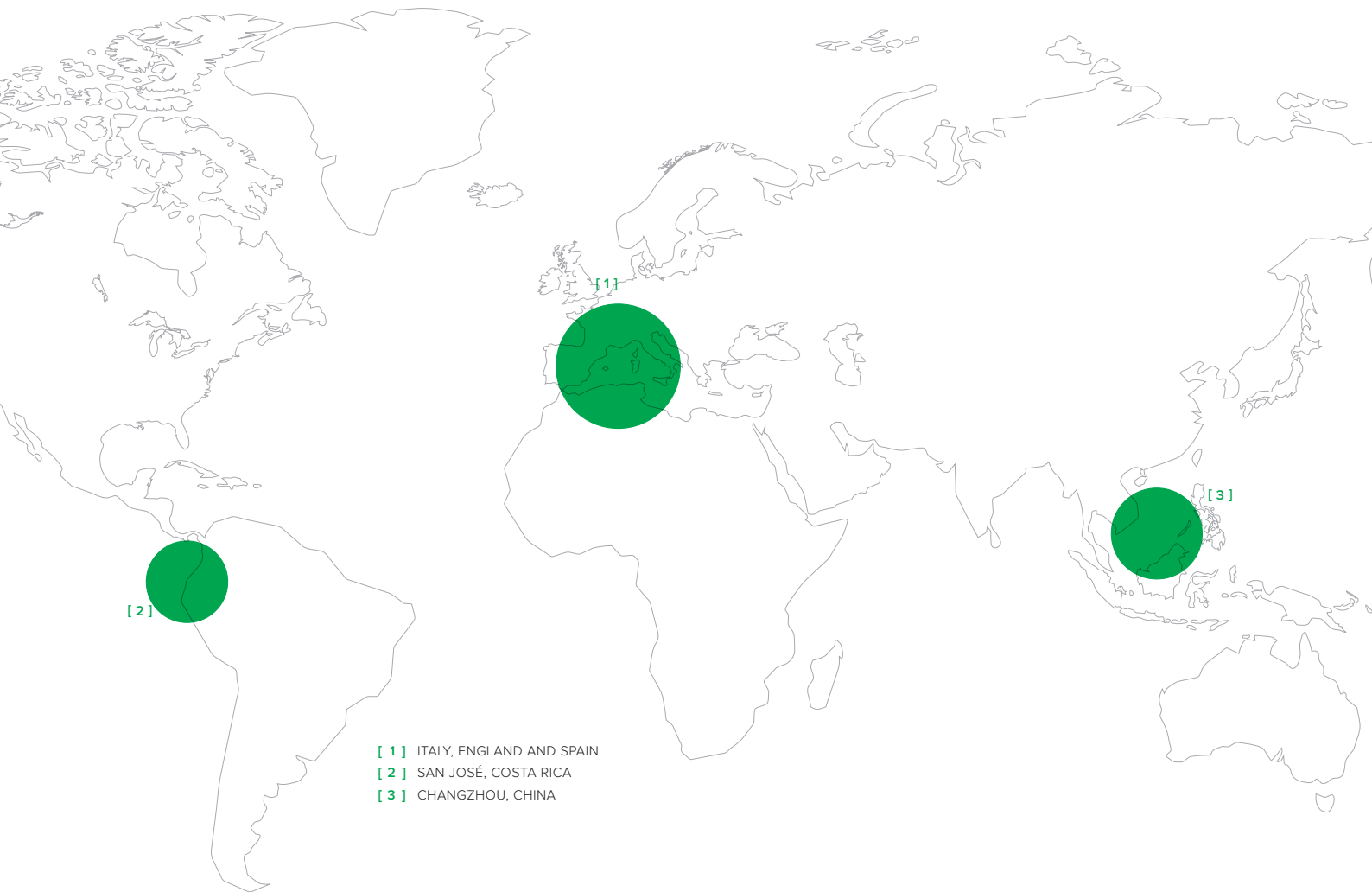




RESIDENTIAL VENTILATION 

VORT AVEL HR 450 D

High efficiency centralised ventilation system with heat recovery, for residential applications



- [1] ITALY, ENGLAND AND SPAIN
- [2] SAN JOSÉ, COSTA RICA
- [3] CHANGZHOU, CHINA



Vortice Headquarter

Today **VORTICE S.p.A** is part of a multinational group, **VORTICE GROUP**, which operates through its own companies or local distributors in over 90 countries in the world and has a rich portfolio of products that provide air quality and climate comfort. The historical headquarters of **VORTICE S.p.A** is Tribiano (Milan).

They are also part of **VORTICE GROUP**:



1 VORTICE UK Ltd, Founded in 1977, Vortice Limited is located at Burton on Trent in the East Midlands.



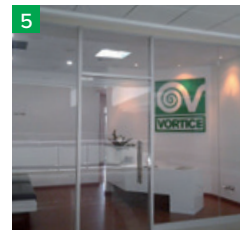
2 VORTICE INDUSTRIAL, born from the acquisition by Loran srl, acquired in 2010 with headquarters in Isola della Scala - Verona.



3 CASALS historical Spanish brand of VENTILACIÓN INDUSTRIAL IND. S.L, based in Sant Joan de les Abadesses Girona, was acquired in 2019.



4 VORTICE Ventilation System, founded in 2013 located in Changzhou, China.



5 VORTICE Latam, founded in 2012, Vortice Latam is in San José, Costa Rica.

Heat Recovery System

Living in a Passive House

Passive Houses are buildings designed and built with criteria that make it possible to limit or in some cases eliminate the energy consumption to obtain the necessary heating/cooling.



Comfort

Ideal temperature
Acoustic insulation
Domotic home



Eco

Low CO₂ Emissions by 90%
Solar insulation



Savings

Efficient ventilation
Efficient heating
Higher insulation

In "traditional" energy construction or renovation operations (thermal insulation, double-glazed windows, etc.), an attempt is made only to prevent the cold or heat from entering and leaving the building. In passive houses, on the other hand, in addition to using systems and materials that minimise heat loss, solutions are studied and applied that optimise solar radiation, limiting it in the summer months and making the most of it

in the winter months. Through controlled mechanical ventilation (CMV), which is equipped with a heat exchanger, all the thermal energy which is usually dissipated is recovered (like, for example, when the windows are opened in the kitchen in winter to lower the temperature from cooking food, while gas is still consumed in the rest of the house to feed the radiators to heat the other rooms).

Integrated Heat Recovery System





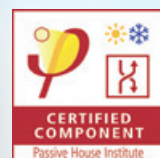
VORT AVEL HR 450 D



High efficiency centralised ventilation system with heat recovery, for residential applications

Can operate with environmental sensors

Control panel with display integrated



***Full compliance with PassivHaus requirements**

Can be integrated into home automation environments by means of ModBus communication protocol

Automatic By-pass

High heat exchange efficiency

***in association with F7 filters, pre heater and silencer.
Please refer to system accessories page 11**



VORT AVEL HR 450 D



A

VORT AVEL HR 450 D



Double flow centralised unit with heat recovery for wall installation. Ideal for ventilation of homes and residential and commercial premises with surface areas up to 260 m².

- Vertical wall installation.
- Galvanised and painted steel sheet casing. Brackets for wall-installation included in standard supply.
- Aesthetic plastic resin (ABS) front panel.
- Plastic resin (PPE) internal parts.
- Extraction and delivery spigots compatible with ducts having nominal diameter equal to 160 mm.
- Pair of electric fans driven by external rotor constant flow regulation IEC motors (brushless) with shafts mounted on ball bearings to ensure virtually "maintenance-free" operation, directly coupled to forward-blade centrifugal impellers. 4 operating speeds, can be set independently on installation.
- High efficiency counter cross flow heat exchanger, made in plastic resin.
- Automatic frost protection to prevent the formation of frost at the heat exchanger.
- 100% mechanical by-pass, automatic operation and filtered to guarantee the comfort of the occupants of the rooms in mid-season, or when the outdoor temperature does not require the action of the heat exchanger.
- Three ISO Coarse 90% (G4) class filters, set respectively on the extraction duct, on the air delivery duct and on the by-pass (M5 and F7 filters available as an optional for the delivery duct and the by-pass), easily accessible for periodic maintenance.
- Condensate collection tray with drain devices.
- Possibility of interlocking to outdoor environmental sensors (optionals) for automatic control of the operating mode.
- High performance, suitable for the correct ventilation of large apartments and villas.
- Easy installation and maintenance: the front panel gives direct access to the main internal components. The position of the electrical contacts and the electronics, located on the upper façade of the product, facilitates connection to the mains and maintenance operations.
- Low consumption, perfectly compatible with 24-hour continuous operation.
- Full compliance with German standards.

Magnetic cover easily removable for filter replacement





TECHNICAL DATA

MODELS	CODE	V ~ 50/60 Hz	W	A	MAX AIRFLOW		MAX PRESSURE		°C* max	Kg
					m ³ /h	l/s	mmH ₂ O	Pa		
VORT HR 450 AVEL D	12101	220-240	350	1.56	400	110	69	680	40	40

* Maximum temperature of continuous operation.

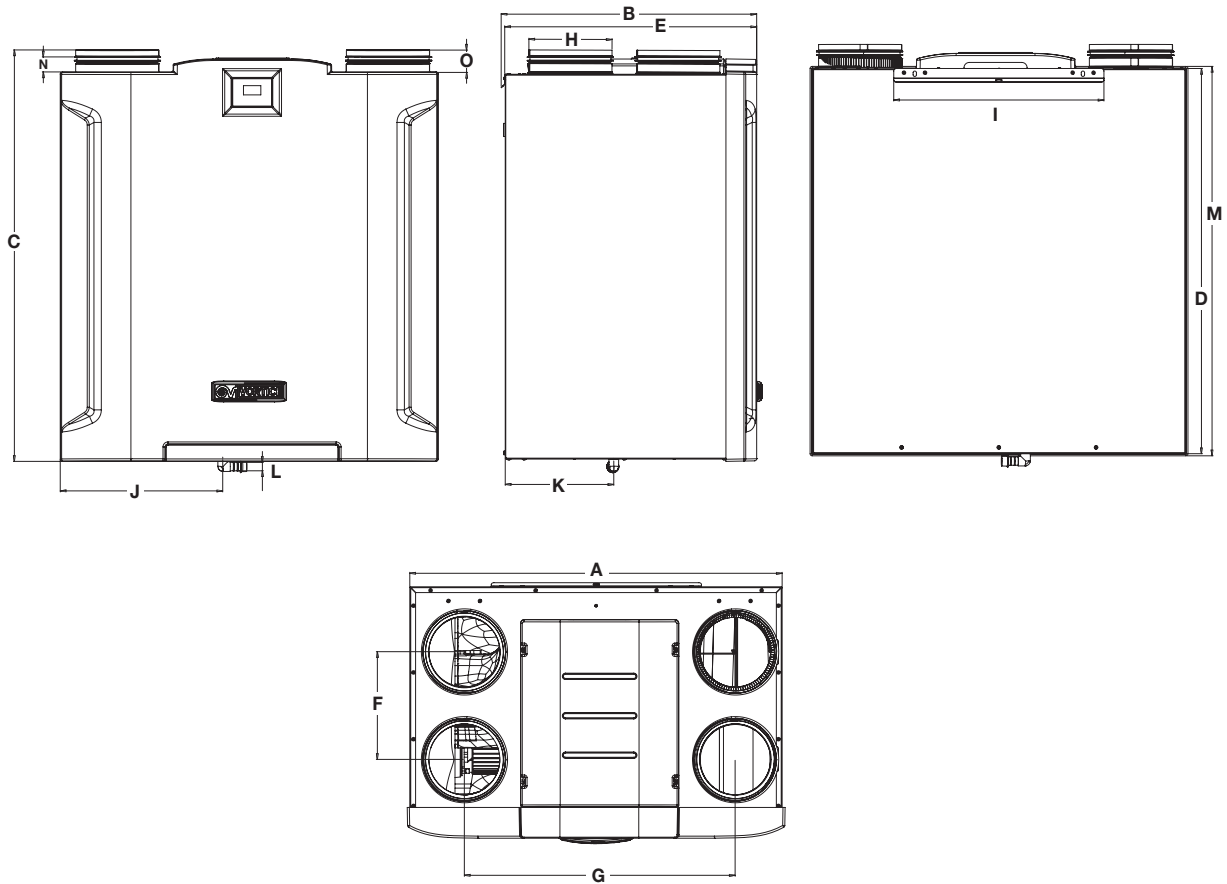
ENERGY DATA

	UNIT OF MEASUREMENT	VORT AVEL HR 450 D
Manufacturer's name or brand name	-	Vortice
Specific energy consumption class for temperate climate	-	A
Specific energy consumption sec (temperate climate)	-	-37
Specific energy consumption sec (cold climate)	kWh/m ² year	-75
Specific energy consumption sec (hot climate)	-	-12
Type of ventilation unit declared	-	UVR-B**
Type of drive	-	VSD***
Type of heat exchanger system HRS	-	with recovery
Heat efficiency of heat recovery at the reference flow rate HRS	%	88
Maximum flow rate	m ³ /h	400
Total electric power absorbed by the fan at maximum flow rate	W	258.5
Sound power level	LWA [DB(A)]	47,2
Reference flow rate	m ³ /s	0.0778
Reference pressure difference	Pa	50
SFI****	W/(m ³ /h)	0.384
Control factor CTRL	-	0.85
Type of control	-	local demand control
Maximum percentage of internal leakage	%	0.3
Maximum percentage of external leakage	%	0.6
Rate of mixture	-	NA*
Position and description of the filters visual signal	-	See user manual
Sensitivity of the air flow to pressure changes at ± 20 PA	-	NA*
Internal/external air sealing	m ³ /h	NA*
AEC annual consumption of electricity	kWh of electricity/year	393
AHS annual heating saved with temperate climate	-	4576
AHS annual heating saved with cold climate	kWh of primary energy/year	8951
AHS annual heating saved with hot climate	-	2069

Energy data pursuant to 1254/2014 EU Regulation

* NA: Not Applicable. ** UVR-B: Residential Ventilation Unit - Bidirectional. *** VM: Multiple Speed. VSD: Variable Speed Drive. **** SFI: Specific absorbed power.

DIMENSIONS



MODELS	CODE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
VORT AVEL HR 450 D	12101	709	486	783	733	479	205	516	Ø158	400	308	207	Ø16	741	26.5	40

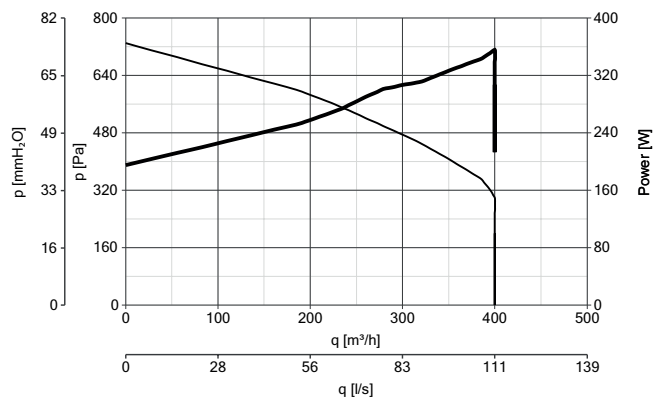
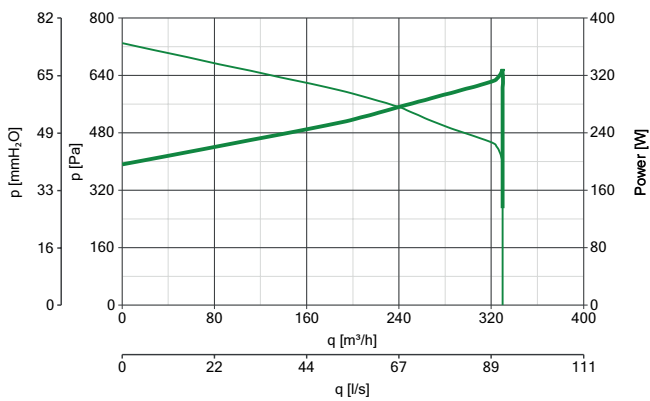
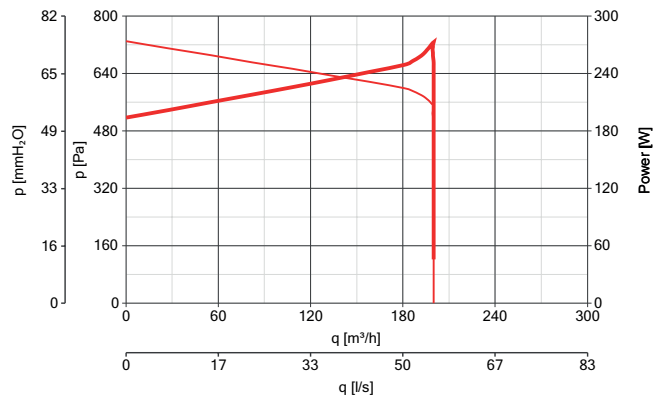
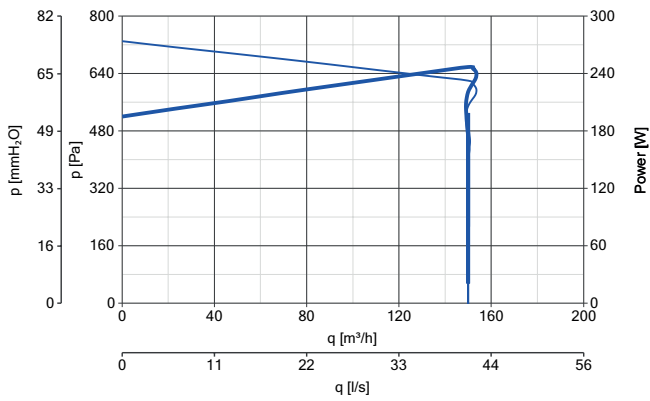
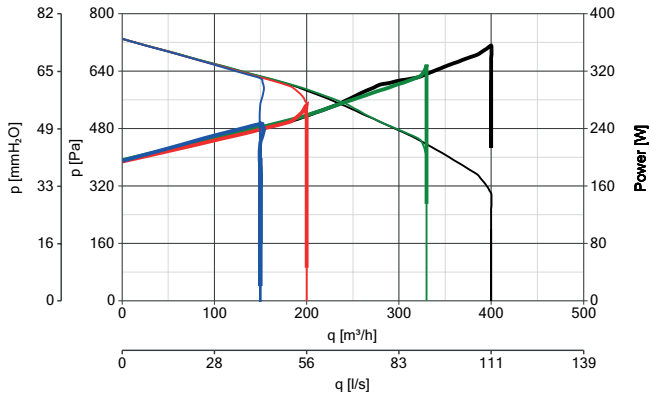
Dimensions (mm)

SOUND LEVELS

VORT HR 450 AVEL D	Lw db (A)	Lp db (A) 3 m*
Supply to internal	61,5	25,2
Extract to internal	45,7	41
Breakout	47,2	26,7



PERFORMANCE CURVES



SYSTEM ACCESSORIES

Control panel with LCD for:

- Product switch-on and switch-off;
- Initial configuration of the product;
- Selection of operating speed;
- Weekly operating mode programming;
- Monitoring of the correct operation of the product (any malfunctioning is highlighted through error messages shown on the display)
- Display of the operating status (set speed, by-pass status, active defrosting procedure, any pre and/or post heater on, etc.)
- Indication of the condition of the saturated filters on the display

CB LCD D - code 21381

Wired remote control panel with
LCD display and menu



The Remote Control user interface allows users to:
Regulate fan speed
Modify weekly programming
View and manage any alarm situations

SYSTEM ACCESSORIES



ELECTRIC PRE HEATER 1200
code 21622 (1,2 kW)

Equipped with sensor for disconnection from the mains in the event that air flow is interrupted.



ELECTRIC POSTHEATER 2400
code 21623 (2,4 kW)

Equipped with sensor for disconnection from the mains in the event that air flow is interrupted.



NA 160 PHI
code 21643
Circular silencer
for ducts



WDG-PH PLUS-C 6X63
code 21323
Distribution
plenum



FTR EPM10 50% (M5)
code 21625
398 x 184 x 21 mm



FTR EPM10 50% (M5)
code 21627
420 x 54 x 21 mm



FTR EPM1 55% (F7)
code 21624
398 x 184 x 21 mm



FTR EPM1 55% (F7)
code 21626
420 x 54 x 21 mm



FTR ISO COARSE 90% (G4)
code 21628
420 x 200 x 5 mm



FTR ISO COARSE 90% (G4)
code 21629
420 x 59 x 5 mm



AF 160
code 12993
Filter box



C SMOKE
code 12993
Smoke sensor



C HCS
code 12994
Humidity sensor

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