## 00.00.00 Ventilation unit DucoBox Energy Comfort D325

serial no. 1

**Description:**

The DucoBox Energy Comfort D325 is an individual mechanical ventilation unit with heat recovery.

Demand-controlled balanced ventilation/heat recovery unit with supply and extractor fan, equipped with intelligent frost protection, modulating bypass and a high-efficiency plastic cross-flow heat exchanger. The new DucoBox Energy Comfort D325 combines a high flow rate with high efficiency within a very compact unit thanks to the unique dynamic airflow filters.

The major advantages for the installer are mainly in the very lightweight design of this unit - with its 21 kg this unit can be assembled by 1 person on site - resulting in an easy-to-install but above all cost-optimised installation.

The semi-automatic adjustment, by means of unique pressure measurement via the internal sensors, ensures a quick and durable installation of the unit and guarantees a qualitative calibration. Here again, there is a time saving of 60 % for the installer and a consequent cost reduction.

By integrating a copy function into the software, it is possible to take over the settings within similar houses in serial construction. This again saves time for the installer.

Since the product is 100% left/right interchangeable, this makes this low-threshold heat recovery unit a very easy product for the installer to order because of only 1 reference. This reduces the margin of error as well as stock management to an absolute minimum. In addition, all existing Duco sensors and/or user controls are compatible with this new heat recovery unit, due to its modular principle.

The unit is also future-proof when using the Duco Connectivity Board. This allows interfacing towards home automation and building management systems via REST API (locally or via the cloud) or ModBus TCP (locally). Both are possible via Ethernet or WiFi. The Duco Connectivity Board also allows the use of the Duco Installation App, which enables the installer to adjust the Duco System (with implementation quality assurance in function of government obligations (e.g. STS in Belgium or Quality Assurance Act in the Netherlands)).

**Operation:**

The unit supplies fresh air mechanically to and extracts stale air mechanically from the home with the help of integrated fans. During this process, the heat is recovered from the exhaust air and transferred to the outdoor air.

**Material:**

Casing: sheet steel and EPP.
Inside: PP, ABS (without thermal bridges) and closed-cell insulation material (EPP).
Integrated heat exchanger: plastic (100 % recyclable; manufactured from recycled material).

**Version:**

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| Connections: | The air ducts for the home connection can be connected at the top of the DucoBox Energy Comfort D325.<br>4 Top connections (in EPP):<br>Supply to the house<br>Extraction from the house<br>Extraction to the outside<br>Intake from outside<br>Air connections: 4 x Ø 160 mm female<br>Exhaust duct from the unit to the outside<br>Insulated duct<br>Quantity (pcs.): 1, individually<br>Outdoor air supply duct to unit:<br>Insulated duct<br>Quantity (pcs.): 1, individually |
| Number of zones supply side: | The 1-zone system with demand control ensures extremely quiet, intelligent and energy-efficient operation.<br>Optional, compact and quick to install 2-zone valves provide the most energy-efficient result that can be achieved with a heat recovery system. |
| Frost protection: | Equipped as standard with an automatic intelligent energy-efficient frost protection by means of speed control on supply/temporary imbalance and flow restriction. This ensures frost-free operation of the DucoBox Energy Comfort D325, guaranteeing proper ventilation during the winter period. Alternatively via an optional external heater. |
| Variant: | 1 product reference = the product is 100% left / right interchangeable (by the software) |

**Technical specifications:**

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| (Total) flow rate ($m^3/h$): | Maximum 325 $m^3/h$ 150 Pa, adjustable according to the calculation of the contractor / installer / preliminary ventilation design, in accordance with legal standards. |
| Discharge head (Pa): | 150 |
| (Temperature) efficiency (%): | At 227 $m^3/h$: 88 %<br>At 279 $m^3/h$: 86 %<br>At 325 $m^3/h$: 85 %<br>According to EN 308-1997 |
| Sound power level (Lw/dB(A)): | Emission from casing (dB(A)): 63<br>Supply (dB(A)): 69<br>Extraction (dB(A)): 58.5<br>Flow rate ($m^3/h$): 325<br>Pressure (Pa): 150 |
| Dimensions (mm): | W: 700<br>H: 705 (including connections)<br>D: 525 (including mounting bracket) |
| Weight (kg): | 20,9 |

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| Fans: | The direct current EC fans have robust backward-curved blades, making them easy to clean. The fans are vertically mounted and very quiet. The unique positioning of the fan, namely in front of the heat exchanger, ensures optimum noise reduction on the supply side. |
| Fan type: | EC |
| Type of heat exchanger: | The cross-flow heat exchanger is characterised by low resistance, which also contributes to minimal noise and energy consumption. The heat exchanger consists of polystyrene. |
| Energy class: | A+ (in combination with 2 sensors = control factor 0.65) |
| Air/Dust/Grease filter: | Supply and exhaust sides, standard equipped with dynamic airflow filters coarse 65% (ISO 16890) (class G4).<br>The filters are easily accessible and removable through a filter drawer mounted at an angle. The filters in the DucoBox Energy Comfort D325 are electrostatic and anti-bacteriological. They filter the air from pollen and coarse and fine dust. The filters are selected for a replacement period of 6 months. |
| (Supply) voltage (V): | 230 V, 50 Hz |
| Electrical connection: | Equipped with 2 m cord with earthed/Euro plug (or with Perilex plug) |
| Protection rating: | IP 40 |
| Colour: | Black with white lid |
| Surface treatment: | Coated (sendzimir galvanised) |
| Condensate drain: | A condensate drain (with pipe diameter 32 mm (1 ¼") externally integrated / threaded) is provided for the drainage of condensation water. This condensate drain should be connected to the indoor sewer via a water trap (siphon) with a minimum level difference of 60 mm, or with another efficient water trap, e.g. a Siphon Flat. Two are provided: depending on which version one chooses (left or right), the other must be closed. |

**Features:**

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| Settings: | Adaptive / demand-controlled, can be expanded with humidity sensor and/or $CO_2$ sensor.<br>Customised demand control based on sensors that can be linked modularly.<br>- Time control: Possibility of programming a fixed time schedule.<br>- Absence mode: In the event of prolonged absence, the absence mode can be activated so that the ventilation system runs at the most energy-efficient mode. |
| Control: | Direct current constant volume with flow control, always guarantees balanced air flows and flow rates are kept constant. |
| Automatic calibration: | The DucoBox Energy Comfort D325 unit is equipped with a constant volume control. The set air flow rate is automatically controlled independently of duct resistance and filter fouling. |

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| (Summer) bypass: | Double automatic 100% modulating bypass as standard.<br>Can be operated automatically or manually.<br>The bypass operates fully automatically based on indoor and outdoor temperature measurement. The bypass directs the air around the heat exchanger. In this way, the house is naturally cooled during summer nights. |
| NightBoost: | With DUCO's standard NightBoost function, the ventilation system is deployed during summer to support the cooling of warm indoor temperatures. This fully automatic, smart (night) cooling function temporarily deactivates demand control and causes the system to operate at nominal value. Not only does this reduce the risk of overheating, it also reduces cooling requirements. Smart NightBoost algorithms ensure energy-efficient operation without disturbing night rest. |
| Filter notification: | The unit is equipped with an automatic filter notification, based on the amount of ventilated air. When the filters need to be replaced, the LED on the user control lights up orange when the control is operated. The filter notification can be reset via the RF switch sensor.<br>- Via smartphone<br>- On integrated control unit<br>- On optional external user controller<br>- Time-controlled |
| Calibration/operation: | 4 modes: low, medium and high; automatic mode.<br>- Position 1: 10 % of the nominal position<br>- Position 2: 50 % of the nominal position<br>- Position 3: nominal position (100%) (to be set) |
| Communication: | Wireless communication via RF protocol with other control components in the DUCO network.<br>Wired communication via DUCO protocol, 5 x 0.75 $mm^2$ with solid core (feed 2 x 0.75 $mm^2$+ communication 3 x 0.75 $mm^2$(A-B-GND)) with other control components in the DUCO network. |

**Accessories:**

User control:
- With integrated user controller
- Indication of active programme
- Possibility to adjust the necessary parameters

Mounting bracket for wall mounting
Installation guide
User manual
2 x dynamic airflow filters coarse 65 % (ISO 16890) (class G4)

**Options:**

Expandable with Duco Connectivity Board:
- Connection possible to home automation and building management systems via REST API (locally or via the cloud) or Modbus TCP (locally)
- Use of the Duco Installation App, enabling the installer to adjust the Duco System (with performance quality assurance in function of government obligations (e.g. STS in Belgium or Quality Assurance Act in the Netherlands))

Humidity sensor (Energy Comfort (Plus))
Mounting chair standing (Energy Comfort D325), for easy mounting on the floor
Siphon flat (Energy & Eco)
Filter set 2 x Coarse 65 % (Energy Comfort D325)
Filter set Coarse 65 % / ePM1 55% (Energy Comfort (D325))

**Design flow rate:**

- Flow rates in accordance with applicable legislation
- Place air supply points in the walking zone as much as possible
- Use 'clean sector' vents at air supply points < 30 cm from the wall
- For air supply points ≥ 30 cm from the wall, if possible use standard vents

**Control and switching equipment:**

Manual operation via display
User controllers with RF communication
User controllers with wired communication
Manual operation via time control
Sensors with RF communication such as $CO_2$/RH
Sensors with wired communication such as $CO_2$/RH
Presence detection by means of the Switch Sensor with RF communication
Presence detection by means of a voltage-free contact on the PCB
Humidity reading via measurement in the duct

Control components can be paired with the DucoBox Energy Comfort D325 (= master unit).

**Application:**

The individual mechanical ventilation unit with heat recovery for (residential) application with an operating volume of 325 $m^3$ per DucoBox Energy Comfort D325 at 150 Pa.
Applicable as standard in the following DUCO ventilation systems:
Duco Energy Comfort System D325.

**Mounting:**

Location: According to manufacturer's prescription supplied. Indoors with measures taken to meet legal noise requirements.
Location: In the attic/in the central heating cabinet/in a closed installation room. In the technical room (e.g. above washing machine)

- The DucoBox Energy Comfort D325 is suitable for both wall and floor mounting.
- On a solid wall (minimum mass 200 kg/$m^2$) by means of wall bracket provided
- To be placed on a support frame

Connections:

- Connections with ducts
- Exhaust side, rigid and fixed exhaust, as straight and direct as possible to the outside, 190 mm
- Sound-absorbing facilities between the unit and the connection ducts to and from the home
- 1 metre of flexible acoustic hose
- Finishing with armaflex tape
- Roof side: thermally insulate the duct vapour-proof between the heat recovery unit and the roof feed-through for both exhaust air and outdoor air
- House side: flexible sound-absorbing duct between both extraction and supply duct and the heat recovery unit

Connection method: For commercial and technical assistance (assembly and installation instructions), please contact your regional dealer or the DUCO Ventilation & Sun Control project department.

**Service and maintenance:**

For service and maintenance, maintain a minimum service space of 500 mm in front of the heat recovery unit.
The DucoBox Energy Comfort D325 is easy-to-service since all components are accessible from the front.

**Warranty:**

Standard: 24 months from production date.
After online registration or DUCO VIP: 36 months from production date.

**Certificates:**

The unit described above complies with the relevant European Union harmonisation legislation:

- Machinery Directive 2006/42/EC;
- Radio Equipment Directive 2014/S3/EU;
- RoHS Directive 2011/65/EU;
- Eco Design Directive 2009/125/EC;

The following relevant harmonised standards or technical specifications have been applied:
EN-ISO 12100:2010; EN-IEC 60335-1:2012+A13:2017; EN-IEC 61000-6-1:2019; EN-IEC 61000-6-3:2007/Al:2011/Cll:2012; EN•IEC 82079-1:2020; ETSI EN 300 220-2 V3.1.1 Commission Regulation (EU) No 1253/2014