

### UNIT SPECIFICATION - DV145 ADROIT

The mechanical ventilation with heat recovery unit shall be the DV145 Adroit as manufactured by Airflow, shall be sized as indicated on the drawings and shall be in accordance with the specification.

The unit shall be fully insulated to provide optimum thermal and acoustic performance and shall include a cross counterflow heat exchanger with a 92% thermal efficiency. The heat exchanger shall be protected by a unique triple filter design containing two ISO Coarse >75% (G4) grade filters and one ISO ePM1 (F7) filter on the supply and extract air flow path. The triple filter design shall provide additional protection against harmful particles and shall create ultra-hygienic environment.

The unit shall have low energy consumption EC fans with backward curved impellers design providing a quiet operation and achieving low specific fan power values. The sound power level requirements shall be detailed by the unit's manufacturer and in accordance with the ventilation equipment operation schedule.

The unit shall benefit from a smart frost protection which works in a more energy efficient manner constantly monitoring the heat exchanger conditions and uses the frost heater only when necessary. This significantly reduces the energy consumption and provides more heat recovery throughout the winter season.

As per the Passive House certificate, appropriate measures should be taken to prevent the heat exchanger from getting damaged by frost during extreme winter temperatures (-15C). The heat exchanger frost protection shall be provided by two supply air heaters (total power of 2.4 kW), which comes built-in as standard with the Adroit EPH unit models (Part number: 90001269EPH – DV145(R) Adroit EPH / 90001270EPH – DV145(L) Adroit EPH).

The unit shall be equipped with an automatic, 100% bypass which totally isolates the heat exchanger so that no air passes through it. This prevents overheating the dwelling in the summer season.

The unit shall be supplied with a 3/4 BSP insulated condensation trap. The unit shall be suitable for 200 mm (4 ports) duct diameter installed at the top entry.

The unit shall have a dead man's switch preventing the fans from still running, which will enable the filters to be changed and maintained, avoid particulates matter as could cause damage to the heat recovery cell; also for operational safety reasons.

The unit shall be DV145 Adroit as manufactured by Airflow and shall be listed on the SAP Appendix Q Database PCDB. The Adroit DV145 can be right or left handed as per the manufacturer's technical datasheet.

### KEY FEATURES

- For use in dwellings up to 250 m<sup>2</sup>
- Up to 92% thermal efficiency and low SFP
- A<sup>1</sup> energy rating
- Internet control by smart phone, tablet or PC
- Triple filter design with ePM1(F7) pollen filter
- Automatic, 100% summer by-pass
- Integral humidity and CO<sub>2</sub> sensors
- Galvanised steel, double-skin casing with 20 mm insulation
- BMS (Modbus / KNX) connection
- Optional LCD digital controller with four independent environmental profiles
- Optional manual four speed controller
- Optional remote access feature through the Adroit Cloud
- Optional VOC (Volatile Organic Compounds) sensor
- Auto cut-out switch for extra safety
- Optional built-in electric post-heater
- Optional smart frost protection
- Complies with Building Regulations and Passive House

### OPERATION

The supply and extract sides shall be positioned as indicated on the project's drawing and shall be in accordance with the ventilation unit's schedule.

The mechanical ventilation with heat recovery unit shall extract stale air from all wet rooms such as bathroom, kitchen, en-suite, W.C., utility rooms and supply fresh warm air to all habitable rooms such as bedrooms and living areas. The incoming air which is the supply air shall be warmed up by the extracted indoor air through the highly efficient heat exchanger. Also, both air flow paths, the extract and supply sides, shall be filtered in order to protect the heat exchanger.

The ventilation unit shall have a variable speed control depending upon the control option chosen in the specification. The unit shall have be easy to commission the supply and extract fans independently having fully variable fan speed control.

### CONTROL OPTIONS

The DV145 Adroit unit shall be controlled by one of the following:

- Manual controller
- Adroit digital controller
- Adroit Cloud through the Internet or local network using laptop, smartphone, tablet, etc.
- BMS via LON or KNX through a PC or a central control system
- On-demand ventilation through built-in humidity and CO<sub>2</sub> sensors
- Additional external sensors achieving on-demand ventilation
- Switched live signal from light/remote switches

### ADROIT DIGITAL CONTROLLER

The Adroit digital controller is compatible with the DV145 Adroit heat recovery unit and shall be an add-on digital controller. This advanced controller comes with commissioning and intuitive end user functions. The DV145 Adroit is controlled via 4 ventilation profiles controls providing the following features:

- 4 ventilation profiles, 100% adjustable
- Internet connection available
- Automatic boost function with delay timer
- Filter maintenance reminder via counter clock (standard)
- Heater control for optional post-heater
- Connection to BMS via LON or KNX
- Self diagnostic via fault signal relay
- On-demand control via humidity, CO<sub>2</sub> and VOC sensors
- Separate fan control for ease of commissioning
- Weekly ventilation programming allows users to pre-set the ventilation levels scheduled for different days
- Indoor temperature control based on extract air temperature or supply air temperature