BRINK

Air for life

Teknisk Sheet

Flair 325 Enthalpy
Varmegenvindingsaggregat

Generelt

Flair 325 Enthalpy og Flair 325 Enthalpy Plus er en ventilationsenhed til afbalanceret ventilation af boliger med varmegenvinding.

Egenskaber:

- Maksimal kapacitet 325 m³/t
- Plastvarmeveksler med høj varmegenvindingsevne
- Filtre ISO Grov 60%
- Modulær elektrisk forvarmer
- Automatisk bypassventil
- Berøringsskærm
- Justerbar luftmængde
- Filterindikation på aggregatet og mulighed for filterindikation på multikontakten
- Intelligent frostbeskyttelse, inklusive modulopvarmning
- Lavt lydniveau
- Konstant flow-styring

Flair 325 Enthalpy fås i to typer:

- **"Flair 325 Enthalpy"**
- **“Flair 325 Enthalpy Plus”**

Flair 325 Enthalpy Plus har, sammenlignet med standard Flair 325 Enthalpy, en ekstra PCB med flere funktioner/ tilslutningsmuligheder.
Denne installationsvejledning beskriver både standard Flair 325 Enthalpy og Flair 325 Enthalpy Plus.

Flair 325 Enthalpy og Flair 325 Enthalpy Plus fås i en **venstrehånds-** og **højrehånds**-versions; det er ikke muligt at konvertere en venstrehåndsmodel til en højrehåndsmodel eller omvendt.
For korrekte tilslutningskanaler og dimensioner (→ Tilslutninger og dimensioner side 4).

Der foreligger mulighed for evt. senere installation af Plus-PCB, hvis styreoptionerne evt. ønskes udvidet.

Aggregatet leveres klar til tilslutning med et 230 V strømstik.

Teknisk information

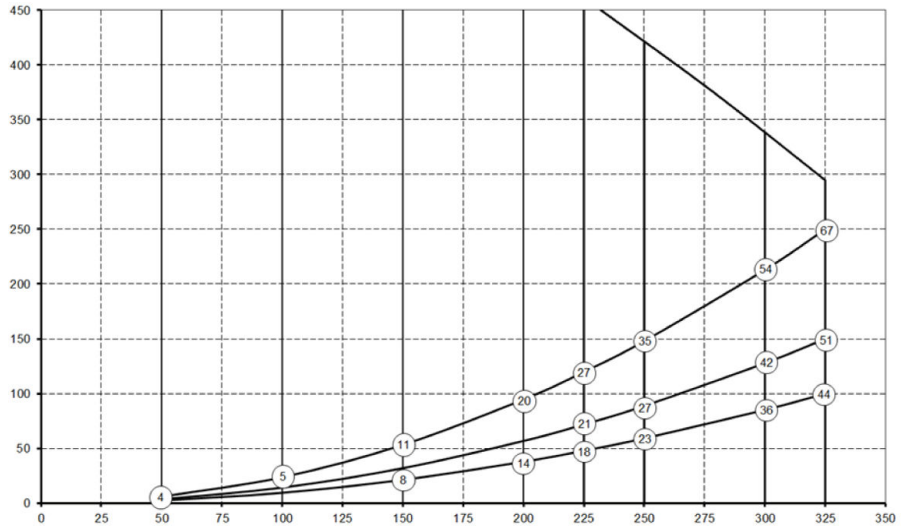
Technical information

Flair 325 Enthalpy (Plus)										
Supply voltage [V/Hz]	230V/50Hz									
Dimensions (w x h x d) [mm]	750 x 650 x 560									
Duct diameter [mm]ø	ø 160									
Weight [kg]	37									
Filter class	ISO Coarse 60% (ISO ePM1.0 for the air supply optional)									
Fan setting (factory setting)	0		1		2		3		max	
Factory setting [m³/h]	50		100		150		250		325	
Permissible resistance of duct system [Pa]	2	6	9	24	21	53	59	148	100	250
Rated power (excl. preheater) [W]	6.1	6.6	7.9	10.3	15.1	21.0	46.6	69.1	87.5	144.5
Rated current (excl. preheater) [A]	0.08	0.08	0.09	0.11	0.15	0.21	0.41	0.59	0.73	1.07
Max. rated current (incl. preheater switched on) [A]	6									
Cos φ	0.341	0.343	0.389	0.394	0.430	0.439	0.492	0.507	0.521	0.542

Sound power								
Ventilation capacity [m³/h]		100	150	150	200	200	250	325
Sound power level Lw(A)	Static pressure [Pa]	25	25	50	50	100	150	150
	Casing radiation [dB(A)]	27	34	35	40	41	46	51
	Duct “From dwelling’ [db(A)]	32	40	38	46	44	49	55
	Duct ‘To dwelling’ [db(A)]	44	49	51	55	57	62	69

*) Duct noise including end correction
In practice the value may differ by 1dB(A) through measurement tolerances.

Resistance of duct system [Pa]



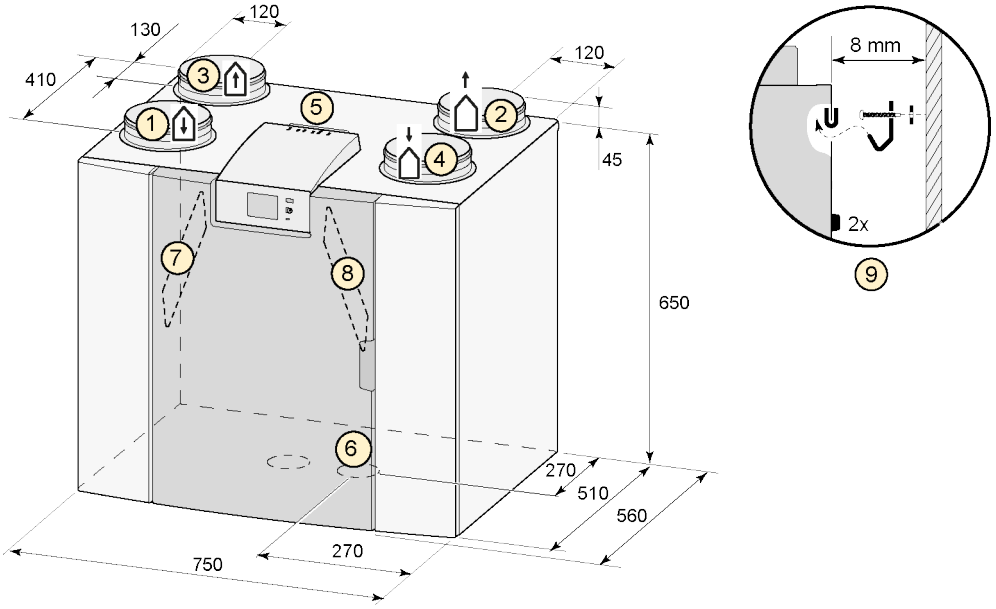
Flow rate [m³/h]

Note:
The stated value in the circle is the capacity (in Watt) per fan

Tilslutninger og dimensioner

Flair aggregatet er tilgængelig i en venstrehånds- og en højrehåndsversion. Ved en venstrehåndsversion er udsugning og -indblæsning (Fra boligen 3 og Til boligen 1) på venstre side af aggregatet; kondensafløbet monteres derefter i højrehåndsåbningen under aggregatet. Ved en højrehåndsversion er udsugning og -indblæsning (3 og 1) på aggregatets højre side.

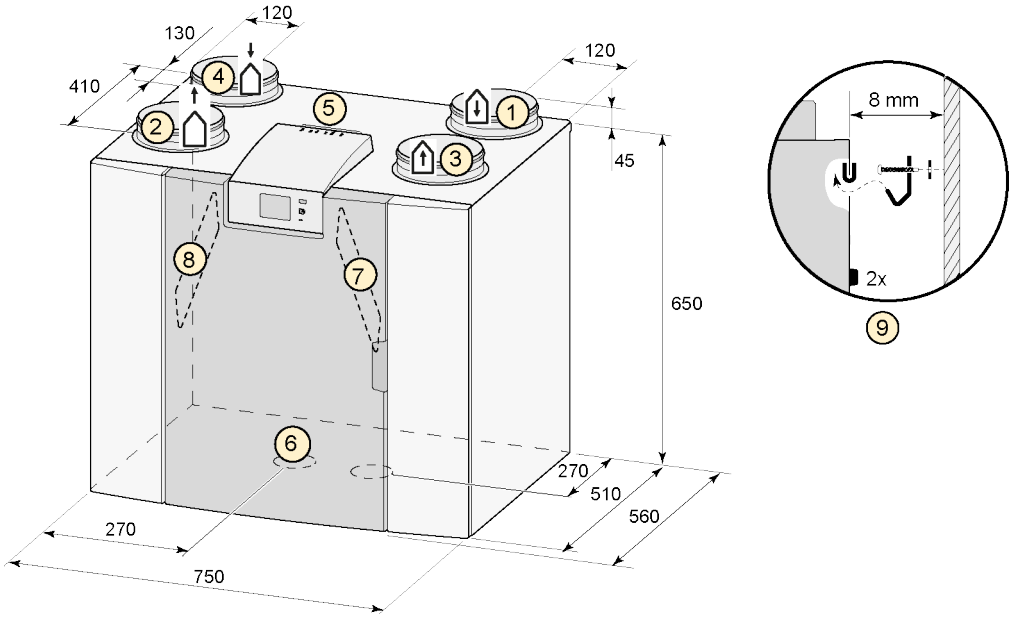
Venstrehåndsversion



Alle dimensioner er i millimeter. Diameter på alle kanaltilslutninger er 160 mm

1	Indblæsning
2	Afkast
3	Udsugning
4	Indtag
5	Elektriske tilslutninger
6	Siphon connection
7	Udsugningsfilter
8	Indblæsningsfilter
9	Montering

Højrehåndsversion



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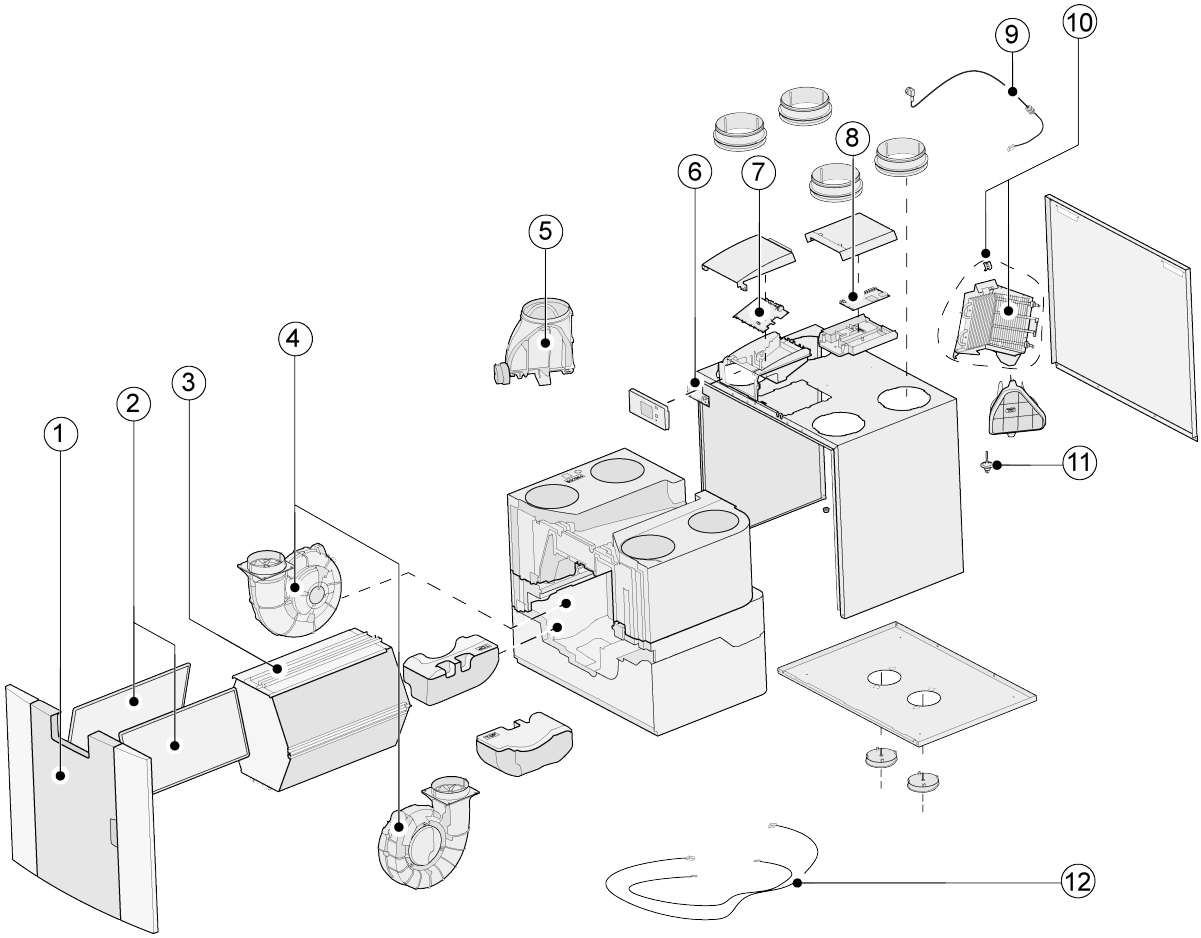
Serviceartikler

Service articles



No.	Article description	Article code
1	Front panel complete	532763
2	Filters (2 items) ISO Coarse 60%	532716
3	Enthalpy heat exchanger	532710
4	Fan (1 item)	532759
5	Bypass valve with motor complete	532760
6	Display pcb	532752
7	Basic pcb	532750
8	Plus pcb U(only applicable with Plus version)	532751
9	Mains plug and cable 230 V **	532756
10	Internal preheater incl. maximum security	532761
11	Temperature sensor NTC 10K	531775
12	Cable set	532767

* The power cable is fitted with a circuit board connector. When replacing it, always order a replacement mains cable from Brink.
To prevent dangerous situations, a damaged mains connection can only be replaced by a qualified expert.

Certifikater

Overensstemmelseserklæring

Overensstemmelseserklæring

Fabrikant:	**Brink Climate Systems B.V.**
Adresse:	**Postbus 11** **NL-7950 AA, Staphorst, The Netherlands**
Produkt:	**Varmegenvindingsapparattype:** **Flair 325 Enthalpy** **Flair 325 Enthalpy Plus**

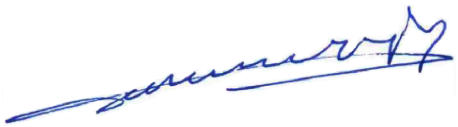
Det ovenfor beskrevne produkt opfylder følgende direktiver:

- 2014/35 / EU (lavspændingsdirektivet)
- 2014/30 / EU (EMC-direktivet)
- RoHS 2011/65/EU (direktivet om farlige stoffer i elektrisk og elektronisk udstyr)
- 2009/125/EG (1253/1254 EU (EU ErP-dirketivet))

Produktet er CE-mærket:

CE

Staphorst, 24-11-2017



M. Schouten
Technical Director

1 ERP values

Technical information sheet Flair 325 Enthalpy Plus in accordance with Ecodesign (ErP), no. 1254/2014 (Annex IV)					
Manufacturer:		**Brink Climate Systems B.V.**			
Model:		**Flair 325 Enthalpy (Plus)**			
Climate zone	**Type of control**	**SEC Value in kWh/m²/a**	**SEC Class**	**Annual electricity consumption (AEC) in kWh**	**Annual heating saved (AHS) in kWh**
Average	Manual	-38.75	A	220	4359
	clock control	-39.45	A	203	4386
	1x sensor (RV/CO_2/VOC)	-40.78	A	172	4440
	2 or more sensors (RV/CO_2/VOC)	-43.18	A+	119	4548
Cold	manual	-75.07	A+	757	8527
	clock control	-76.02	A+	740	8580
	1x sensor (RV/CO_2/VOC)	-77.87	A+	709	8686
	2 or more sensors (RV/CO_2/VOC)	-81.31	A+	656	8898
Hot	manual	-15.33	E	175	1971
	clock control	-15.88	E	158	1983
	1x sensor (RV/CO_2/VOC)	-16.91	E	127	2008
	2 or more sensors (RV/CO_2/VOC)	-18.72	E	74	2057
Type of ventilation unit:		Balanced residential ventilation appliance with heat recovery			
Fan:		EC - fan with infinitely variable control			
Type of heat exchanger:		Recuperative plastic cross-counterflow heat exchanger			
Thermal efficiency		83%			
Maximum flow rate:		325 m³/h			
Maximum rated power:		144.5 W			
Sound power level Lwa:		41 dB(A)			
Reference flow rate:		228m³/h			
Reference pressure:		50Pa			
Specific Power Input (SEL):		0.14 Wh/m³			
Control factor:		1.0 in combination with multiple switch			
		0.95 in combination with clock control			
		0.85 in combination with 1 sensor			
		0.65 in combination with 2 or more sensors			
Leakage*	Internal	2.85%			
	External	2.85%			
Position dirty filter indication:		On the display of the appliance / on the multiple switch (LED) / on the Brink Air Control. **Attention!** For optimal energy efficiency and a proper operation, a regular filter inspection, cleaning or replacement is necessary.			
Internet address for Assembly instructions:		https://www.brinkclimatesystems.nl/international/home/docsearch			
Bypass:		Yes, 100% Bypass			

* Measurements executed by TZWL according to the EN 13141-7 standard

Classification from 1 January 2016	
SEC class ("Average climate zone")	SEC in kWh/m²/a
A+ (Most efficient)	SEC < -42
A	-42 ≤ SEC < -34
B	-34 ≤ SEC < -26
C	-26 ≤ SEC < -23
D	-23 ≤ SEC < -20
G (Least efficient)	-20 ≤ SEC < -10

EN13141-7:2010 erklæring

KF.82.01.257.BD.02
29.11.18

Declaration of confirmity
regarding the determination of energetic efficiency according to EN 13141-7:2010

On behalf of Brink Climate Systems B.V. the determination of energetic efficiency was conducted by Europäisches Testzentrum für Wohnungslüftungsgeräte (TZWL) e. V. in Dortmund, Germany.

Tests were carried out according to:

- EN 13141-7:2010; Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 7: Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings

Technical data of the tested unit:

Manufacturer:	Brink Climate Systems B.V.
Type:	Flair 325 4/0 R EU ENTHALPIE
Serial Number:	430013181502
Year of construction:	2018
Power supply:	230 V ~ 50 Hz
CE-Label:	Yes
Maximum volume flow:	325 m³/h

Results, energetic efficiency 7°C:

Air flow [m³/h]	Temperature ratio, supply air $\eta_{\theta,su}$ [%]	Humidity ratio supply air $\eta_{x,su}$ [%]	Total electric power consumption P_E [W]	Specific electric power consumption [W/m³/h]
51	96,0	79,1	11,6	0,23
226	83,2	57,1	32,2	0,14
328	76,3	38,2	79,3	0,24

Results, energetic efficiency 2°C:

Air flow [m³/h]	Temperature ratio, supply air $\eta_{\theta,su}$ [%]	Humidity ratio supply air $\eta_{x,su}$ [%]	Total electric power consumption P_E [W]	Specific electric power consumption [W/m³/h]
50	93,2	80,3	11,7	0,23
225	80,4	62,3	35,0	0,15
326	76,8	57,5	79,9	0,24

Results of performance tests of aerodynamic characteristics, of heat recovery characteristics and of the effective power consumption are taken from tests with number M.82.01.257.BD.rev01

Passivhus-certifikat

CERTIFICATE

Certified Passive House Component

Component-ID 1287vs03 valid until 31st December 2020

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
Germany

Category: **Air handling unit with heat recovery**
Manufacturer: **Brink Climate Systems B.V. Netherlands**
Product name: **Brink Flair 325 Enthalpie**

Specification: Airflow rate < 600 m³/h
Heat exchanger: Recuperative

This certificate was awarded based on the product meeting the following main criteria

Heat recovery rate	η_{HR}	≥	75 %
Specific electric power	$P_{el,spec}$	≤	0.45 Wh/m³
Leakage		<	3 %
Comfort	Supply air temperature ≥ 16.5 °C at outdoor air temperature of – 10 °C		

Airflow range
70–249 m³/h
Heat recovery rate
η_{HR} = 86 % [1]
Specific electric power
$P_{el,spec}$ = 0.21 Wh/m³
Humidity recovery
η_x = 77 %

[1] At an airflow of 85 m³/h, a heat recovery of η_{HR} = 94 % is reached.

cool, temperate climate

CERTIFIED COMPONENT
Passive House Institute

www.passivehouse.com

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Humidity recovery

Indoor air humidity can be increased by using a system with moisture recovery in a cool, temperate climate, especially during the winter. These higher humidity levels will reduce evaporation from building elements and furniture during the heating period and thus have a positive effect on the building's heating demand. In order to account for this effect, the heat recovery efficiency is increased by a certain percentage, depending on the achieved level of moisture recovery.

Humidity recovery
η_x = 77 %

In case the unit's moisture recovery rate is larger than 60 % its airflow rate must be controlled based on the indoor air humidity, in order to prevent temporarily elevated humidity levels.

- As default, this unit provides a function of airflow volume control according to the extract air humidity. Installation of an additional extract air humidity sensor is required in order to ensure this function. This sensor is available as an optional accessory

Application of humidity recovery:

- In cool temperate climates, heat exchangers with moisture recovery should generally only be used if the moisture load inside the building is comparatively low (e.g. in a residential building with an occupancy rate significantly below the average).
- If moisture recovery > 60 % is to be used in a building with an average occupancy rate and typical use, the energy balance of the building is to be calculated with an increased airflow rate.

Passive House comfort criterion

At an outdoor air temperature of - 10 °C a supply air temperatur higher than 16.5 °C is achieved by use of an internal and additional external electric preheater. The criterion is therefore met.

Efficiency criterion (heat recovery rate)

The effective heat recovery rate is measured at a test facility using balanced mass flows of the outdoor and exhaust air. The boundary conditions for the measurement are documented in the testing procedure.

$$\eta_{HR} = \frac{(\theta_{ETA} - \theta_{EHA}) + \frac{P_{el}}{\dot{m} \cdot c_p}}{(\theta_{ETA} - \theta_{ODA})} + 0.08 \cdot \eta_x$$

With

η_{HR}	Heat recovery rate in %
θ_{ETA}	Extract air temperature in °C
θ_{EHA}	Exhaust air temperature in °C
θ_{ODA}	Outdoor air temperature in °C
P_{el}	Electric power in W
$\dot{m}$	Mass flow in kg/h
c_p	Specific heat capacity in Wh/(kg K)
η_x	Humidity recovery in % for $\eta_x \geq 60$ %, the heat recovery increase $(0.08 \cdot \eta_x)$ is limited to a maximum of 4.80 %

Heat recovery rate
η_{HR} = 86 %

Efficiency criterion (electric power)

The overall electrical power consumption of the device is measured at the test facility at an external pressure of 100 Pa (50 Pa, respectively, for the intake and outlet). This includes the general electrical power consumption for operation and control but not for frost protection.

Specific electric power
$P_{el,spec}$ = 0.21 Wh/m³

Efficiency ratio

The efficiency ratio provides information about the overall energy performance of the respective ventilation unit. It specifies the achieved reduction in ventilation heat losses by using a ventilation unit with heat recovery rather than without.

Efficiency ratio
ϵ_L = 0.76

Leakage

The leakage airflow must not exceed 3 % of the average airflow of the unit's operating range.

Internal leakage	External leakage
2.49 %	1.51 %

Settings and airflow balance

It must be possible to adjust the balance of airflows at the unit itself (either between the exhaust and the outdoor airflows or between the supply and the extract airflows, if the unit is respectively placed inside or outside of the insulated thermal envelope of the building).

- This unit is certified for airflow rates of 70–249 m³/h.
- Balancing the airflow rates of the unit is possible.
- The user should have at least all the following setting options:

  - ✓ Switching the system on and off.
  - ✓ Synchronized adjustment of the supply and extract airflows to basic ventilation (70–80 %), standard ventilation (100 %) and increased ventilation (130 %) with a clear indication of the current setting.
- The device has a standby power consumption of 3.90 W. The target value of 1 W was exceeded. The device should be equipped with an additional external switch so that it can be disconnected from the mains, if required.
- After a power failure, the device will automatically resume operation.

Acoustical testing

The required limit for the sound power level of the device is 35 dB(A) in order to limit the sound pressure level in the installation room. The sound level target value of less than 25 dB(A) in living spaces and less than 30 dB(A)in functional spaces must be ensured by installing commercial silencers.The following sound power levels are met at an airflow rate of 238 m³/h:

Device	Duct			
	Outdoor	Supply air	Extract air	Exhaust air
44.5 dB(A)	48.5 dB(A)	60.5 dB(A)	49.0 dB(A)	59.0 dB(A)

- The unit does not fulfil the requirements for the sound power level. The unit must therefore be installed acoustically separated from living areas.
- One example of suitable silencers for supply and extract air ducts is mentioned in the detailed test report or can be obtained from the manufacturer. It is recommended to identify suitable silencers for each individual project.

Indoor air quality

This unit is to be equipped with the following filter qualities:

Outdoor air filter	Extract air filter
ISO ePM1 50%	ISO Coarse 60%

On the outdoor air side, the filter efficiency of ISO ePM1 50% (F7 according to EN 779) or better is recommended. For the extract air side, a filter efficiency of at least ISO Coarse 60% (G4 according to EN 779) is recommended. If not in standard configuration, the recommended filter is available as an accessory part.

Frost protection

Appropriate measures should be taken to prevent the heat exchanger and optional downstream hydraulic heater coil from getting damaged by frost during extreme winter temperatures (–15 °C). It must be ensured that the unit's ventilation performance is not affected during frost protection cycles.

- Frost protection of the heat exchanger:
  - ✓ In order to protect the heat exchanger from freezing, the unit is equipped with an internal electric preheater with a power of 1000 W. In order to ensure the frost protection even at low outdoor air temperature, the unit can be optionaly equipped with an additional extrnal electric preheater with a power of 1000 W. The operation of this frost protection is controlled depending on the outdoor air temperature. The laboratory measurement has proved, that this frost protection at an upper airflow rate and an outdoor air temperature of -15 °C is

Se også: Komplet Passivhus-certifikat