# Teknisk Sheet

Flair 325

Varmegenvindingsaggregat

Dansk


*Air for Life*

# Generelt

Flair 325 og Flair 325 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 fås i to typer:*

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

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

Flair 325 og Flair 325 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 (→ ).

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.

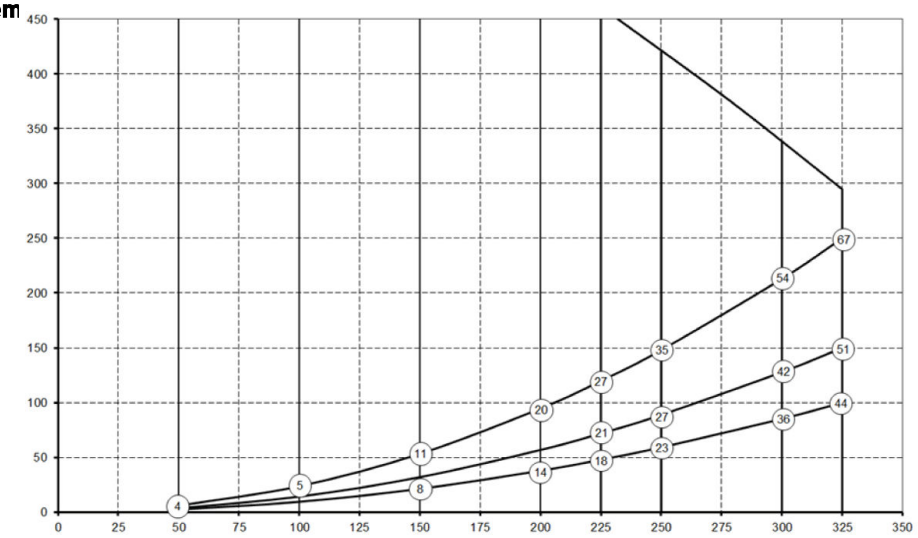
# Teknisk information

## Teknisk information

| **Flair 325 (Plus)** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Forsyningsspænding [V/Hz] | 230V/50Hz | | | | | | | | | |
| Dimensioner (b x h x d) [mm] | **4-0 Version** | | | | | | **2-2 Version** | | | |
| | 750 x 650 x 560 | | | | | | 750 x710 x 560 | | | |
| Kanaldiameter [mm] | ø160 | | | | | | | | | |
| Udvendig diameter kondensafløb [mm] | ø32 | | | | | | | | | |
| 50Vægt [kg] | 37 | | | | | | | | | |
| Filterklasse | ISO Coarse 60% (ISO ePM1.0 50% for the air supply optional) | | | | | | | | | |
| Ventilatorindstilling (fabriksindstilling) | 0 | | 1 | | 2 | | 3 | | max | |
| Fabriksindstilling [m³/t] | 50 | | 100 | | 150 | | 250 | | 325 | |
| Tilladt modstand i kanalsystem [Pa] | 2 | 6 | 9 | 24 | 21 | 53 | 59 | 148 | 100 | 250 |
| Nominel effekt (undtagen forvarmer) [W] | 6.1 | 6.6 | 7.9 | 10.3 | 15.1 | 21.0 | 46.6 | 69.1 | 87.5 | 133.4 |
| Nominel strøm (undtagen forvarmer) [A] | 0.08 | 0.08 | 0.09 | 0.11 | 0.15 | 0.21 | 0.41 | 0.59 | 0.73 | 1.07 |
| Maks. nominel strøm (med forvarmer tændt) [A] | 6 | | | | | | | | | |
| Cos φ | 0.341 | 0.343 | 0.389 | 0.394 | 0.430 | 0.439 | 0.492 | 0.507 | 0.521 | 0.542 |
| **Lydintensitet** | | | | | | | | | | |
| Ventilatorkapacitet [m³/t] | | | | 100 | 150 | 150 | 200 | 200 | 250 | 325 |
| Lydintensitetsniveau Lw (A) | Statisk tryk [Pa] | | | 25 | 25 | 50 | 50 | 100 | 150 | 150 |
| | Lydudstråling fra kabinet" [dB(A)] | | | 27 | 34 | 35 | 40 | 41 | 46 | 51 |
| | Udsugning (Fraluft) [dB(A)] | | | 32 | 40 | 38 | 46 | 44 | 49 | 55 |
| | Indblæsning (Tilluft) [dB(A)] | | | 44 | 49 | 51 | 55 | 57 | 62 | 69 |

*) Kanalstøj inklusive slutkorrektion.
I praksis kan værdien afvige med 1dB(A) gennem målingstolerancer.

**Modstand i kanalsystem [Pa]]**




**Luftmængde [m³/t]**

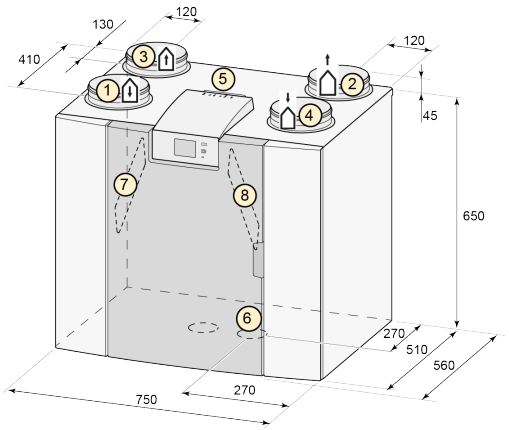
**Bemærk:** Den angivne værdi i cirklen er kapaciteten (i watt) pr. ventilator.

# Tilslutninger og dimensioner

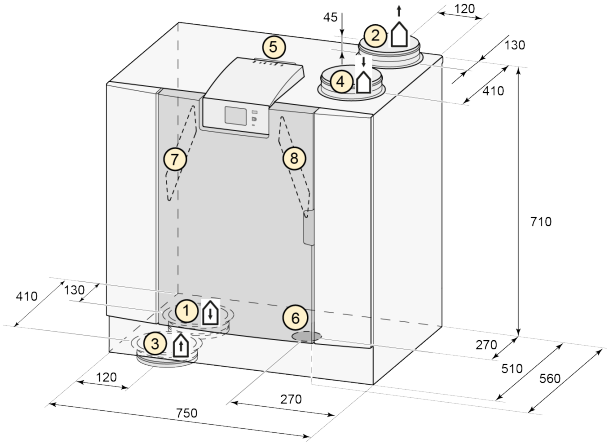
Flair aggregatet er tilgængelig i en venstrehånds- og en højrehåndsversion. Ved en venstrehåndsversion er varmeudsugning og -indblæsning (fra bolig 4 og til bolig 3) på venstre side af aggregatet; kondensafløbet monteres derefter i højrehåndsåbningen under aggregatet. Ved en højrehåndsversion er varmeudsugning og -indblæsning (3 og 4) på aggregatets højre side.

*Venstrehåndsversion*

*4-0 forbindelser*

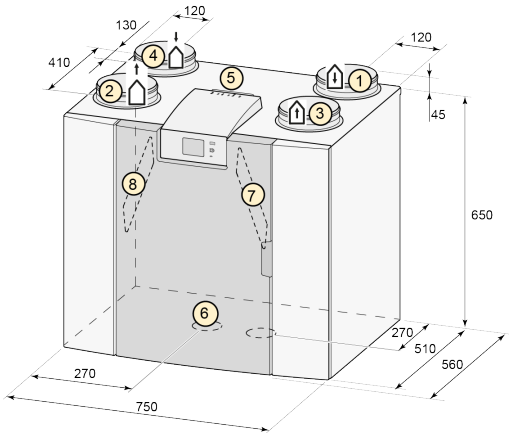



*2-2 forbindelser*

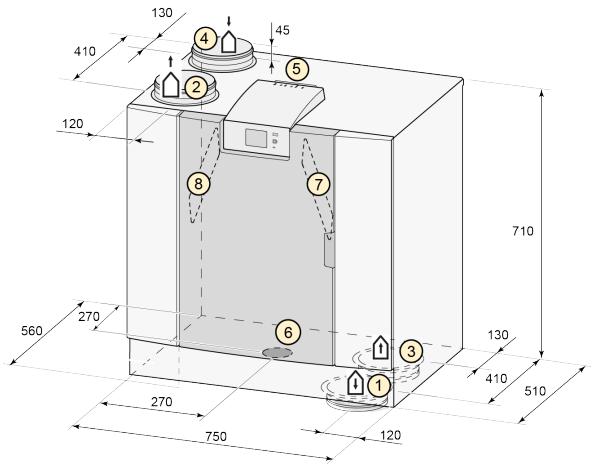



*Højrehåndsversion*

*4-0 forbindelser*



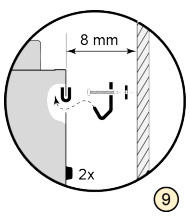

*2-2 forbindelser*



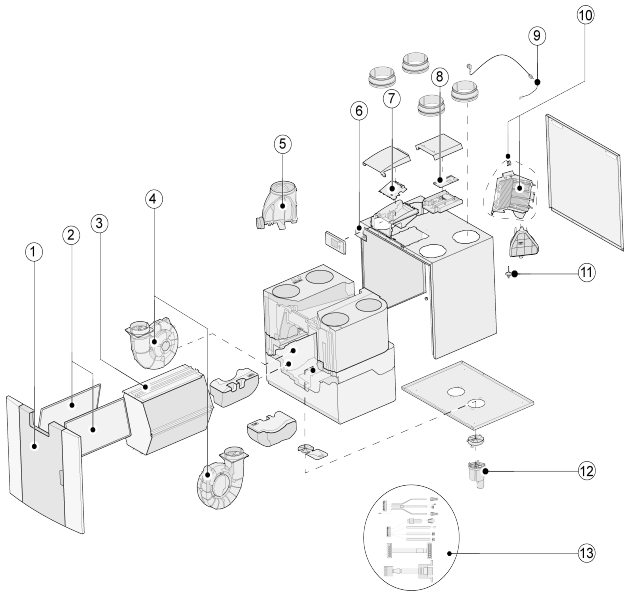
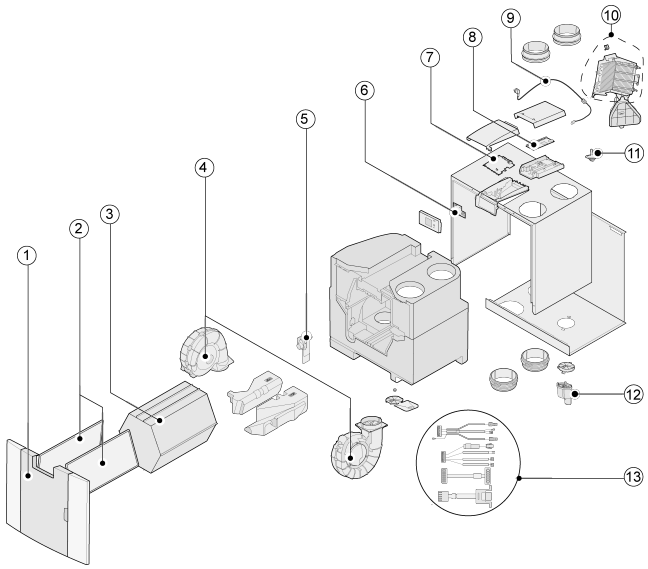

Alle dimensioner er i millimeter. Diameter på alle kanaltilslutninger er 160 mm

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Indblæsning | 2 | Afkast | 3 | Udsugning | 4 | Indtag |

| | |
|---|---|
| 5 | Elektriske tilslutninger |
| 6 | Vandlåstilslutning |
| 7 | Udsugningsfilter |
| 8 | Indblæsningsfilter |
| 9 | Montering |



# Serviceartikler

| 4-0 Version | 2-2 Version |
|---|---|
|  |  |

| Nr. | Artikelbeskrivelse | Artikelkode |
|---|---|---|
| 1 | Frontpanelet kompletl | 532763 |
| 2 | Filtre (2 styk) ISO Grov 60% | 532716 |
| 3 | Varmeveksler | 532754 |
| 4 | Ventilator (1 styk) | 532759 |
| 5 | Bypassventil med motor komplet (4-0 version) | 532760 |
| | Bypass motor komplet (2-2 version) | 531778 |
| 6 | Skærm PCB UBP-2 | 532752 |
| 7 | Basis PCB UWA2-B | 532750 |
| 8 | Plus PCB UWA2-E (kun relevant ved Plus-version) | 532751 |
| 9 | Strømstik og -kabel 230 V * | 532756 |
| 10 | Intern forvarmer inkl. maks. sikkerhed | 532761 |
| 11 | Temperatursensor NTC 10K | 531775 |
| 12 | Kondensafløb | 532762 |
| 13 | Kabelsæt | 532767 |

* Strømkablet er udstyret med et printkortstik. Når du udskifter det, skal du altid bestille et andet strømkabel fra Brink.
**For at forhindre farlige situationer må en beskadiget strømforbindelse kun udskiftes af en kvalificeret ekspert.**

# Certifikater

## Overensstemmelseserklæring

**Overensstemmelseserklæring**

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

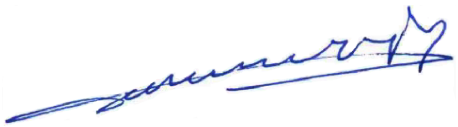
Det ovenfor beskrevne produkt opfylder følgende direktiver:

- 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
Teknisk direktør

# 1 ERP-værdier

| **Teknisk informationsblad Flair 325 Plus i henhold til Ecodesign (ErP), nr. 1254/2014 (Bilag IV)** | | | | | |
|---|---|---|---|---|---|
| **Fabrikant:** | | **Brink Climate Systems B.V.** | | | |
| **Model:** | | **Flair 325 (Plus)** | | | |
| **Klimazone** | **Kontroltype** | **SEC-værdi i kWh/m²/a** | **SEC-klasse** | **Årligt elektricitets-forbrug (AEC) i kWh** | **Varme sparet årligt (AHS - Annual heating saved) i kWh** |
| Gennemsnit | Manuel | -40,99 | A | 233 | 4614 |
| | tidskontrol | -41,59 | A | 215 | 4628 |
| | 1x sensor (RV/$CO_2$/VOC) | -42,72 | A+ | 181 | 4657 |
| | 2 eller flere sensorer (RV/$CO_2$/VOC) | -44,71 | A+ | 124 | 4714 |
| Kold | Manuel | -79,74 | A+ | 770 | 9026 |
| | tidskontrol | -80,48 | A+ | 752 | 9054 |
| | 1x sensor (RV/$CO_2$/VOC) | -81,88 | A+ | 718 | 9110 |
| | 2 eller flere sensorer (RV/$CO_2$/VOC) | -84,42 | A+ | 661 | 9222 |
| Varm | Manuel | -16,17 | E | 188 | 2086 |
| | tidskontrol | -16,69 | E | 170 | 2093 |
| | 1x sensor (RV/$CO_2$/VOC) | -17,66 | E | 136 | 2106 |
| | 2 eller flere sensorer (RV/$CO_2$/VOC) | -19,33 | E | 79 | 2132 |
| Type af ventilationsenhed: | | Balanceret boligventilationsaggregat med varmegenvinding | | | |
| Ventilator: | | EC-ventilator med uendelig variabel kontrol | | | |
| Type af varmeveksler: | | Rekuperativ modstrømsvarmeveksler i plast | | | |
| Termisk effektivitet | | 91% | | | |
| Maksimal luftmængde: | | 325m³/t | | | |
| Maksimal nominel effekt: | | 145 W | | | |
| Lydintensitetsniveau Lwa: | | 41 dB(A) | | | |
| Referenceluftmængde: | | 228m³/t | | | |
| Referencetryk: | | 50 Pa | | | |
| Specifik strømindgang (SEL): | | 0,15 Wh/m³ | | | |
| Kontrolfaktor: | | 1,0 i kombination med multikontakt | | | |
| | | 0,95 i kombination med tidskontrol | | | |
| | | 0,85 i kombination med 1 sensor | | | |
| | | 0,65 i kombination med 2 eller flere sensorer | | | |
| Lækage* | Intern | 2,85% | | | |
| | Ekstern | 2,85% | | | |
| Position snavset filterindikation: | | På aggregatets skærm/på multikontakten (LED)/ på Brink Air Control.<br>**Bemærk!** For optimal energieffektivitet og korrekt drift er det nødvendigt med regelmæssig filterinspektion, rengøring eller udskiftning. | | | |
| Internetadresse for montagevejledning: | | https://www.brinkclimatesystems.nl/international/home/docsearch | | | |
| Bypass: | | Ja, 100% bypass | | | |

* Målinger udført af TZWL i henhold til EN 13141-7 standarden

| **Klassifikation fra 1. januar 2016** | |
|---|---|
| SEC-klasse ("Gennemsnitlig klimazone") | SEC i kWh/m²/a |
| A+ (mest effektiv) | SEC < -42 |
| A | -42 ≤ SEC < -34 |
| B | -34 ≤ SEC < -26 |
| C | -26 ≤ SEC < -23 |
| D | -23 ≤ SEC < -20 |
| G (mindst effektiv) | -20 ≤ SEC < -10 |

# EN13141-7:2010 erklæring

KF.82.01.257.AD.01
18.05.18

## 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 L EU |
| Serial Number: | 430000180301 |
| 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 $\eta_{t,su}$ [%] | Total electric power consumption $P_E$ [W] | Specific electric power consumption [W/m³/h] |
|---|---|---|---|
| 51 | 98,4 | 11,7 | 0,23 |
| 224 | 90,8 | 34,7 | 0,15 |
| 325 | 90,5 | 79,2 | 0,24 |

Results, energetic efficiency 2°C:

| Air flow [m³/h] | Temperature ratio, supply air $\eta_{t,su}$ [%] | Total electric power consumption $P_E$ [W] | Specific electric power consumption [W/m³/h] |
|---|---|---|---|
| 50 | 97,7 | 11,5 | 0,23 |
| 225 | 94,0 | 37,0 | 0,16 |
| 327 | 93,2 | 86,8 | 0,27 |

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.AD.

# Passivhus-certifikat

## CERTIFICATE

**Certified Passive House Component**

Component-ID 1288vs03 valid until 31st December 2019

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** |
| 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 | $\eta_{HR}$ | ≥ | 75 % |
| Specific electric power | $P_{el,spec}$ | ≤ | 0.45 Wh/m³ |
| Leakage | | < | 3 % |
| Comfort | Supply air temperature ≥ 16.5 °C at outdoor air temperature –10 °C | | |

| Airflow range |
|---|
| 69–251 m³/h |
| **Heat recovery rate** |
| $\eta_{HR}$ = 91 % |
| **Specific electric power** |
| $P_{el,spec}$ = 0.21 Wh/m³ |

At an airflow of 202 m³/h, the specific electric power Pel,spec = 0.19 Wh/m³.

cool, temperate climate

CERTIFIED COMPONENT
Passive House Institute

www.passivehouse.com

**Brink Climate Systems B.V.**
Wethouder Wassebaliestraat 8, 7951 SN Staphorst, Netherlands
☎ +31 (0)522 46 96 13 | ✉ info@brinkclimatesystems.nl | ⌂ http://www.brinkclimatesystems.nl |

### 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.

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

With

| | |
|---|---|
| $\eta_{HR}$ | Heat recovery rate in % |
| $\vartheta_{ETA}$ | Extract air temperature in °C |
| $\vartheta_{EHA}$ | Exhaust air temperature in °C |
| $\vartheta_{ODA}$ | Outdoor air temperature in °C |
| $P_{el}$ | Electric power in W |
| $\dot{m}$ | Mass flow in kg/h |
| $c_p$ | Specific heat capacity in W h/(kg K) |

| Heat recovery rate |
|---|
| $\eta_{HR}$ = 91 % |

### 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 |
|---|
| $\epsilon_L$ = 0.76 |



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### Leakage

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

| Internal leakage | External leakage |
|---|---|
| 2.49 % | 0.88 % |

### 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 69–251 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 248 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 equipped with following filter qualities by default:

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

On the outdoor air/ supply air side the filter quality class F7 is recommended. If not standard configuration, the F7 filter is available as accessory part.



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### 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 sufficient. By the laboratory testing, the preheaters were first activated by an outdoor air temperature of -5.6 °C.
- Frost protection of downstream hydraulic heater coils:
  - ✓ In order to protect a downstream hydraulic heater coil, both fans are switched off in case the supply air temperature drops down to 5 °C.



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Se også: Komplet Passivhus-certifikat

# SEL-værdi