,66	0,55	0,47	0,42	0,37	0,34	0,32	0,30	0,28	0,26	0,25	
850	Sn [m ²]	0,1261	0,1646	0,2030	0,2415	0,2799	0,3184	0,3568	0,3953	0,4337	0,4722	0,5106	0,5491	0,5875	0,6260	
	Sn [%]	77,02	79,91	81,82	83,17	84,18	84,96	85,58	86,09	86,51	86,87	87,18	87,44	87,67	87,88	
	Q [m ³ /h]	3.420,00	4.150,00	4.880,00	5.600,00	6.320,00	7.040,00	7.760,00	8.470,00	9.180,00	9.890,00	10.600,00	11.310,00	12.020,00	12.730,00	45 dB
	Δp [Pa]	7,17	4,62	3,37	2,65	2,19	1,88	1,66	1,48	1,35	1,25	1,16	1,09	1,03	0,98	
	Q [m ³ /h]	2.850,00	3.460,00	4.060,00	4.660,00	5.260,00	5.860,00	6.450,00	7.050,00	7.640,00	8.230,00	8.820,00	9.410,00	10.000,00	10.590,00	40 dB
	Δp [Pa]	4,98	3,21	2,33	1,83	1,52	1,30	1,14	1,03	0,94	0,86	0,81	0,76	0,72	0,68	
	Q [m ³ /h]	2.370,00	2.880,00	3.380,00	3.880,00	4.380,00	4.870,00	5.370,00	5.860,00	6.360,00	6.850,00	7.340,00	7.830,00	8.320,00	8.810,00	35 dB
	Δp [Pa]	3,44	2,22	1,62	1,27	1,05	0,90	0,79	0,71	0,65	0,60	0,56	0,52	0,50	0,47	
	Q [m ³ /h]	1.970,00	2.390,00	2.810,00	3.230,00	3.640,00	4.060,00	4.470,00	4.880,00	5.290,00	5.700,00	6.110,00	6.520,00	6.920,00	7.330,00	30 dB
	Δp [Pa]	2,38	1,53	1,12	0,88	0,73	0,62	0,55	0,49	0,45	0,41	0,39	0,36	0,34	0,33	
	Q [m ³ /h]	1.640,00	1.990,00	2.340,00	2.690,00	3.030,00	3.370,00	3.720,00	4.060,00	4.400,00	4.740,00	5.080,00	5.420,00	5.760,00	6.100,00	25 dB
	Δp [Pa]	1,65	1,06	0,77	0,61	0,50	0,43	0,38	0,34	0,31	0,29	0,27	0,25	0,24	0,23	
900	Sn [m ²]	0,1343	0,1753	0,2162	0,2572	0,2981	0,3391	0,3800	0,4210	0,4619	0,5029	0,5438	0,5848	0,6257	0,6667	
	Sn [%]	77,44	80,35	82,26	83,62	84,64	85,42	86,05	86,56	86,98	87,34	87,65	87,92	88,15	88,35	
	Q [m ³ /h]	3.610,00	4.380,00	5.150,00	5.910,00	6.660,00	7.420,00	8.170,00	8.920,00	9.670,00	10.410,00	11.160,00	11.900,00	12.650,00	13.390,00	45 dB
	Δp [Pa]	6,85	4,38	3,17	2,48	2,04	1,74	1,53	1,36	1,24	1,14	1,06	0,99	0,94	0,89	
	Q [m ³ /h]	3.000,00	3.650,00	4.280,00	4.910,00	5.540,00	6.170,00	6.800,00	7.420,00	8.040,00	8.660,00	9.280,00	9.900,00	10.520,00	11.140,00	40 dB
	Δp [Pa]	4,73	3,04	2,19	1,71	1,41	1,20	1,06	0,94	0,86	0,79	0,73	0,69	0,65	0,62	
	Q [m ³ /h]	2.500,00	3.030,00	3.560,00	4.090,00	4.610,00	5.130,00	5.650,00	6.170,00	6.690,00	7.210,00	7.720,00	8.240,00	8.750,00	9.270,00	35 dB
	Δp [Pa]	3,29	2,09	1,52	1,19	0,98	0,83	0,73	0,65	0,59	0,55	0,51	0,48	0,45	0,43	
	Q [m ³ /h]	2.080,00	2.520,00	2.960,00	3.400,00	3.840,00	4.270,00	4.700,00	5.140,00	5.570,00	6.000,00	6.430,00	6.850,00	7.280,00	7.710,00	30 dB
	Δp [Pa]	2,27	1,45	1,05	0,82	0,68	0,58	0,50	0,45	0,41	0,38	0,35	0,33	0,31	0,30	
	Q [m ³ /h]	1.730,00	2.100,00	2.470,00	2.830,00	3.190,00	3.550,00	3.910,00	4.270,00	4.630,00	4.990,00	5.350,00	5.700,00	6.060,00	6.420,00	25 dB
	Δp [Pa]	1,57	1,01	0,73	0,57	0,47	0,40	0,35	0,31	0,28	0,26	0,24	0,23	0,22	0,20	

Hn\Wn [mm]		200	250	300	350	400	450	500	550	600	650	700	750	800	850	
950	Sn [m ²]	0,1425	0,1860	0,2294	0,2729	0,3163	0,3598	0,4032	0,4467	0,4901	0,5336	0,5770	0,6205	0,6639	0,7074	
	Sn [%]	77,82	80,74	82,66	84,03	85,05	85,84	86,46	86,98	87,41	87,77	88,08	88,34	88,58	88,78	
	Q [m ³ /h]	3.800,00	4.610,00	5.410,00	6.210,00	7.000,00	7.790,00	8.580,00	9.360,00	10.150,00	10.930,00	11.710,00	12.490,00	13.270,00	14.050,00	45 dB
	Δp [Pa]	6,58	4,17	3,00	2,33	1,91	1,62	1,42	1,26	1,14	1,05	0,97	0,91	0,86	0,81	
	Q [m ³ /h]	3.160,00	3.840,00	4.500,00	5.170,00	5.830,00	6.480,00	7.140,00	7.790,00	8.440,00	9.090,00	9.740,00	10.390,00	11.040,00	11.690,00	40 dB
	Δp [Pa]	4,55	2,89	2,07	1,62	1,32	1,12	0,98	0,87	0,79	0,73	0,67	0,63	0,59	0,56	
	Q [m ³ /h]	2.630,00	3.190,00	3.750,00	4.300,00	4.850,00	5.390,00	5.940,00	6.480,00	7.020,00	7.560,00	8.100,00	8.640,00	9.180,00	9.720,00	35 dB
	Δp [Pa]	3,15	2,00	1,44	1,12	0,92	0,78	0,68	0,60	0,55	0,50	0,47	0,43	0,41	0,39	
	Q [m ³ /h]	2.190,00	2.660,00	3.120,00	3.580,00	4.030,00	4.490,00	4.940,00	5.390,00	5.840,00	6.290,00	6.740,00	7.190,00	7.640,00	8.090,00	30 dB
	Δp [Pa]	2,18	1,39	1,00	0,78	0,63	0,54	0,47	0,42	0,38	0,35	0,32	0,30	0,28	0,27	
	Q [m ³ /h]	1.820,00	2.210,00	2.590,00	2.980,00	3.360,00	3.730,00	4.110,00	4.490,00	4.860,00	5.240,00	5.610,00	5.980,00	6.360,00	6.730,00	25 dB
	Δp [Pa]	1,51	0,96	0,69	0,54	0,44	0,37	0,32	0,29	0,26	0,24	0,22	0,21	0,20	0,19	
1000	Sn [m ²]	0,1507	0,1967	0,2426	0,2886	0,3345	0,3805	0,4264	0,4724	0,5183	0,5643	0,6102	0,6562	0,7021	0,7481	
	Sn [%]	78,16	81,09	83,02	84,39	85,42	86,21	86,84	87,36	87,79	88,15	88,46	88,73	88,96	89,17	
	Q [m ³ /h]	3.990,00	4.840,00	5.680,00	6.510,00	7.340,00	8.170,00	8.990,00	9.810,00	10.630,00	11.440,00	12.260,00	13.070,00	13.890,00	14.700,00	45 dB
	Δp [Pa]	6,34	3,99	2,85	2,20	1,80	1,52	1,32	1,17	1,06	0,97	0,90	0,84	0,79	0,74	
	Q [m ³ /h]	3.320,00	4.030,00	4.720,00	5.420,00	6.110,00	6.790,00	7.480,00	8.160,00	8.840,00	9.520,00	10.200,00	10.880,00	11.550,00	12.230,00	40 dB
	Δp [Pa]	4,39	2,77	1,97	1,53	1,25	1,05	0,92	0,81	0,73	0,67	0,62	0,58	0,54	0,52	
	Q [m ³ /h]	2.760,00	3.350,00	3.930,00	4.510,00	5.080,00	5.650,00	6.220,00	6.790,00	7.360,00	7.920,00	8.490,00	9.050,00	9.610,00	10.170,00	35 dB
	Δp [Pa]	3,03	1,91	1,37	1,06	0,86	0,73	0,63	0,56	0,51	0,46	0,43	0,40	0,38	0,36	
	Q [m ³ /h]	2.300,00	2.790,00	3.270,00	3.750,00	4.230,00	4.700,00	5.180,00	5.650,00	6.120,00	6.590,00	7.060,00	7.530,00	8.000,00	8.460,00	30 dB
	Δp [Pa]	2,11	1,33	0,95	0,73	0,60	0,50	0,44	0,39	0,35	0,32	0,30	0,28	0,26	0,25	
	Q [m ³ /h]	1.910,00	2.320,00	2.720,00	3.120,00	3.520,00	3.910,00	4.310,00	4.700,00	5.090,00	5.480,00	5.870,00	6.260,00	6.650,00	7.040,00	25 dB
	Δp [Pa]	1,45	0,92	0,65	0,51	0,41	0,35	0,30	0,27	0,24	0,22	0,21	0,19	0,18	0,17	

Hn\Wn [mm]		900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
200	Sn [m ²]	0,1028	0,1088	0,1147	0,1207	0,1266	0,1326	0,1385	0,1445	0,1504	0,1564	0,1623	0,1683	0,1742	45 dB
	Sn [%]	59,28	59,39	59,49	59,58	59,66	59,73	59,80	59,86	59,92	59,97	60,02	60,07	60,11	
	Q [m ³ /h]	4.070,00	4.290,00	4.510,00	4.730,00	4.960,00	5.180,00	5.400,00	5.630,00	5.850,00	6.070,00	6.300,00	6.520,00	6.740,00	
	Δp [Pa]	45,38	44,89	44,44	44,04	43,86	43,53	43,23	43,10	42,84	42,60	42,52	42,31	42,11	
	Q [m ³ /h]	3.380,00	3.570,00	3.750,00	3.940,00	4.120,00	4.310,00	4.500,00	4.680,00	4.870,00	5.050,00	5.240,00	5.420,00	5.610,00	40 dB
	Δp [Pa]	31,30	31,08	30,73	30,56	30,26	30,14	30,02	29,78	29,69	29,49	29,41	29,23	29,17	
	Q [m ³ /h]	2.810,00	2.970,00	3.120,00	3.280,00	3.430,00	3.590,00	3.740,00	3.900,00	4.050,00	4.200,00	4.360,00	4.510,00	4.670,00	35 dB
	Δp [Pa]	21,63	21,51	21,27	21,18	20,98	20,91	20,73	20,68	20,53	20,40	20,36	20,24	20,22	
	Q [m ³ /h]	2.340,00	2.470,00	2.600,00	2.730,00	2.860,00	2.980,00	3.110,00	3.240,00	3.370,00	3.500,00	3.630,00	3.760,00	3.880,00	30 dB
	Δp [Pa]	15,00	14,88	14,77	14,67	14,58	14,41	14,34	14,27	14,22	14,16	14,11	14,07	13,95	
	Q [m ³ /h]	1.950,00	2.060,00	2.160,00	2.270,00	2.380,00	2.480,00	2.590,00	2.700,00	2.800,00	2.910,00	3.020,00	3.120,00	3.230,00	25 dB
	Δp [Pa]	10,42	10,35	10,19	10,14	10,10	9,98	9,94	9,91	9,81	9,79	9,77	9,69	9,67	
250	Sn [m ²]	0,1460	0,1545	0,1629	0,1714	0,1798	0,1883	0,1967	0,2052	0,2136	0,2221	0,2305	0,2390	0,2474	45 dB
	Sn [%]	66,94	67,06	67,17	67,27	67,36	67,45	67,52	67,59	67,66	67,72	67,77	67,82	67,87	
	Q [m ³ /h]	4.820,00	5.090,00	5.350,00	5.620,00	5.880,00	6.140,00	6.410,00	6.670,00	6.930,00	7.200,00	7.460,00	7.720,00	7.990,00	
	Δp [Pa]	19,51	19,32	19,07	18,92	18,72	18,54	18,44	18,28	18,14	18,06	17,94	17,83	17,77	
	Q [m ³ /h]	4.010,00	4.230,00	4.450,00	4.670,00	4.890,00	5.110,00	5.330,00	5.550,00	5.770,00	5.990,00	6.210,00	6.430,00	6.650,00	40 dB
	Δp [Pa]	13,51	13,34	13,20	13,07	12,95	12,84	12,75	12,66	12,58	12,50	12,43	12,37	12,31	
	Q [m ³ /h]	3.340,00	3.520,00	3.700,00	3.890,00	4.070,00	4.250,00	4.430,00	4.620,00	4.800,00	4.980,00	5.160,00	5.350,00	5.530,00	35 dB
	Δp [Pa]	9,37	9,24	9,12	9,07	8,97	8,88	8,81	8,77	8,70	8,64	8,58	8,56	8,51	
	Q [m ³ /h]	2.780,00	2.930,00	3.080,00	3.230,00	3.390,00	3.540,00	3.690,00	3.840,00	3.990,00	4.150,00	4.300,00	4.450,00	4.600,00	30 dB
	Δp [Pa]	6,49	6,40	6,32	6,25	6,22	6,16	6,11	6,06	6,01	6,00	5,96	5,93	5,89	
	Q [m ³ /h]	2.310,00	2.440,00	2.570,00	2.690,00	2.820,00	2.940,00	3.070,00	3.200,00	3.320,00	3.450,00	3.580,00	3.700,00	3.830,00	25 dB
	Δp [Pa]	4,48	4,44	4,40	4,34	4,31	4,25	4,23	4,21	4,16	4,15	4,13	4,10	4,08	
300	Sn [m ²]	0,1892	0,2002	0,2111	0,2221	0,2330	0,2440	0,2549	0,2659	0,2768	0,2878	0,2987	0,3097	0,3206	45 dB
	Sn [%]	71,99	72,12	72,24	72,35	72,45	72,54	72,62	72,69	72,76	72,83	72,89	72,94	72,99	
	Q [m ³ /h]	5.580,00	5.880,00	6.180,00	6.490,00	6.790,00	7.090,00	7.400,00	7.700,00	8.010,00	8.310,00	8.610,00	8.920,00	9.220,00	
	Δp [Pa]	10,88	10,70	10,54	10,42	10,29	10,18	10,10	10,00	9,93	9,85	9,77	9,72	9,65	
	Q [m ³ /h]	4.640,00	4.890,00	5.140,00	5.400,00	5.650,00	5.900,00	6.160,00	6.410,00	6.660,00	6.910,00	7.170,00	7.420,00	7.670,00	40 dB
	Δp [Pa]	7,52	7,40	7,29	7,22	7,13	7,05	7,00	6,93	6,87	6,81	6,77	6,72	6,68	
	Q [m ³ /h]	3.860,00	4.070,00	4.280,00	4.490,00	4.700,00	4.910,00	5.120,00	5.330,00	5.540,00	5.750,00	5.960,00	6.170,00	6.380,00	35 dB
	Δp [Pa]	5,21	5,12	5,05	4,99	4,93	4,88	4,83	4,79	4,75	4,71	4,68	4,65	4,62	
	Q [m ³ /h]	3.210,00	3.390,00	3.560,00	3.740,00	3.910,00	4.090,00	4.260,00	4.440,00	4.610,00	4.790,00	4.960,00	5.140,00	5.310,00	30 dB
	Δp [Pa]	3,60	3,56	3,50	3,46	3,41	3,39	3,35	3,32	3,29	3,27	3,24	3,23	3,20	
	Q [m ³ /h]	2.670,00	2.820,00	2.960,00	3.110,00	3.250,00	3.400,00	3.550,00	3.690,00	3.840,00	3.980,00	4.130,00	4.270,00	4.420,00	25 dB
	Δp [Pa]	2,49	2,46	2,42	2,39	2,36	2,34	2,32	2,30	2,28	2,26	2,25	2,23	2,22	

Hn\Wn [mm]		900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
350	Sn [m ²]	0,2324	0,2459	0,2593	0,2728	0,2862	0,2997	0,3131	0,3266	0,3400	0,3535	0,3669	0,3804	0,3938	45 dB
	Sn [%]	75,57	75,71	75,84	75,95	76,05	76,15	76,23	76,31	76,38	76,45	76,51	76,57	76,63	
	Q [m ³ /h]	6.320,00	6.660,00	7.010,00	7.350,00	7.690,00	8.030,00	8.380,00	8.720,00	9.060,00	9.410,00	9.750,00	10.090,00	10.430,00	
	Δp [Pa]	6,95	6,82	6,72	6,61	6,52	6,43	6,37	6,30	6,23	6,19	6,13	6,08	6,03	
	Q [m ³ /h]	5.260,00	5.540,00	5.830,00	6.110,00	6.400,00	6.680,00	6.970,00	7.250,00	7.540,00	7.830,00	8.110,00	8.400,00	8.680,00	40 dB
	Δp [Pa]	4,81	4,72	4,65	4,57	4,51	4,45	4,41	4,35	4,32	4,28	4,24	4,21	4,18	
	Q [m ³ /h]	4.370,00	4.610,00	4.850,00	5.090,00	5.320,00	5.560,00	5.800,00	6.040,00	6.270,00	6.510,00	6.750,00	6.990,00	7.220,00	35 dB
	Δp [Pa]	3,32	3,27	3,22	3,17	3,12	3,08	3,05	3,02	2,99	2,96	2,94	2,92	2,89	
	Q [m ³ /h]	3.640,00	3.840,00	4.040,00	4.230,00	4.430,00	4.630,00	4.820,00	5.020,00	5.220,00	5.420,00	5.610,00	5.810,00	6.010,00	30 dB
	Δp [Pa]	2,30	2,27	2,23	2,19	2,16	2,14	2,11	2,09	2,07	2,05	2,03	2,02	2,00	
	Q [m ³ /h]	3.030,00	3.190,00	3.360,00	3.520,00	3.690,00	3.850,00	4.010,00	4.180,00	4.340,00	4.510,00	4.670,00	4.840,00	5.000,00	25 dB
	Δp [Pa]	1,60	1,56	1,54	1,52	1,50	1,48	1,46	1,45	1,43	1,42	1,41	1,40	1,39	
400	Sn [m ²]	0,2756	0,2916	0,3075	0,3235	0,3394	0,3554	0,3713	0,3873	0,4032	0,4192	0,4351	0,4511	0,4670	45 dB
	Sn [%]	78,25	78,39	78,52	78,64	78,74	78,84	78,93	79,01	79,09	79,16	79,22	79,28	79,34	
	Q [m ³ /h]	7.060,00	7.440,00	7.820,00	8.200,00	8.580,00	8.960,00	9.340,00	9.730,00	10.110,00	10.490,00	10.870,00	11.250,00	11.630,00	
	Δp [Pa]	4,86	4,76	4,67	4,59	4,52	4,45	4,39	4,35	4,30	4,25	4,21	4,17	4,13	
	Q [m ³ /h]	5.870,00	6.190,00	6.500,00	6.820,00	7.140,00	7.460,00	7.770,00	8.090,00	8.410,00	8.730,00	9.040,00	9.360,00	9.680,00	40 dB
	Δp [Pa]	3,36	3,30	3,23	3,17	3,13	3,08	3,04	3,00	2,97	2,94	2,91	2,89	2,86	
	Q [m ³ /h]	4.880,00	5.150,00	5.410,00	5.680,00	5.940,00	6.200,00	6.470,00	6.730,00	7.000,00	7.260,00	7.520,00	7.790,00	8.050,00	35 dB
	Δp [Pa]	2,32	2,28	2,24	2,20	2,16	2,13	2,11	2,08	2,06	2,04	2,01	2,00	1,98	
	Q [m ³ /h]	4.060,00	4.280,00	4.500,00	4.720,00	4.940,00	5.160,00	5.380,00	5.600,00	5.820,00	6.040,00	6.260,00	6.480,00	6.700,00	30 dB
	Δp [Pa]	1,61	1,58	1,55	1,52	1,50	1,48	1,46	1,44	1,42	1,41	1,40	1,38	1,37	
	Q [m ³ /h]	3.380,00	3.560,00	3.750,00	3.930,00	4.110,00	4.290,00	4.480,00	4.660,00	4.840,00	5.030,00	5.210,00	5.390,00	5.570,00	25 dB
	Δp [Pa]	1,12	1,09	1,07	1,05	1,04	1,02	1,01	1,00	0,98	0,98	0,97	0,96	0,95	
450	Sn [m ²]	0,3188	0,3373	0,3557	0,3742	0,3926	0,4111	0,4295	0,4480	0,4664	0,4849	0,5033	0,5218	0,5402	45 dB
	Sn [%]	80,32	80,47	80,60	80,72	80,83	80,93	81,02	81,10	81,18	81,25	81,32	81,38	81,44	
	Q [m ³ /h]	7.780,00	8.200,00	8.620,00	9.040,00	9.460,00	9.880,00	10.300,00	10.720,00	11.140,00	11.560,00	11.980,00	12.400,00	12.820,00	
	Δp [Pa]	3,61	3,53	3,45	3,39	3,33	3,28	3,23	3,18	3,14	3,11	3,07	3,04	3,01	
	Q [m ³ /h]	6.480,00	6.830,00	7.170,00	7.520,00	7.870,00	8.220,00	8.570,00	8.920,00	9.270,00	9.620,00	9.970,00	10.310,00	10.660,00	40 dB
	Δp [Pa]	2,50	2,45	2,39	2,34	2,30	2,27	2,23	2,20	2,18	2,15	2,13	2,10	2,08	
	Q [m ³ /h]	5.390,00	5.680,00	5.970,00	6.260,00	6.550,00	6.840,00	7.130,00	7.420,00	7.710,00	8.000,00	8.290,00	8.580,00	8.870,00	35 dB
	Δp [Pa]	1,73	1,69	1,66	1,62	1,60	1,57	1,55	1,53	1,51	1,49	1,47	1,46	1,44	
	Q [m ³ /h]	4.480,00	4.720,00	4.970,00	5.210,00	5.450,00	5.690,00	5.930,00	6.170,00	6.410,00	6.660,00	6.900,00	7.140,00	7.380,00	30 dB
	Δp [Pa]	1,20	1,17	1,15	1,13	1,10	1,09	1,07	1,05	1,04	1,03	1,02	1,01	1,00	
	Q [m ³ /h]	3.730,00	3.930,00	4.130,00	4.330,00	4.530,00	4.730,00	4.940,00	5.140,00	5.340,00	5.540,00	5.740,00	5.940,00	6.140,00	25 dB
	Δp [Pa]	0,83	0,81	0,79	0,78	0,76	0,75	0,74	0,73	0,72	0,71	0,71	0,70	0,69	

Hn\Wn [mm]		900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
500	Sn [m ²]	0,3620	0,3830	0,4039	0,4249	0,4458	0,4668	0,4877	0,5087	0,5296	0,5506	0,5715	0,5925	0,6134	45 dB
	Sn [%]	81,97	82,12	82,26	82,38	82,49	82,59	82,69	82,77	82,85	82,92	82,99	83,06	83,11	
	Q [m ³ /h]	8.510,00	8.960,00	9.420,00	9.880,00	10.330,00	10.790,00	11.250,00	11.700,00	12.160,00	12.620,00	13.070,00	13.530,00	13.990,00	
	Δp [Pa]	2,81	2,74	2,68	2,62	2,57	2,52	2,48	2,44	2,41	2,38	2,35	2,32	2,30	
	Q [m ³ /h]	7.080,00	7.460,00	7.840,00	8.220,00	8.600,00	8.980,00	9.360,00	9.740,00	10.120,00	10.500,00	10.880,00	11.260,00	11.640,00	40 dB
	Δp [Pa]	1,95	1,90	1,85	1,81	1,78	1,75	1,72	1,69	1,67	1,65	1,63	1,61	1,59	
	Q [m ³ /h]	5.890,00	6.200,00	6.520,00	6.840,00	7.150,00	7.470,00	7.790,00	8.100,00	8.420,00	8.730,00	9.050,00	9.370,00	9.680,00	35 dB
	Δp [Pa]	1,35	1,31	1,28	1,26	1,23	1,21	1,19	1,17	1,16	1,14	1,13	1,11	1,10	
	Q [m ³ /h]	4.900,00	5.160,00	5.430,00	5.690,00	5.950,00	6.210,00	6.480,00	6.740,00	7.000,00	7.270,00	7.530,00	7.790,00	8.050,00	30 dB
	Δp [Pa]	0,93	0,91	0,89	0,87	0,85	0,84	0,82	0,81	0,80	0,79	0,78	0,77	0,76	
	Q [m ³ /h]	4.080,00	4.300,00	4.510,00	4.730,00	4.950,00	5.170,00	5.390,00	5.610,00	5.830,00	6.040,00	6.260,00	6.480,00	6.700,00	25 dB
	Δp [Pa]	0,65	0,63	0,61	0,60	0,59	0,58	0,57	0,56	0,55	0,55	0,54	0,53	0,53	
550	Sn [m ²]	0,4052	0,4287	0,4521	0,4756	0,4990	0,5225	0,5459	0,5694	0,5928	0,6163	0,6397	0,6632	0,6866	45 dB
	Sn [%]	83,32	83,47	83,61	83,74	83,85	83,95	84,05	84,13	84,21	84,29	84,36	84,42	84,48	
	Q [m ³ /h]	9.220,00	9.720,00	10.210,00	10.710,00	11.200,00	11.690,00	12.190,00	12.680,00	13.170,00	13.670,00	14.160,00	14.650,00	15.150,00	
	Δp [Pa]	2,26	2,20	2,15	2,10	2,05	2,01	1,98	1,94	1,91	1,89	1,86	1,84	1,82	
	Q [m ³ /h]	7.670,00	8.080,00	8.500,00	8.910,00	9.320,00	9.730,00	10.140,00	10.550,00	10.960,00	11.370,00	11.780,00	12.190,00	12.600,00	40 dB
	Δp [Pa]	1,57	1,52	1,49	1,45	1,42	1,39	1,37	1,35	1,32	1,31	1,29	1,27	1,26	
	Q [m ³ /h]	6.380,00	6.730,00	7.070,00	7.410,00	7.750,00	8.090,00	8.430,00	8.780,00	9.120,00	9.460,00	9.800,00	10.140,00	10.480,00	35 dB
	Δp [Pa]	1,08	1,06	1,03	1,00	0,98	0,96	0,95	0,93	0,92	0,90	0,89	0,88	0,87	
	Q [m ³ /h]	5.310,00	5.600,00	5.880,00	6.160,00	6.450,00	6.730,00	7.020,00	7.300,00	7.590,00	7.870,00	8.150,00	8.440,00	8.720,00	30 dB
	Δp [Pa]	0,75	0,73	0,71	0,69	0,68	0,67	0,66	0,64	0,64	0,63	0,62	0,61	0,60	
	Q [m ³ /h]	4.420,00	4.660,00	4.890,00	5.130,00	5.370,00	5.600,00	5.840,00	6.070,00	6.310,00	6.550,00	6.780,00	7.020,00	7.260,00	25 dB
	Δp [Pa]	0,52	0,51	0,49	0,48	0,47	0,46	0,45	0,45	0,44	0,43	0,43	0,42	0,42	
600	Sn [m ²]	0,4484	0,4744	0,5003	0,5263	0,5522	0,5782	0,6041	0,6301	0,6560	0,6820	0,7079	0,7339	0,7598	45 dB
	Sn [%]	84,44	84,60	84,74	84,86	84,98	85,08	85,18	85,27	85,35	85,42	85,49	85,56	85,62	
	Q [m ³ /h]	9.940,00	10.470,00	11.000,00	11.530,00	12.060,00	12.590,00	13.120,00	13.650,00	14.180,00	14.710,00	15.240,00	15.770,00	16.300,00	
	Δp [Pa]	1,88	1,82	1,77	1,72	1,69	1,65	1,62	1,59	1,56	1,54	1,52	1,50	1,48	
	Q [m ³ /h]	8.270,00	8.710,00	9.150,00	9.590,00	10.030,00	10.470,00	10.910,00	11.350,00	11.790,00	12.230,00	12.680,00	13.120,00	13.560,00	40 dB
	Δp [Pa]	1,30	1,26	1,22	1,19	1,17	1,14	1,12	1,10	1,08	1,06	1,05	1,04	1,02	
	Q [m ³ /h]	6.880,00	7.240,00	7.610,00	7.980,00	8.350,00	8.710,00	9.080,00	9.450,00	9.810,00	10.180,00	10.550,00	10.910,00	11.280,00	35 dB
	Δp [Pa]	0,90	0,87	0,85	0,83	0,81	0,79	0,77	0,76	0,75	0,74	0,73	0,72	0,71	
	Q [m ³ /h]	5.720,00	6.030,00	6.330,00	6.640,00	6.940,00	7.250,00	7.550,00	7.860,00	8.160,00	8.470,00	8.770,00	9.080,00	9.380,00	30 dB
	Δp [Pa]	0,62	0,60	0,59	0,57	0,56	0,55	0,54	0,53	0,52	0,51	0,50	0,50	0,49	
	Q [m ³ /h]	4.760,00	5.010,00	5.270,00	5.520,00	5.780,00	6.030,00	6.280,00	6.540,00	6.790,00	7.050,00	7.300,00	7.550,00	7.810,00	25 dB
	Δp [Pa]	0,43	0,42	0,41	0,40	0,39	0,38	0,37	0,36	0,36	0,35	0,35	0,34	0,34	

Hn\Wn [mm]		900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
650	Sn [m ²]	0,4916	0,5201	0,5485	0,5770	0,6054	0,6339	0,6623	0,6908	0,7192	0,7477	0,7761	0,8046	0,8330	45 dB
	Sn [%]	85,39	85,55	85,69	85,82	85,93	86,04	86,13	86,22	86,31	86,38	86,45	86,52	86,58	
	Q [m ³ /h]	10.640,00	11.210,00	11.780,00	12.340,00	12.910,00	13.480,00	14.040,00	14.610,00	15.170,00	15.740,00	16.300,00	16.870,00	17.440,00	
	Δp [Pa]	1,58	1,53	1,49	1,45	1,41	1,38	1,35	1,33	1,30	1,28	1,26	1,24	1,23	
	Q [m ³ /h]	8.860,00	9.330,00	9.800,00	10.270,00	10.740,00	11.210,00	11.680,00	12.150,00	12.620,00	13.090,00	13.560,00	14.030,00	14.510,00	40 dB
	Δp [Pa]	1,10	1,06	1,03	1,00	0,98	0,96	0,94	0,92	0,90	0,89	0,87	0,86	0,85	
	Q [m ³ /h]	7.370,00	7.760,00	8.150,00	8.540,00	8.940,00	9.330,00	9.720,00	10.110,00	10.500,00	10.890,00	11.280,00	11.680,00	12.070,00	35 dB
	Δp [Pa]	0,76	0,73	0,71	0,69	0,68	0,66	0,65	0,64	0,62	0,61	0,60	0,60	0,59	
	Q [m ³ /h]	6.130,00	6.460,00	6.780,00	7.110,00	7.430,00	7.760,00	8.090,00	8.410,00	8.740,00	9.060,00	9.390,00	9.710,00	10.040,00	30 dB
	Δp [Pa]	0,53	0,51	0,49	0,48	0,47	0,46	0,45	0,44	0,43	0,42	0,42	0,41	0,41	
	Q [m ³ /h]	5.100,00	5.370,00	5.640,00	5.910,00	6.180,00	6.460,00	6.730,00	7.000,00	7.270,00	7.540,00	7.810,00	8.080,00	8.350,00	25 dB
	Δp [Pa]	0,36	0,35	0,34	0,33	0,32	0,32	0,31	0,30	0,30	0,29	0,29	0,29	0,28	
700	Sn [m ²]	0,5348	0,5658	0,5967	0,6277	0,6586	0,6896	0,7205	0,7515	0,7824	0,8134	0,8443	0,8753	0,9062	45 dB
	Sn [%]	86,20	86,36	86,50	86,63	86,75	86,85	86,95	87,04	87,13	87,20	87,27	87,34	87,40	
	Q [m ³ /h]	11.350,00	11.950,00	12.550,00	13.150,00	13.760,00	14.360,00	14.960,00	15.560,00	16.160,00	16.760,00	17.370,00	17.970,00	18.570,00	
	Δp [Pa]	1,36	1,32	1,28	1,24	1,21	1,18	1,15	1,13	1,11	1,09	1,07	1,05	1,04	
	Q [m ³ /h]	9.440,00	9.940,00	10.440,00	10.940,00	11.440,00	11.950,00	12.450,00	12.950,00	13.450,00	13.950,00	14.450,00	14.950,00	15.450,00	40 dB
	Δp [Pa]	0,94	0,91	0,88	0,86	0,84	0,82	0,80	0,78	0,77	0,75	0,74	0,73	0,72	
	Q [m ³ /h]	7.850,00	8.270,00	8.690,00	9.100,00	9.520,00	9.940,00	10.350,00	10.770,00	11.190,00	11.600,00	12.020,00	12.430,00	12.850,00	35 dB
	Δp [Pa]	0,65	0,63	0,61	0,59	0,58	0,56	0,55	0,54	0,53	0,52	0,51	0,50	0,50	
	Q [m ³ /h]	6.530,00	6.880,00	7.230,00	7.570,00	7.920,00	8.270,00	8.610,00	8.960,00	9.310,00	9.650,00	10.000,00	10.340,00	10.690,00	30 dB
	Δp [Pa]	0,45	0,44	0,42	0,41	0,40	0,39	0,38	0,37	0,37	0,36	0,35	0,35	0,34	
	Q [m ³ /h]	5.440,00	5.730,00	6.010,00	6.300,00	6.590,00	6.880,00	7.170,00	7.450,00	7.740,00	8.030,00	8.320,00	8.610,00	8.890,00	25 dB
	Δp [Pa]	0,31	0,30	0,29	0,28	0,28	0,27	0,26	0,26	0,25	0,25	0,25	0,24	0,24	
750	Sn [m ²]	0,5780	0,6115	0,6449	0,6784	0,7118	0,7453	0,7787	0,8122	0,8456	0,8791	0,9125	0,9460	0,9794	45 dB
	Sn [%]	86,90	87,06	87,21	87,34	87,45	87,56	87,66	87,75	87,83	87,91	87,98	88,05	88,11	
	Q [m ³ /h]	12.050,00	12.690,00	13.320,00	13.960,00	14.600,00	15.240,00	15.870,00	16.510,00	17.150,00	17.780,00	18.420,00	19.060,00	19.690,00	
	Δp [Pa]	1,19	1,15	1,11	1,08	1,05	1,02	1,00	0,98	0,96	0,94	0,92	0,91	0,89	
	Q [m ³ /h]	10.020,00	10.550,00	11.090,00	11.620,00	12.150,00	12.680,00	13.210,00	13.730,00	14.260,00	14.790,00	15.320,00	15.850,00	16.380,00	40 dB
	Δp [Pa]	0,82	0,79	0,77	0,75	0,73	0,71	0,69	0,67	0,66	0,65	0,64	0,63	0,62	
	Q [m ³ /h]	8.340,00	8.780,00	9.220,00	9.660,00	10.100,00	10.550,00	10.990,00	11.430,00	11.870,00	12.310,00	12.750,00	13.190,00	13.630,00	35 dB
	Δp [Pa]	0,57	0,55	0,53	0,52	0,50	0,49	0,48	0,47	0,46	0,45	0,44	0,43	0,43	
	Q [m ³ /h]	6.940,00	7.310,00	7.670,00	8.040,00	8.410,00	8.770,00	9.140,00	9.510,00	9.870,00	10.240,00	10.610,00	10.970,00	11.340,00	30 dB
	Δp [Pa]	0,40	0,38	0,37	0,36	0,35	0,34	0,33	0,32	0,32	0,31	0,31	0,30	0,30	
	Q [m ³ /h]	5.770,00	6.080,00	6.380,00	6.690,00	6.990,00	7.300,00	7.600,00	7.910,00	8.210,00	8.520,00	8.820,00	9.130,00	9.430,00	25 dB
	Δp [Pa]	0,27	0,26	0,25	0,25	0,24	0,23	0,23	0,22	0,22	0,22	0,21	0,21	0,20	

Hn\Wn [mm]		900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
800	Sn [m ²]	0,6212	0,6572	0,6931	0,7291	0,7650	0,8010	0,8369	0,8729	0,9088	0,9448	0,9807	1,0167	1,0526	
	Sn [%]	87,52	87,68	87,82	87,95	88,07	88,18	88,28	88,37	88,45	88,53	88,61	88,67	88,74	
	Q [m ³ /h]	12.750,00	13.420,00	14.090,00	14.760,00	15.440,00	16.110,00	16.780,00	17.450,00	18.120,00	18.800,00	19.470,00	20.140,00	20.810,00	45 dB
	Δp [Pa]	1,05	1,01	0,98	0,95	0,92	0,90	0,87	0,85	0,83	0,82	0,80	0,79	0,78	
	Q [m ³ /h]	10.600,00	11.160,00	11.720,00	12.280,00	12.840,00	13.400,00	13.960,00	14.520,00	15.080,00	15.640,00	16.200,00	16.750,00	17.310,00	40 dB
	Δp [Pa]	0,73	0,70	0,68	0,66	0,64	0,62	0,60	0,59	0,58	0,57	0,56	0,55	0,54	
	Q [m ³ /h]	8.820,00	9.290,00	9.750,00	10.220,00	10.680,00	11.150,00	11.610,00	12.080,00	12.540,00	13.010,00	13.470,00	13.940,00	14.400,00	35 dB
	Δp [Pa]	0,50	0,49	0,47	0,45	0,44	0,43	0,42	0,41	0,40	0,39	0,38	0,38	0,37	
	Q [m ³ /h]	7.340,00	7.730,00	8.110,00	8.500,00	8.890,00	9.280,00	9.660,00	10.050,00	10.440,00	10.820,00	11.210,00	11.600,00	11.980,00	30 dB
	Δp [Pa]	0,35	0,34	0,32	0,31	0,31	0,30	0,29	0,28	0,28	0,27	0,27	0,26	0,26	
	Q [m ³ /h]	6.110,00	6.430,00	6.750,00	7.070,00	7.400,00	7.720,00	8.040,00	8.360,00	8.680,00	9.000,00	9.330,00	9.650,00	9.970,00	25 dB
	Δp [Pa]	0,24	0,23	0,22	0,22	0,21	0,21	0,20	0,20	0,19	0,19	0,18	0,18	0,18	
850	Sn [m ²]	0,6644	0,7029	0,7413	0,7798	0,8182	0,8567	0,8951	0,9336	0,9720	1,0105	1,0489	1,0874	1,1258	
	Sn [%]	88,06	88,22	88,36	88,50	88,62	88,72	88,82	88,92	89,00	89,08	89,15	89,22	89,28	
	Q [m ³ /h]	13.440,00	14.150,00	14.860,00	15.560,00	16.270,00	16.980,00	17.690,00	18.390,00	19.100,00	19.800,00	20.510,00	21.220,00	21.920,00	45 dB
	Δp [Pa]	0,94	0,90	0,87	0,84	0,82	0,79	0,77	0,75	0,74	0,72	0,71	0,70	0,68	
	Q [m ³ /h]	11.180,00	11.770,00	12.360,00	12.950,00	13.540,00	14.120,00	14.710,00	15.300,00	15.890,00	16.480,00	17.060,00	17.650,00	18.240,00	40 dB
	Δp [Pa]	0,65	0,63	0,60	0,58	0,57	0,55	0,54	0,52	0,51	0,50	0,49	0,48	0,47	
	Q [m ³ /h]	9.300,00	9.790,00	10.280,00	10.770,00	11.260,00	11.750,00	12.240,00	12.730,00	13.220,00	13.710,00	14.190,00	14.680,00	15.170,00	35 dB
	Δp [Pa]	0,45	0,43	0,42	0,40	0,39	0,38	0,37	0,36	0,35	0,35	0,34	0,33	0,33	
	Q [m ³ /h]	7.740,00	8.150,00	8.550,00	8.960,00	9.370,00	9.780,00	10.180,00	10.590,00	11.000,00	11.400,00	11.810,00	12.220,00	12.620,00	30 dB
	Δp [Pa]	0,31	0,30	0,29	0,28	0,27	0,26	0,26	0,25	0,24	0,24	0,23	0,23	0,23	
	Q [m ³ /h]	6.440,00	6.780,00	7.120,00	7.460,00	7.790,00	8.130,00	8.470,00	8.810,00	9.150,00	9.490,00	9.820,00	10.160,00	10.500,00	25 dB
	Δp [Pa]	0,22	0,21	0,20	0,19	0,19	0,18	0,18	0,17	0,17	0,17	0,16	0,16	0,16	
900	Sn [m ²]	0,7076	0,7486	0,7895	0,8305	0,8714	0,9124	0,9533	0,9943	1,0352	1,0762	1,1171	1,1581	1,1990	
	Sn [%]	88,54	88,70	88,85	88,98	89,10	89,21	89,31	89,40	89,49	89,57	89,64	89,71	89,77	
	Q [m ³ /h]	14.130,00	14.880,00	15.620,00	16.360,00	17.100,00	17.840,00	18.590,00	19.330,00	20.070,00	20.810,00	21.550,00	22.290,00	23.030,00	45 dB
	Δp [Pa]	0,85	0,82	0,78	0,76	0,73	0,71	0,69	0,67	0,66	0,64	0,63	0,62	0,61	
	Q [m ³ /h]	11.760,00	12.380,00	12.990,00	13.610,00	14.230,00	14.840,00	15.460,00	16.080,00	16.690,00	17.310,00	17.930,00	18.540,00	19.160,00	40 dB
	Δp [Pa]	0,59	0,56	0,54	0,52	0,51	0,49	0,48	0,47	0,46	0,45	0,44	0,43	0,42	
	Q [m ³ /h]	9.780,00	10.300,00	10.810,00	11.320,00	11.840,00	12.350,00	12.860,00	13.380,00	13.890,00	14.400,00	14.910,00	15.420,00	15.940,00	35 dB
	Δp [Pa]	0,41	0,39	0,38	0,36	0,35	0,34	0,33	0,32	0,32	0,31	0,30	0,30	0,29	
	Q [m ³ /h]	8.140,00	8.570,00	8.990,00	9.420,00	9.850,00	10.270,00	10.700,00	11.130,00	11.550,00	11.980,00	12.410,00	12.830,00	13.260,00	30 dB
	Δp [Pa]	0,28	0,27	0,26	0,25	0,24	0,24	0,23	0,22	0,22	0,21	0,21	0,21	0,20	
	Q [m ³ /h]	6.770,00	7.130,00	7.480,00	7.840,00	8.190,00	8.550,00	8.900,00	9.260,00	9.610,00	9.970,00	10.320,00	10.680,00	11.030,00	25 dB
	Δp [Pa]	0,20	0,19	0,18	0,17	0,17	0,16	0,16	0,15	0,15	0,15	0,14	0,14	0,14	

Hn\Wn [mm]		900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
950	Sn [m²]	0,7508	0,7943	0,8377	0,8812	0,9246	0,9681	1,0115	1,0550	1,0984	1,1419	1,1853	1,2288	1,2722	45 dB
	Sn [%]	88,97	89,13	89,28	89,41	89,53	89,64	89,74	89,84	89,92	90,00	90,07	90,14	90,21	
	Q [m³/h]	14.820,00	15.600,00	16.380,00	17.150,00	17.930,00	18.710,00	19.480,00	20.260,00	21.030,00	21.810,00	22.580,00	23.350,00	24.130,00	
	Δp [Pa]	0,77	0,74	0,71	0,69	0,66	0,64	0,62	0,61	0,59	0,58	0,57	0,56	0,54	
	Q [m³/h]	12.330,00	12.980,00	13.630,00	14.270,00	14.920,00	15.560,00	16.210,00	16.850,00	17.500,00	18.140,00	18.780,00	19.430,00	20.070,00	40 dB
	Δp [Pa]	0,53	0,51	0,49	0,47	0,46	0,44	0,43	0,42	0,41	0,40	0,39	0,38	0,38	
	Q [m³/h]	10.260,00	10.800,00	11.340,00	11.870,00	12.410,00	12.950,00	13.480,00	14.020,00	14.560,00	15.090,00	15.630,00	16.160,00	16.700,00	35 dB
	Δp [Pa]	0,37	0,35	0,34	0,33	0,32	0,31	0,30	0,29	0,28	0,28	0,27	0,27	0,26	
	Q [m³/h]	8.540,00	8.980,00	9.430,00	9.880,00	10.320,00	10.770,00	11.220,00	11.660,00	12.110,00	12.560,00	13.000,00	13.450,00	13.890,00	30 dB
	Δp [Pa]	0,26	0,25	0,24	0,23	0,22	0,21	0,21	0,20	0,20	0,19	0,19	0,18	0,18	
	Q [m³/h]	7.100,00	7.470,00	7.850,00	8.220,00	8.590,00	8.960,00	9.330,00	9.700,00	10.070,00	10.450,00	10.820,00	11.190,00	11.560,00	25 dB
	Δp [Pa]	0,18	0,17	0,16	0,16	0,15	0,15	0,14	0,14	0,14	0,13	0,13	0,13	0,13	
1000	Sn [m²]	0,7940	0,8400	0,8859	0,9319	0,9778	1,0238	1,0697	1,1157	1,1616	1,2076	1,2535	1,2995	1,3454	45 dB
	Sn [%]	89,35	89,52	89,66	89,80	89,92	90,03	90,13	90,23	90,31	90,39	90,47	90,53	90,60	
	Q [m³/h]	15.510,00	16.320,00	17.140,00	17.950,00	18.760,00	19.570,00	20.370,00	21.180,00	21.990,00	22.800,00	23.610,00	24.420,00	25.220,00	
	Δp [Pa]	0,71	0,68	0,65	0,63	0,60	0,58	0,57	0,55	0,54	0,52	0,51	0,50	0,49	
	Q [m³/h]	12.910,00	13.580,00	14.260,00	14.930,00	15.600,00	16.280,00	16.950,00	17.620,00	18.300,00	18.970,00	19.640,00	20.310,00	20.980,00	40 dB
	Δp [Pa]	0,49	0,47	0,45	0,43	0,42	0,40	0,39	0,38	0,37	0,36	0,36	0,35	0,34	
	Q [m³/h]	10.740,00	11.300,00	11.860,00	12.420,00	12.980,00	13.540,00	14.100,00	14.660,00	15.220,00	15.780,00	16.340,00	16.900,00	17.460,00	35 dB
	Δp [Pa]	0,34	0,32	0,31	0,30	0,29	0,28	0,27	0,26	0,26	0,25	0,25	0,24	0,24	
	Q [m³/h]	8.930,00	9.400,00	9.870,00	10.330,00	10.800,00	11.270,00	11.730,00	12.200,00	12.660,00	13.130,00	13.590,00	14.060,00	14.520,00	30 dB
	Δp [Pa]	0,23	0,22	0,22	0,21	0,20	0,19	0,19	0,18	0,18	0,17	0,17	0,17	0,16	
	Q [m³/h]	7.430,00	7.820,00	8.210,00	8.600,00	8.980,00	9.370,00	9.760,00	10.150,00	10.530,00	10.920,00	11.310,00	11.700,00	12.080,00	25 dB
	Δp [Pa]	0,16	0,16	0,15	0,14	0,14	0,13	0,13	0,13	0,12	0,12	0,12	0,12	0,11	

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
3,8 m/s	17	7	2	-2	-8	-13	-17	-18
4,5 m/s	15	6	1	-2	-7	-11	-15	-19
5,3 m/s	14	6	1	-3	-7	-10	-14	-19
6,4 m/s	14	7		-3	-7	-9	-12	-18
7,6 m/s	14	6		-4	-7	-9	-11	-16

Sample order

CU2	200	200	PG30	PM	CFTH	FCU
1	2	3	4	5	6	7

1. product
2. width
3. height
4. frame on the side of the mechanism
5. Frame on the side of the wall
6. mechanism type
7. option: uni/bipolar switches

Approvals and certificates

All our dampers are submitted to a number of tests by official test institutes. Reports of these tests form the basis for the approvals of our dampers.



BC1-606-0464-15650.03-0464; BC1-606-0464-15650.13-2517



Clapets coupe-feu et
Volets de désenfumage D.A.S.
Organisme Certificateur
AFNOR Certification - www.marque-nf.com

05.12



SC0652-15



Z 15907



Z-56.4212-1010



9001: 2008

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.marquage-nf.com>; Phone: +33 (0)1.41.62.80.00, Fax: +33 (0)1.49.17.90.00, Email: certification@afnor.org