NEW

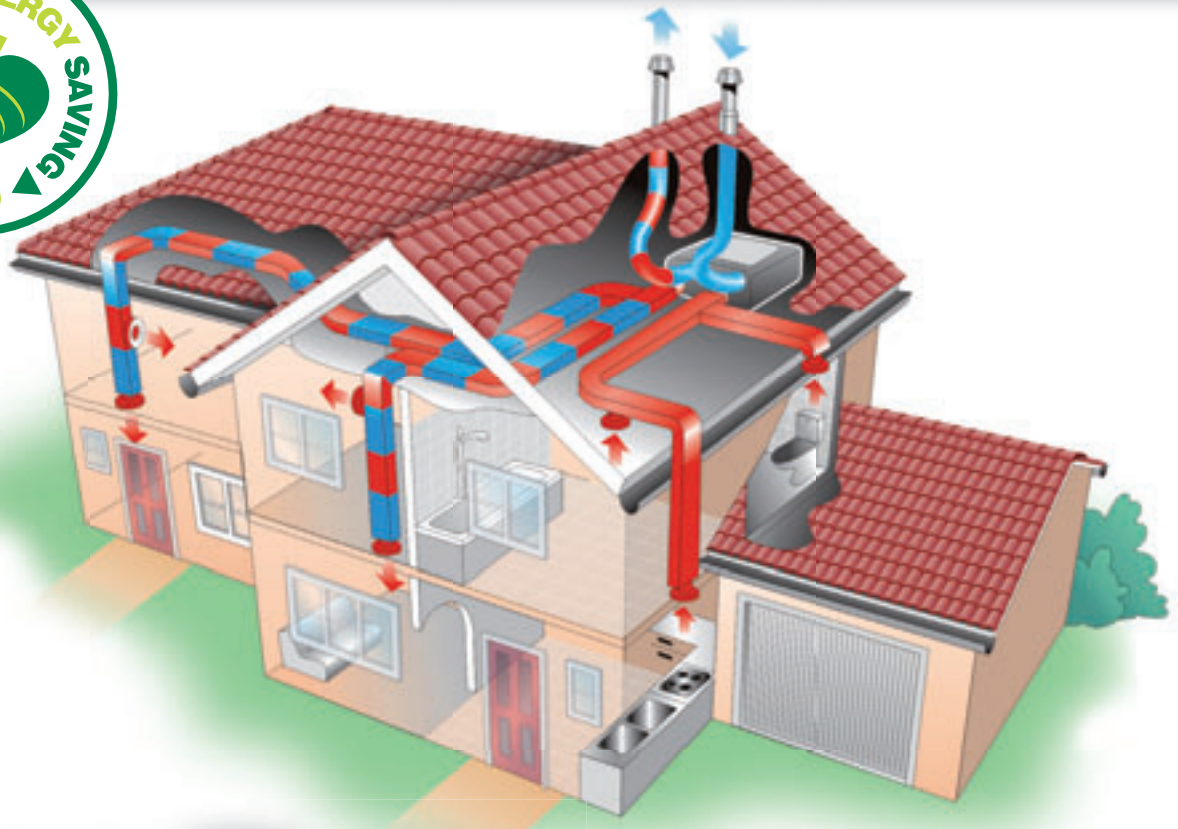
VORT PROMETEO HR 400

HEAT RECOVERY UNIT
APPENDIX Q ELIGIBLE

VORTICE

VENTILATION
AIR CONDITIONING
AIR CLEANING
HEATING

ENERGY SAVING
CARBON REDUCING



VORT PROMETEO HR 400

(Code 11815)

- Quiet, Effective Ventilation in Full Compliance with Current Building Regulations
- Energy Saving – Lowers Heating Requirement of the Dwelling
- Radio Frequency (RF) Control and Status Display
- Automatic Summer Bypass and Frost Protection
- Horizontal and Vertical Mount

DESCRIPTION

VORT PROMETEO HR 400, is a centralised continuous mechanical supply and extract ventilation unit with an extremely high heat recovery designed to comply not only with current Building Regulations but also with the requirements of the Code for Sustainable Homes.

The appliance can be installed in a horizontal or vertical position and ensures the silent and continuous ventilation of the home. The Vort Prometeo removes the "stale" air from all wet rooms and creates a permanent air path, through the property, from the dry habitable rooms. Air, drawn into the dwelling by a fan driven by one of the two low consumption DC motors, is routed through an integral high-efficiency synthetic heat exchanger where warmth from the extracted air is transferred to the incoming fresh air before it is supplied to the habitable rooms. The volumes required are detailed in current regulations; during normal operation the total volumes of air extracted and air supplied are essentially the same. In a completely automatic mode, the environmental conditions in the dwelling are maintained constant, while energy consumption is reduced.

Integral temperature, humidity and CO_2 sensors ensure the product operates at the optimal speed, whilst the wireless controllers not only allow occupant intervention but also receive and display the comfort levels transmitted from the Prometeo unit.

The incoming and outgoing air flows are separate and suitably filtered. During the cold season the heat of the expelled air is transferred to the incoming air flow, with a thermal efficiency up to 92%. The condensation created in the process, which is collected inside the product, is then drained off to the outside automatically.

CHARACTERISTICS

TECHNICAL DATA	
Maximum Airflow *	420 m^3/h
Maximum Consumption	195 w
Height	935 mm
Length	840 mm
Depth	502 mm
Weight	25 Kg

* Value refers to zero static pressure.

- **The Heat Exchanger**
  Counter-Flow type, made of PE (Polyethylene)
- **External Casing**
  PPE (PP polyfoam)
- **Impellers, Front Cover and Front Cover Screws**
  PP (Polypropylene)
- **Remote Control**
  ABS
- **Casing Containing the PCB and the Controls**
  ABS+PC with self-extinguishing V0 grade
- **Fan Motors**
  DC brushless type, in order to combine high performances and very low consumptions, located on anti-vibration mounts
- **Spigots**
  150 mm diameter, each connection has a diagram showing the direction and source of the air.

SUMMER BY-PASS

When the outdoor temperature is equal to or higher than the indoor desired temperature, but lower than the current indoor temperature, the by-pass valve will open allowing a direct intake of outdoor air, by-passing the heat exchanger. This function is particularly useful in summer nights.

FROST PROTECTION

When the temperature and relative humidity of both indoor and outdoor air streams are at a condition whereby frost may form on the heat exchanger surface, the frost protection valve will open automatically in an attempt to correct the situation. In particularly harsh climates this may not solve the problem and if this is the case Vortice recommend the installation of an optional 500 W in-duct heater (part code 22317) which is operated by a signal from the Prometeo. It tempers the incoming fresh air and guarantees that frost will not form.

FILTERS

The Vort Prometeo includes two F5 filters, fitted inside the unit near the heat exchanger. These are easily accessible by removing the front panel. Protecting impurities entering both the dwelling and the heat exchanger. A further optional filter, class F7, (part code 22323) which can be installed into the unit, assures additional filtering capacities. The Prometeo monitors filter condition and electronically indicates, visually and audibly, if filter maintenance is required.

RF REMOTE CONTROL

Each of the functions of the Prometeo is controlled by the radio frequency (RF) remote control. The 2-way transmission controller allows the unit to be switched on, off and adjusted by the installer: Initial setup of Minimum speed and Maximum speed values can therefore be set remotely by the installer without the need for return visits to the unit from each room. Speed 2 is determined automatically by the electronics. In this way the initial setup procedure, balancing the unit in accordance with the Building Regulations, consisting of the simultaneous regulation of fan motor speeds and air valves adjustment, is extremely easy.

The home occupant has control also via the RF controller of selected functions;

- Manual Operation (the speed selection is made by the occupant);
- Automatic Operation (the operating speed is set automatically by the system, depending on ambient conditions measured by the sensors);
- Summer Mode (the outdoor air is supplied to the property by-passing the heat exchanger);
- Speed Setting (1,2,3), of the unit operating in Manual mode;
- Desired Indoor Temperature (which determines whether the by-pass valve should be operated);
- Timer (the product, working in Manual mode, will work at the maximum speed for: 10', 20', 30' or indefinitely, until the unit is returned to speed 1).

The RF Controller displays:

- Working mode of the appliance (Manual, Automatic, Summer);
- Speed Setting (1,2,3);
- Timer Setting;
- Average temperature, relative humidity and CO_2 levels;
- Time and Date.

An additional radio frequency (RF) antenna, part code (22315) including a connection cable is available as an option, and allows the control of the Prometeo even if the position chosen for its installation is screened from radio waves.

AUTOMATIC OPERATION

The VORT PROMETEO HR 400 measures the temperature, the relative humidity (R.H.) and CO_2 levels of treated air. It uses this data to determine, when running in automatic mode, whether speed 1 or 3 is required for the best environment.

NOISE SUPPRESSION

The VORT PROMETEO HR 400 is also supplied with a silencer (0,5 m long) to minimize the sound emission. This silencer should be placed adjacent to the product on the habitable room supply duct.

CERTIFICATIONS

VORT PROMETEO HR 400 is constructed in compliance with the most recent standards which certify:
The safety:

- EN 60335-1: safety of electric appliances for domestic and similar use, part 1: General Standards;
- EN 60335-2-80: safety of electric appliances for domestic and similar use, part 2: particular standards for fans;
- EN 50366: emissions potentially dangerous from electromagnetic fields (EMF);
- EN 60529: degrees of protection provided by enclosures (IP code).

The electromagnetic compatibility (EMC):

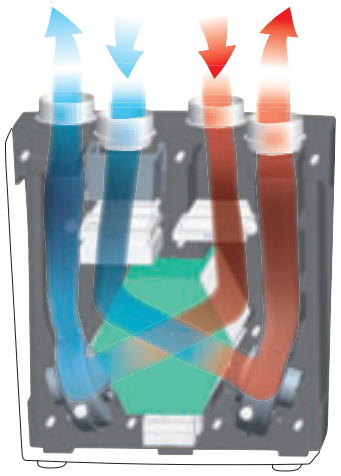
- EN 55014-1: electromagnetic emissions;
- EN 55014-2: immunity to electromagnetic fields;
- EN 61000-3-2: limits for harmonic current emissions;
- EN 61000-3-3: limitation of voltage fluctuation and flickers.

The performances:

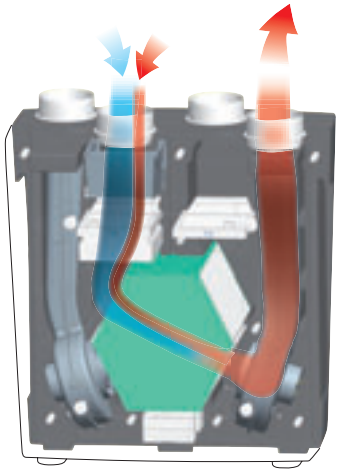
- EN 308: heat exchangers performances;
- EN 13141-7: fans performances;
- ADF (2006) System 4 - Continuous Mechanical Extract with Heat Recovery (MVHR) - applicable in England and Wales;
- Scottish Technical Handbook 2007; Section 3.14;
- TGD (2008) Part F-Ventilation-applicable in Ireland;
- BRE Digest 398-Continuous Mechanical Ventilation in dwellings.

APPENDIX Q ELIGIBILITY

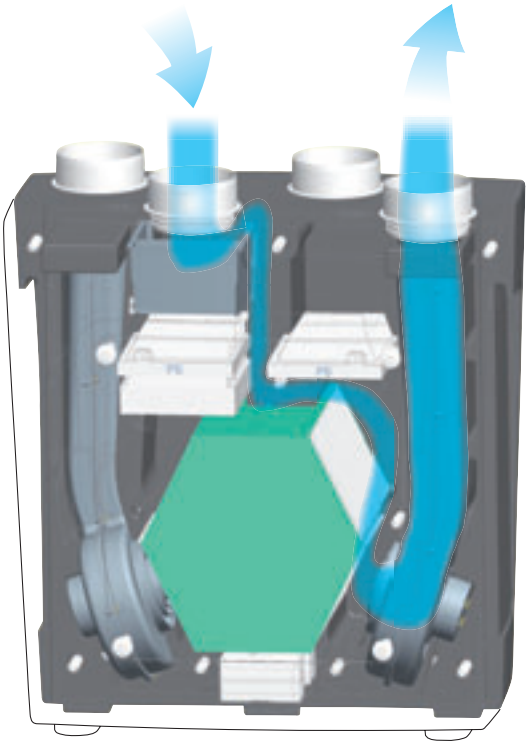
The Prometeo HR 400 with its low energy DC motors and innovative design has been independently tested by the Building Research Establishment (BRE) to the appropriate SAP Appendix Q test methodology and is Appendix Q Eligible in all configurations from Kitchen + 1 to Kitchen + 8 additional wet rooms.

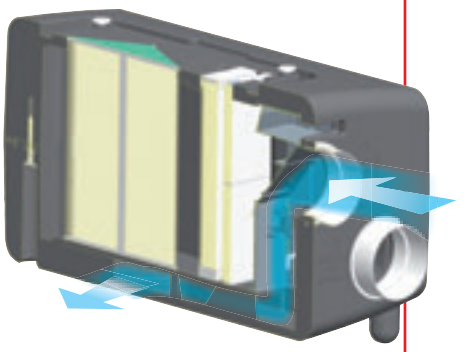


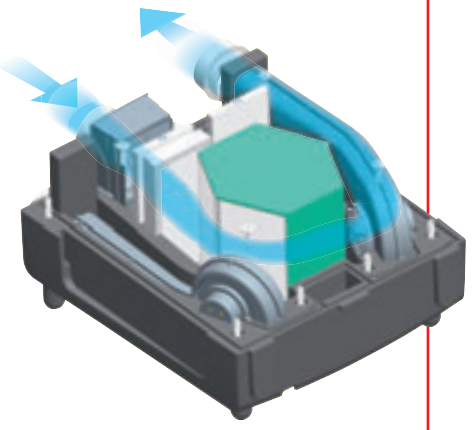
Normal operation mode



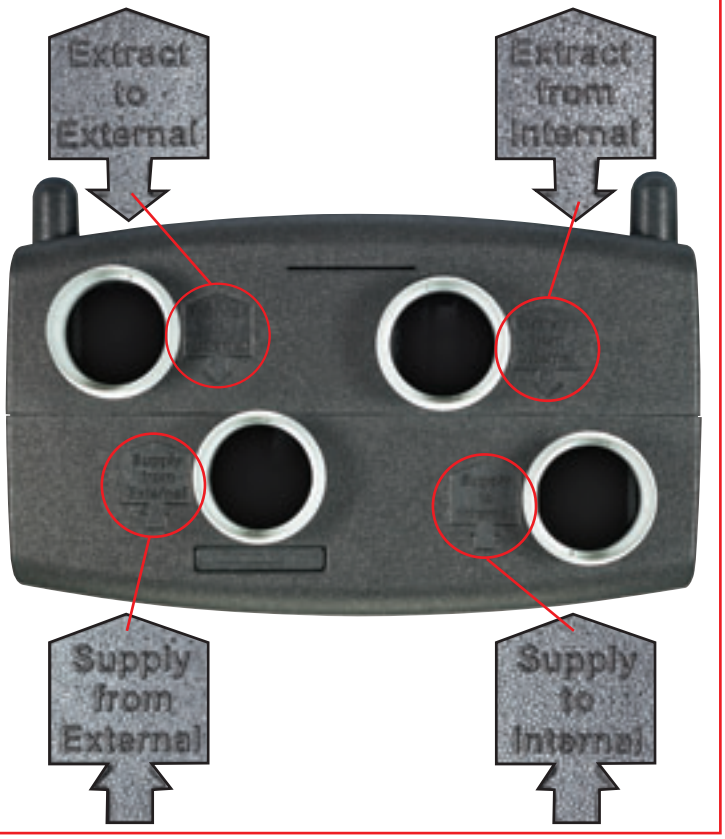
Anti-Frost



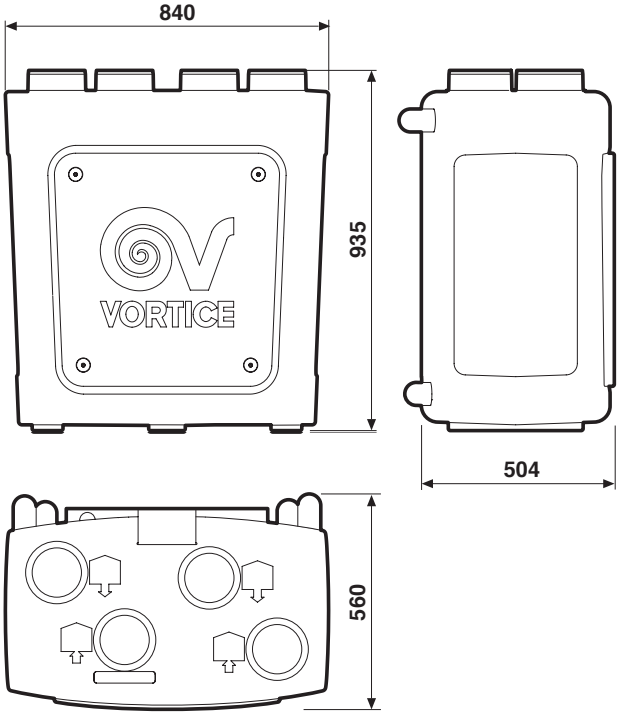




By-pass mode



DIMENSIONS [mm]



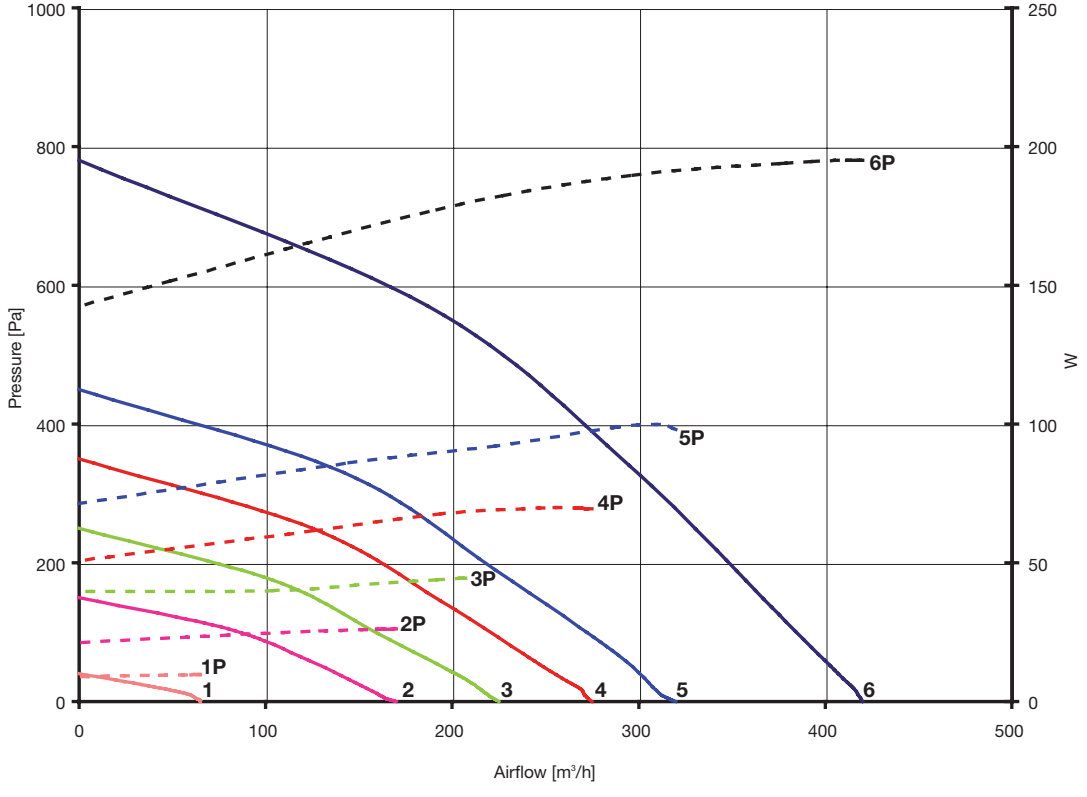
PERFORMANCES AND CONSUMPTIONS CHART

Air flow m³/h	Pressure Pa	Power W	Current A	cos φ	Supply V/Hz	Setting
50	18	10	0,09	0,48	230/50	$(Vmin)_{min}$
80	20	15	0,13	0,48	230/50	*
80	100	24	0,21	0,48	230/50	Default
150	50	30	0,27	0,48	230/50	*
150	80	38	0,34	0,48	230/50	*
150	115	42	0,38	0,48	230/50	$(Vmid)_{mid}$
200	240	93	0,84	0,48	230/50	$(Vmin)_{max}$
230	100	75	0,68	0,48	230/50	*
230	150	88	0,80	0,48	230/50	*
230	180	93	0,84	0,48	230/50	$(Vmax)_{min}$
230	490	181	1,64	0,48	230/50	$(Vmax)_{max}$
280	100	106	0,92	0,5	230/50	*
280	150	119	1,00	0,5	230/50	*
280	395	187	1,62	0,5	230/50	$(Vmax)_{max}$
330	100	137	1,19	0,5	230/50	*
330	150	160	1,39	0,5	230/50	*
330	250	192	1,66	0,5	230/50	$(Vmax)_{max}$
380	110	193	1,67	0,5	230/50	$(Vmax)_{max}$

Curve N°	Legend
1	**$(Vmin)_{min}$** Speed 1 minimum settable value
5	**$(Vmin)_{max}$** Speed 1 maximum settable value
2	**Default** Initial product setting
3	**$(Vmid)_{mid}$** Mean setting (average of $(Vmin)_{min}$ and $(Vmax)_{max}$)
4	**$(Vmax)_{min}$** Speed 3 minimum settable value
6	**$(Vmax)_{max}$** Speed 3 maximum settable value

* = Values corresponding to intermediate product settings

PERFORMANCE CURVES



Performance curves	
Curve N°	Rpm
6	3520
5	2800
4	2470
3	2080
2	1600
1	700

Power absorption curves	
Curve N°	Rpm
6P	3520
5P	2800
4P	2470
3P	2080
2P	1600
1P	700

VORTICE PRODUCT CODES AND DESCRIPTIONS		
Accessory Type	**Code**	**Description**
Pre-heating box	22317	Heater 500 W 150 mm Ø
Controls	22313	RF Remote Controller White
	22315	External RF Receiver Module
External Filter Box	22329	F5 External Filter Box
Filters	22342	F5 Filter for the External Filter Box
	22321	F5 Filter
	22323	F7 Filter
Heat Exchanger	22318	Heat Exchanger
Screwdriver	22340	Hexagonal Screwdriver for Maintenance
External Terminals and Associated Components	22020	Grey Fixed Grille 125/150 mm Ø
	8224	White Fixed Grille 150 mm Ø
	8227	Brown Fixed Grille 150 mm Ø
	8230	Beige Fixed Grille 150 mm Ø
	8233	Terracotta Fixed Grille 150 mm Ø
	8180	Wall Liner 150 mm Ø
	8136	Spigot Plate 150 mm Ø
	8434	FD 200 (204 x 60 mm) Double Airbrick Adaptor
	8440	White Airbrick Insert (2 required for each Double Airbrick Adaptor)
	8441	Brown Airbrick Insert (2 required for each Double Airbrick Adaptor)
	8442	Stone Airbrick Insert (2 required for each Double Airbrick Adaptor)
	8443	Terracotta Airbrick Insert (2 required for each Double Airbrick Adaptor)
	9211	FD180 (180 x 90 mm) White Airbrick
	9212	FD180 (180 x 90 mm) Brown Airbrick
	9213	FD180 (180 x 90 mm) Stone Airbrick
	9214	FD180 (180 x 90 mm) Terracotta Airbrick
Room Terminal	8049	Duct Valve 125 mm Ø
Additional Ducting Components	8683	Y - Piece 150 mm Ø
	9238	Reducer from 150 mm Ø to 125 mm Ø
	8040	Worm Drive Clip 125 mm Ø
	8041	Worm Drive Clip 150 mm Ø
	8020	PVC Tape
Flat Ducting	8410	FD200 (204 x 60 mm) Duct length 1 m
	8416	FD200 (204 x 60 mm) Duct length 1.5 m
	8406	FD200 (204 x 60 mm) Connector
	8412	FD200 (204 x 60 mm) Horizontal T-Piece
	8417	FD200 (204 x 60 mm) Round/Square 90° Bend 125 mm Ø
	8427	FD200 (204 x 60 mm) Round/Square 90° Bend 150 mm Ø
	8409	FD200 (204 x 60 mm) Round/Square Adaptor 125 mm Ø
	8414	FD200 (204 x 60 mm) Horizontal 90° Bend
	8420	FD200 (204 x 60 mm) Horizontal 45° Bend
	8408	FD200 (204 x 60 mm) Vertical 90° Bend
	8418	FD200 (204 x 60 mm) Adjustable Bend 0.5 m length
	8419	FD200 (204 x 60 mm) Mounting Strap
	9200	FD180 (180 x 90 mm) Duct Length 1 m
	9202	FD180 (180 x 90 mm) Connector
	9204	FD180 (180 x 90 mm) Round/Square 90° Bend 150 mm Ø
	9208	FD180 (180 x 90 mm) Horizontal 90° Bend

Accessory Type	Code	Description
Round Rigid Ducting	9362	Round Rigid Duct, 125 mm Ø, length 1.5 m
	9372	Round Rigid Duct, 150 mm Ø, length 1.5 m
	8415	Duct Connector 125 mm Ø
	9375	Duct Connector 150 mm Ø
	9361	90° Bend, 125 mm Ø
	9371	90° Bend, 150 mm Ø
	9363	45° Bend, 125 mm Ø
	9360	T-Piece, 125 mm Ø
	9364	Round Rigid Duct Support Clip 125 mm Ø
	9374	Round Rigid Duct Support Clip 150 mm Ø
Thermally Insulated Flexible Duct	8342	Insulated Flexible Duct 125 mm Ø - 4 m length
	8333	Insulated Flexible Duct 125 mm Ø - 10 m length
	8341	Insulated Flexible Duct 150 mm Ø - 4 m length
	8332	Insulated Flexible Duct 150 mm Ø - 10 m length

PRE-HEATING BOX

When the temperature and relative humidity of air entering and leaving the Prometeo unit are such that frost may form on the heat exchanger surface, this can affect the efficiency of the unit. It can also affect the completely automatic system in the VORT PROMETEO HR 400 that manages changes in fan speeds that, in the vast majority of cases, allow defrosting to be carried out. In particularly harsh climates, this may not solve the problem. In such cases, Vortice recommend the installation of a 500 W heater on the air intake duct so that incoming air can be warmed. This heater will operate automatically for the minimum time needed and will ensure the problem of frosting is solved.

EXTERNAL FILTER BOX

Galvanised filter box (F5) designed to simplify maintaining the VORT PROMETEO HR 400.
The filter box is fitted to the outside of the appliance and protects the intake and outlet ducts serving various rooms (replacing standard filters). Time spent on maintenance is less (thanks to a specially sized filter that guarantees perfect filtering characteristics even when the unit is used for long periods), and maintenance work is simplified as direct access to the Prometeo unit is not required.

EXTERNAL RF MODULE

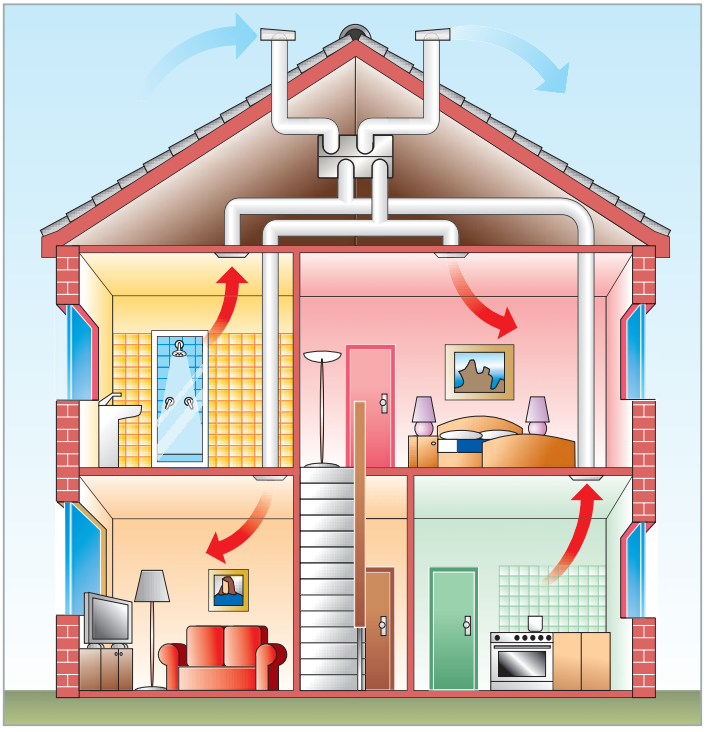
An additional remote-controlled radiofrequency RF device including a connection cable is available as an optional accessory and allows control of the appliance even if the position chosen for its installation is shielded from radio waves.

BUILDING REGULATIONS DOCUMENT F1 2006

SYSTEM 4

CONTINUOUS MECHANICAL SUPPLY & EXTRACT VENTILATION WITH HEAT RECOVERY

A continuous balanced mechanical central supply and extract system to be positioned in loft or cupboard space. An integral heat exchanger recovers a large percentage of heat energy that would have otherwise been lost. In employing this type of system, there is no need to install background ventilators in the dwelling.



CONTINUOUS SUPPLY AND EXTRACT

1 Determine the whole building ventilation rate from **Table 1.1 b**. Allow for infiltration by subtracting

- for multi storey dwellings: 0.04 x gross internal volume of dwelling heated space (m^3).
- for single storey dwellings: 0.06 x gross internal volume of dwelling heated space (m^3).

2 Calculate the whole dwelling extract rate at maximum operation by adding the individual room rates for "minimum high rate" from **Table 1.1 a**.

3 The required air flow rates are as follows:

- **Maximum extract rate (boost)** is the greater of step 1 and 2 above. The maximum individual room extract rates should be at least those given in **Table 1.1 a** for minimum high rate.
- **Minimum air supply rate** should be at least the whole building ventilation rate in step 1 above.

4 No background ventilators are required with System 4.

TABLE 1.1 a

Room	Minimum intermittent extract rate	Continuous rate	
		Minimum high rate	Minimum low rate
Kitchen	30 l/s (adjacent to hob, 60 l/s elsewhere)	13 l/s	Total extract rate must be at least the whole building ventilation rate in Table 1.1B
Utility room	30 l/s	8 l/s	
Bathroom	15 l/s	8 l/s	
Sanitary Accomodation	6 l/s	6 l/s	

TABLE 1.1 b

	Number of bedrooms in dwelling				
	1	2	3	4	5
Whole building ventilation rate (l/s)	13	17	21	25	29
	Minimum value in any dwelling of 0,3 l/s per m^2 floor area				

- In addition, the minimum ventilation rate should not be less than 0,3 l/s per m^2 internal floor area (this includes each floor, e.g. for a two-storey building, add the ground and first floor areas).
- This is based on two occupants in the main bedroom and a single occupant in all other bedrooms. This should be used as the default value. If a greater level of occupance is expected, then add 4 l/s per occupant.

Code 5 170 084 696 01/09

Vortice Elettrosociali S.p.A
Strada Cerca, 2
Frazione di Zoate
20067 Tribiano (Milano)
Tel. (+39) 02 906991
Fax (+39) 02 90699314
Italia

export@vortice-italy.com

Vortice France
72, Rue Baratte-Cholet
94106 Saint Maur
Cedex
Tél. (+33) 1.55.12.50.00
Fax (+33) 1.55.12.50.01
France

contact@vortice-france.com

Vortice Limited
Beeches House-Eastern Avenue
Burton on Trent
DE13 0BB
Tel. (+44) 1283-49.29.49
Fax (+44) 1283-54.41.21
United Kingdom

sales@vortice.ltd.uk

www.vortice.com
www.vortice-france.com
www.vortice.ltd.uk