

# HRMURAL Double flow ventilation units



Ventilation units  
with high efficiency  
energy recovery

[www.lemmens.com](http://www.lemmens.com)

 **P.LEMMENS**  
A Swegon Group company

T 0320 - 28 61 81 | [www.auerhaan-klimaatechniek.nl](http://www.auerhaan-klimaatechniek.nl)

Als het om lucht gaat.

 **AUERHAAN**  
KLIMAATTECHNIEK

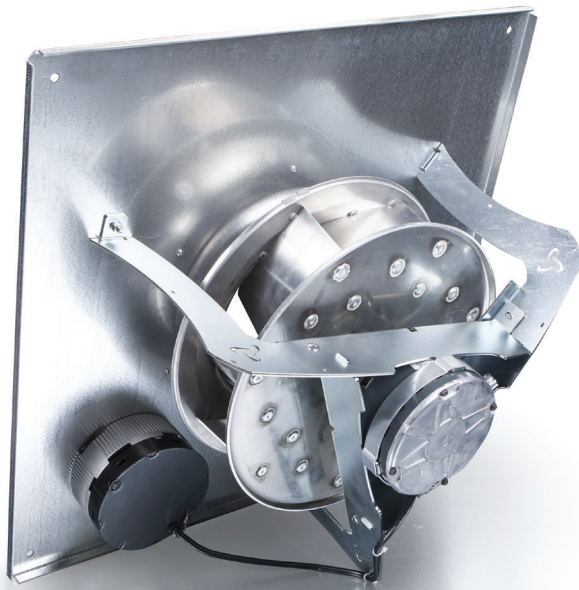
# HRMURAL

DOUBLE FLOW VENTILATION  
UNITS WITH HIGH EFFICIENCY  
ENERGY RECOVERY

# summary

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# foreword



“

*... Eco design - ERP  
2016-2018 compliant...*

”



## P.Lemmens Air Movement Company

is a Belgian company, founded in 1977 by Pierre Lemmens, specialized for more than 39 years in air movement control technologies. It all began with the development and production of direct drive centrifugal fans. Nowadays, Lemmens has grown and is also developing and producing highly technological and complete ventilation handling units including heating, cooling and air conditioning solutions.

Since July 2014, P. Lemmens Company has joined the SWEGON Group. The company employs a team of more than 50 persons in a modern buildings exceeding 7500 m<sup>2</sup> of floor space, and focuses on developing and producing intelligent products relating to air movement. The Total Airflow Control (TAC) technology developed by P. LEMMENS is undoubtedly one of the sources of its success.

This technology is currently at its fifth generation.

The Lemmens rigor and professionalism is everywhere, be it at the development stage, the production stage or even at the distribution of our products.

P.LEMMENS was a visionary leader. Since 1996, he applied TAC technology to all the production range (Cubus, AE, Aira, Compo and of course to all of the Heat Exchanger Ventilation Units). These products have been 'ERP2015 Compliant' for more than 15 years. In other words, P.LEMMENS has been declared, through audits, to comply with the selective criteria of "positive economy" ®, a label concept intended to reconcile economy and ecology. P.Lemmens with its TAC technology became a major author in ventilation and distributes its products throughout Europe.

## Rec HR - high efficiency double flow ventilation units

Since 1997, P.LEMMENS is specialized in the design and production of double flow ventilation units with energy recovery. The aim from the outset was to focus on efficiency. "It is absurd to recover heat energy when electric energy was being wasted..." This is why the first generation TAC technology was already applied to this product. Accordingly, direct current Electronically Commutated Motor (ECM) fans with permanent magnets were systematically selected for the development of the range. Today, with the latest product developments, PLC anticipated the ECO design requirements and as a direct consequence, the HRMURAL series is compliant with the ErP2016/2018 standards, simply thanks to a philosophical choice...The control systems have been further improved and are now open to MODBUS , KNX, Ethernet & WIFI communication technologies and all their advantages.

### Plug & Play

All units are supplied plus & play, factory programmed and very intuitive. The air handling unit is ready for use just by connecting it and by adjusting the settings.

### Compact and quick installation

The units are very compact designed and can be hanged on the wall or placed on the ground.

## Counterflow exchangers

The same focus on efficiency led us opt for counterflow exchangers.

- These are far superior to other types of exchanger (96%).
- They ensure flawless tightness between the 2 airflows, thereby constituting great advantage in terms of hygiene compared with rotary exchangers.

The exchangers are in seawater resistant aluminum and are suitable for temperatures up to 80°C. They are compliant with the DIN1946 tightness standard and are Eurovent approved according to the EN 308 standard (measurement of heat efficiency and validity of technical data).



## High efficiency fans

The TAC fans are equipped with high efficiency EC motors at the cutting edge of the latest technologies. They can achieve high external pressure levels while guaranteeing low consumption throughout the entire operating range.

The TAC control system ensures a precision operating point. It is designed and programmed to



optimize the energy consumption.

The efficiency levels are naturally compliant with the ErP 2016/2018 standards.

## Air filters

The HRMURAL line is standard supplied with oversized air filters (to reduce the pressure drop) in order to protect the exchanger and improve the quality of the incoming air. Depending the unit, M5 or G4 filters are mounted (optional F7). Replacement filter kits are also available.

## TAC5 regulation completes the system

The HRMURAL units are fitted with a complete electronic control system called TAC5 which is used to operate the fans, the

bypass, the anti-freeze protection of the exchanger, the dampers, the preheating coil (option), and post-heating coil (option) as well as the external hot and/or cold exchangers (option). It can be equipped with ETHERNET, MODBUS, KNX or even WIFI communication bus used for its interfacing and complete integration with a standard centralized control system, or a cell phone / tablet.

## Selection programs

A selection software is available for all HR products series. It can be used to determine:

- The technical characteristics of the unit under the conditions of application: power consumption, heat efficiency, air characteristics, sound levels, etc
- The commercial aspects such as the options, price & order information

This user-friendly tool can be downloaded from our website: [www.lemmens.com](http://www.lemmens.com) .







## Areas of application

The REC HRMURAL can be used in Commercial Ventilation applications and in residential projects, both in the case of new construction or on renovations :

- Retail Shops
- Supermarkets
- Cafeterias, restaurants
- Small & large offices
- Fitness centers, gyms
- Hotels, cinemas, theatres
- Schools, College & Universities
- Medical centers
- ...
- Hospitals
- Day-care centers
- Apartment buildings
- Individual houses
- New residential complexes
- Private swimming pools
- ...

They have to be selected in accordance with the application and the desired result in terms of efficiency and sound level.

## Ventilation systems

With the HRMURAL series, P.LEMMENS presents a wide, mature and complete range of centralised ventilation units with energy recovery. There is a unit corresponding to each application between 30 and 1200 m<sup>3</sup>/h. Whether the application commercial, residential or other, all the units have high efficiency, high-tech EC fans operated by an intelligent TAC5 system, and exchangers are used to recover up to

96% of the heat energy contained in the ventilation cycle. These characteristics guarantee an optimal efficiency for the unit. Some HRmural are also available in ECO version. Each of these ECO units is equipped with backward fans (plug fans). This innovation, in line with new market requirements, cares for better fan yield and lower electrical consumption.

## Advantages of HR units

- The HRMURAL are units with high efficiency but low operating and maintenance costs .
- All HRMURAL units can be configured simply by using a (graphical) remote control (RC or GRC) or a dedicated PLC App or by using a more sophisticated network (SAT Modbus or KNX).
- The air breathed in the buildings is always pleasantly fresh and healthy.
- The systems avoid the damages caused by humidity and mildew.
- Extensive energy savings thanks to high efficiency energy exchangers.
- The constant pressure mode (CPs) ensures individualised centralised ventilation in an apartment building.
- The constant torque mode (TQ) available with the Eco version, allows an external system to control the fans via the torque or the rotationspeed of the fan.
- The constant airflow mode (CA) ensures that the flow rate is maintained regardless of the pressure drop.
- The constant airflow mode linked to a 0-10V (LS) signal links the flow rate directly to a sensor value (example, an air quality sensor).
- The post-heating and/or cooling coils (option) ensure a desired comfort temperature of the supply air.
- Equipped with a by-pass.

## Summary

HRMURAL SERIES	CID	AIRFLOW RATE [m³/h]	AUTOMATIC BYPASS	EXTERNAL POST-HEATING/COOLING
HRMURAL UP 300 ECO	884 261	30-300	YES	YES
HRMURAL UP 400 ECO	884 267	40-400	YES	YES
HRMURAL 450	884 200	50-450	YES	YES
HRMURAL 450 VEX	884 205	50-450	YES	YES
HRMURAL 450 ECO	884 247	50-450	YES	YES
HRMURAL 450 ECO VEX	884 248	50-450	YES	YES
HRMURAL 450 ECO HP	884 250	50-450	YES	YES
HRMURAL 450 ECO HP VEX	884 251	50-450	YES	YES
HRMURAL UP 450	884 204	50-450	YES	YES
HRMURAL 600	884 201	50-600	YES	YES
HRMURAL 600 VEX	884 206	50-600	YES	YES
HRMURAL 800	884 202	100-800	YES	YES
HRMURAL 800 VEX	884 207	100-800	YES	YES
HRMURAL 1200	885 203	100-1200	YES	YES
HRMURAL 1200 VEX	885 208	100-1200	YES	YES

# HRMURAL

## Double flow ventilation units

HRmural is a range of controlled mechanical ventilation units with high efficiency heat recovery (up to 96%), composed of a counter flow aluminium plate exchanger, class G4 or M5 ( optional F7) (option) filters, a bypass and centrifugal fans with high efficiency electronic motor (TAC series), from which it draws all the advantages.

It is designed for applications going up to 1200 m<sup>3</sup>/h. The efficiency of the exchanger often makes adding a postheating (or post-cooling) system superfluous, although such a system is provided as an option.

It is delivered ready to use, entirely pre-wired, (including the options), with a ETHERNET, MODBUS, WIFI or KNX connection for controlling the device without opening it...



all you need is to connect to the power supply (outside the unit), to connect the remote control or ETHERNET, MODBUS, WIFI or KNX connection and to activate the unit, and it's ready to run irrespective of the options chosen

The 450 model is available with horizontal (HRmural 450) or vertical (HRmuralup 450) airflow directions. Backward fans are mounted in the 300, 400 and 450 ECO models

### Available options

- Electric preheating coil (KWin)
- External post-heating/cooling coil (BA+/-)
- Roof for external version (VEX)
- Air intake hood with protective grid (AU)
- Louvre for exhaust air (VK)

## Technical characteristics

- High efficiency counterflow heat exchange (up to 96% efficiency) in aluminum resistant to seawater and for temperatures between -30° C and +100° C. It is Eurovent approved according to EN308.
- High efficiency motors: direct current motor with permanent magnets and electronically commutated (ECM):
- High efficiency fans: choice between forward curved and backward inclined wheels (ECO Version).
- Setting and piloting of the TAC fans in 4 different modes:
  1. **CPs mode** (constante pressure measured via an optional external sensor)
  2. **TQ mode** (constant torque)
  3. **CA mode** (constant airflow)
  4. **LS mode** (link to signal 0-10V).
- All HRMURAL units (except for the Mural 300 & 400) have a compact casing made of anodised aluminium structure and acoustically and thermally insulated panels (rockwool 15 mm) in painted steel on the outside (RAL9002) and galvanised steel inside.
- The Mural 300 & 400 up has a polypropylene casing - The original casing is compact and made of polypropylene casing. This allows to have no thermal bridges. In option, the unit can be fitted with a metal casing giving a nicer finishing.
- Stainless steel (except for the Mural 300) condensate tray.
- Filters: F7 for incoming air and M5 (F7 as an option) for outgoing air.
- Filter replacement alarm based on a measurement of pressure and/or operating time of the unit.
- Automatic 70% bypass activated by an actuator for free cooling in summer (temperature settings adjustable by the user). The bypass can also be operated by built-in clock and/or by external contact.
- Automatic antifrost system by means of modulating air flows or by electric preheating coil.
- Operation and control of external reversible water heat exchanger, or with direct expansion (evaporation/ condensation, Heat pumps) for postheating/ cooling.
- External direct expansion coil or heat pump post heating / cooling
- Fire alarm management by activation of supply and extraction airflow with possible override by the fire brigade via the external contacts.
- Connection to a BMS system via a digital and/or analogue system (if the MODBUS communication cannot be used). BMS control functions via a MODBUS RTU protocol or KNX (SAT MODBUS or SAT KNX: option).
- Indoors or outdoors assembly (option VEX – not available for HRMURAL up) with roof, air intake hood with protective grid and louvre for exhaust air.
- The units are available in a left or right version (except HRMURAL UP 300 & 400 ECO).

### Available options

- HRmural for indoors installation
- HRmural VEX designed for outdoors installation. They are delivered with roof, base, suction hood and roller blind.
- The HRmural 600 and 800 can be installed horizontally or vertically.

## Control modules available as an option



RC REMOTE CONTROL



SAT TAC5  
BA/KW INTERFACE



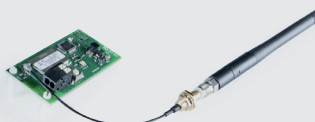
GRC GRAPHIC REMOTE CONTROL



SAT3



PLC APP



SAT WIFI



SAT TAC5 MODBUS INTERFACE



SAT ETHERNET

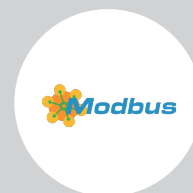


SAT TAC5 KNX INTERFACE



- **WORKING MODES :**
  1. **CONSTANT AIRFLOW**
  2. **AIR QUALITY (CO<sub>2</sub>, VOC AND HR)**
  3. **CONSTANT PRESSURE**
  4. **CONSTANT TORQUE**
- **UP TO 74 SPECIFIC ALARMS**
- **BOOST**
- **TIME TABLE**
- **SEASONAL MANAGEMENT**
- **FREECOOLING**
- **POSTHEATING/COOLING**
- **CONFORT SUPPLY T° CONTROL**
- **ADVANCED ANTI FROST PROTECTION**

## COMMUNICATION BUS



MODBUS



ETHERNET



WIFI



KNX

## USER INTERFACE



LCD REMOTE CONTROL



GRC  
USER FRIENDLY  
GRAPHICAL  
TOUCH SCREEN



LEMENS DEDICATED  
APP FOR TABLET AND  
SMARTPHONE



ANY KNX DISPLAY  
OR INTERFACE

## BMS

INTEGRATION IN BUILDING  
MANAGEMENT SYSTEM USING  
THE MODBUS

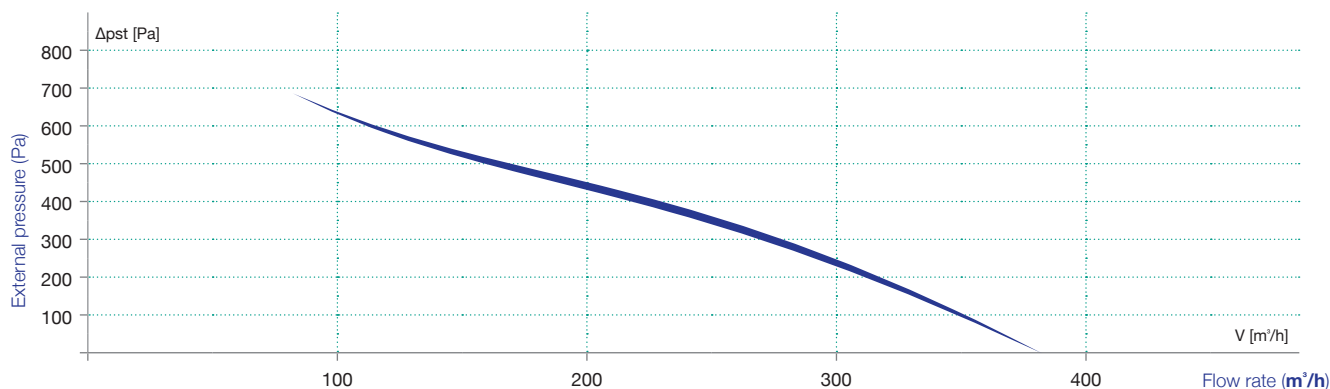


OR KNX

# HRMURALUP.300<sup>eco</sup>



## Technical characteristics



## General characteristics

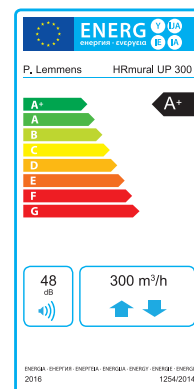
• AIRFLOW	50 - 300 m³/h
• DIMENSIONS (L X W X H) / CONNECTION	600 x 550 x 750 / 160 mm Ø
• WEIGHT	25 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	1,4 A
• RECOMMENDED ELECTRICAL PROTECTION	4 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	G4 / G4 (F7 optional)
• AVAILABLE OPTIONS	KWin/KWout
• AUTOMATIC FREE COOLING	yes / 100%
• OPERATING TEMPERATURE RANGE	-20°C à +40°C
• COLOUR OF PANELS	Black / RAL 9010 (option)
• CID	884261

\* The weight may change depending on the options.

## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL
m³/h	W	W/m³/h	%	°C	dB(A)
100	19	0,19	93,4	19,9	-
200	47	0,24	91,1	19,2	29
300	133	0,44	89,7	18,7	34

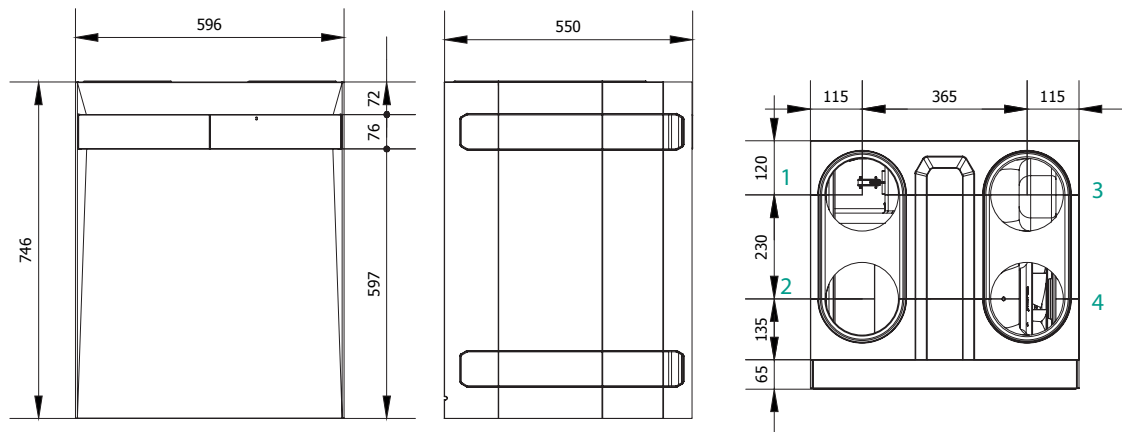
- Conditions:
- values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
  - efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
  - Sound level in the free field at 3m.



**DIMENSIONS (mm)**

1 From the outside 2 From the inside 3 To the outside 4 To the inside

**HRMURAL<sub>UP</sub> 300**

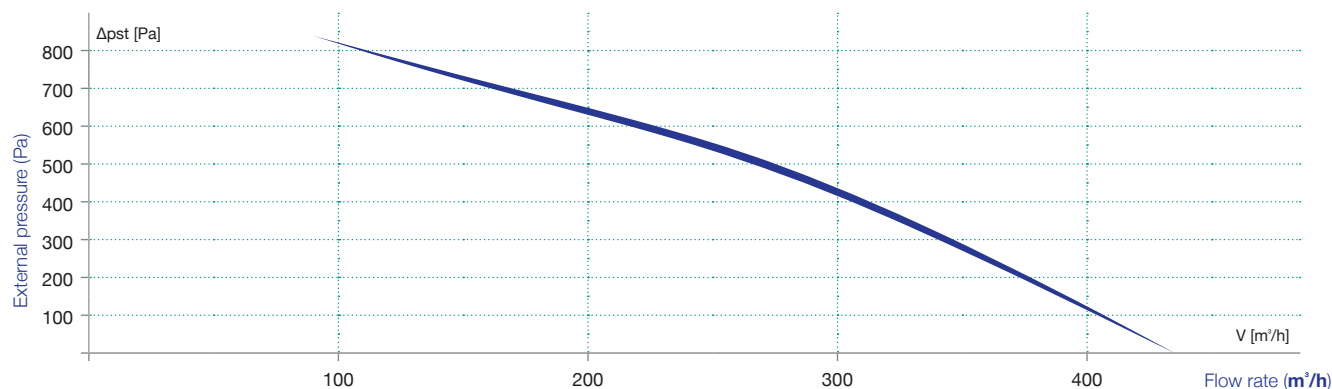




# HRMURALUP.400<sup>eco</sup>



## Technical characteristics



## General characteristics

• AIRFLOW	50 - 400 m³/h
• DIMENSIONS (L X W X H) / CONNECTION	600 x 550 x 750 / 160 mm Ø
• WEIGHT	25 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	1,8 A
• RECOMMENDED ELECTRICAL PROTECTION	4 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	G4 / G4 (F7 optional)
• AVAILABLE OPTIONS	KWin/KWout
• AUTOMATIC FREE COOLING	yes / 100%
• OPERATING TEMPERATURE RANGE	-20°C à +40°C
• COLOUR OF PANELS	Black / RAL 9010 (option)
• CID	884261

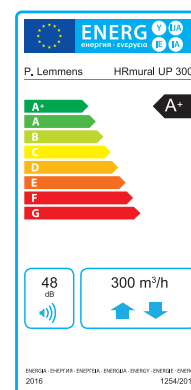
\* The weight may change depending on the options.

## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL
m³/h	W	W/m³/h	%	°C	dBA
100	19	0,19	93,4	19,9	-
200	42	0,21	91,1	19,2	27
300	114	0,38	89,7	18,7	33
400	229	0,57	88,7	18,4	38

Conditions:

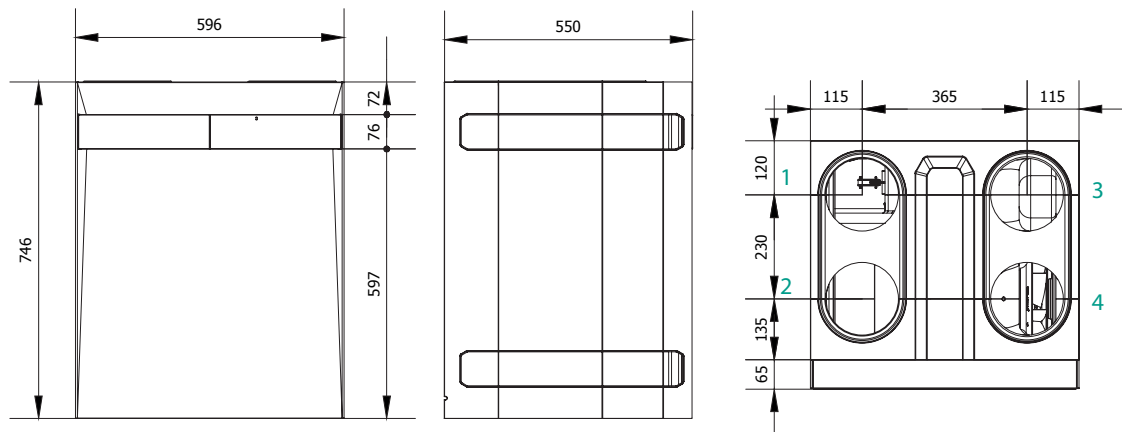
- values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
- efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
- Sound level in the free field at 3m.



**DIMENSIONS (mm)**

1 From the outside 2 From the inside 3 To the outside 4 To the inside

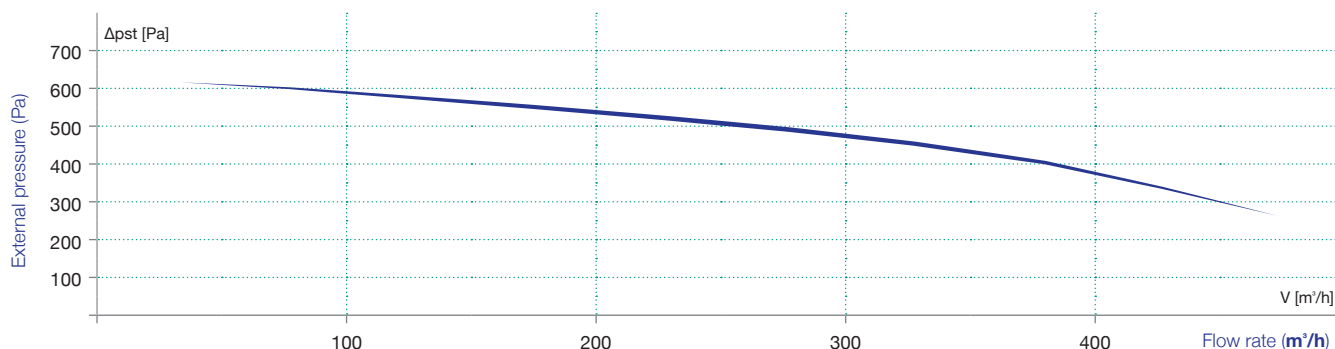
## HRMURALUP 400



# HRMURAL.450



## Technical characteristics



## General characteristics

• AIRFLOW	50 - 450 m³/h
• DIMENSIONS (L X W X H)	712 x 500 x 500
• WEIGHT	73 / 88 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	2,9 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	G4 / G4 (F7 optional)
• AVAILABLE OPTIONS	ER and SR as standard, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884200 / 884205 (outdoor version - VEX)

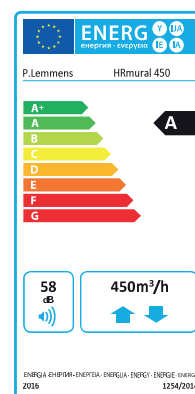
\* The weight may change depending on the options.

## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL
m³/h	W	W/m³/h	%	°C	dBA
100	8	0,08	95,6	20,6	-
200	38	0,19	93,4	19,9	22,7
300	105	0,35	92,1	19,5	30,8
450	302	0,67	90,7	19	39,6

Conditions:

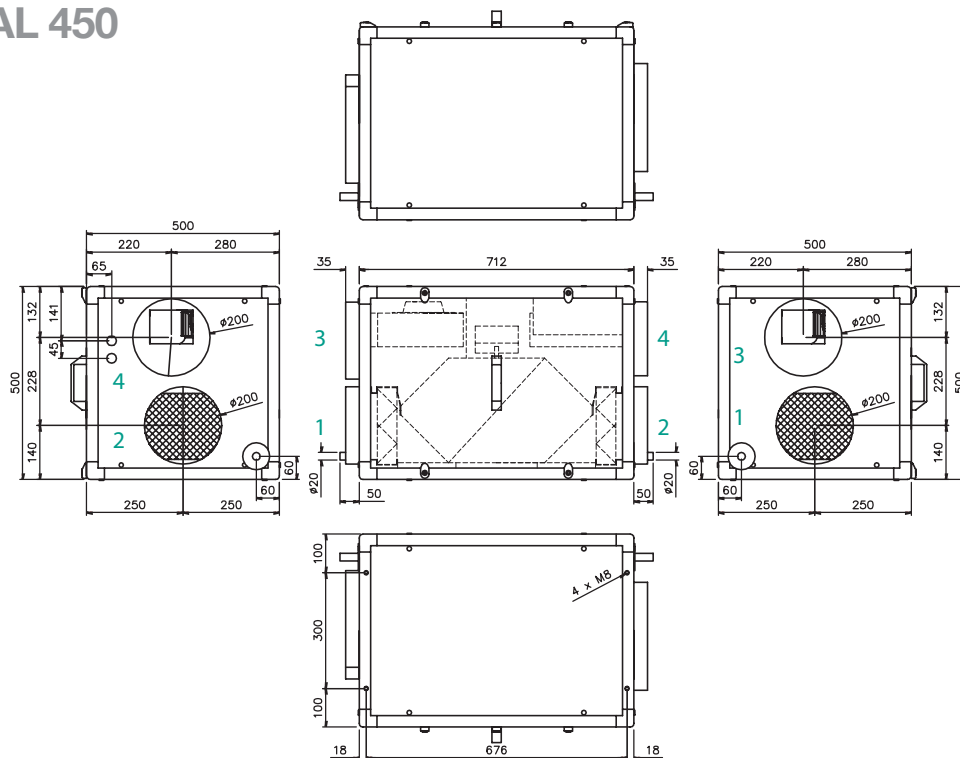
- values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
- efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
- Sound level in the free field at 3m.



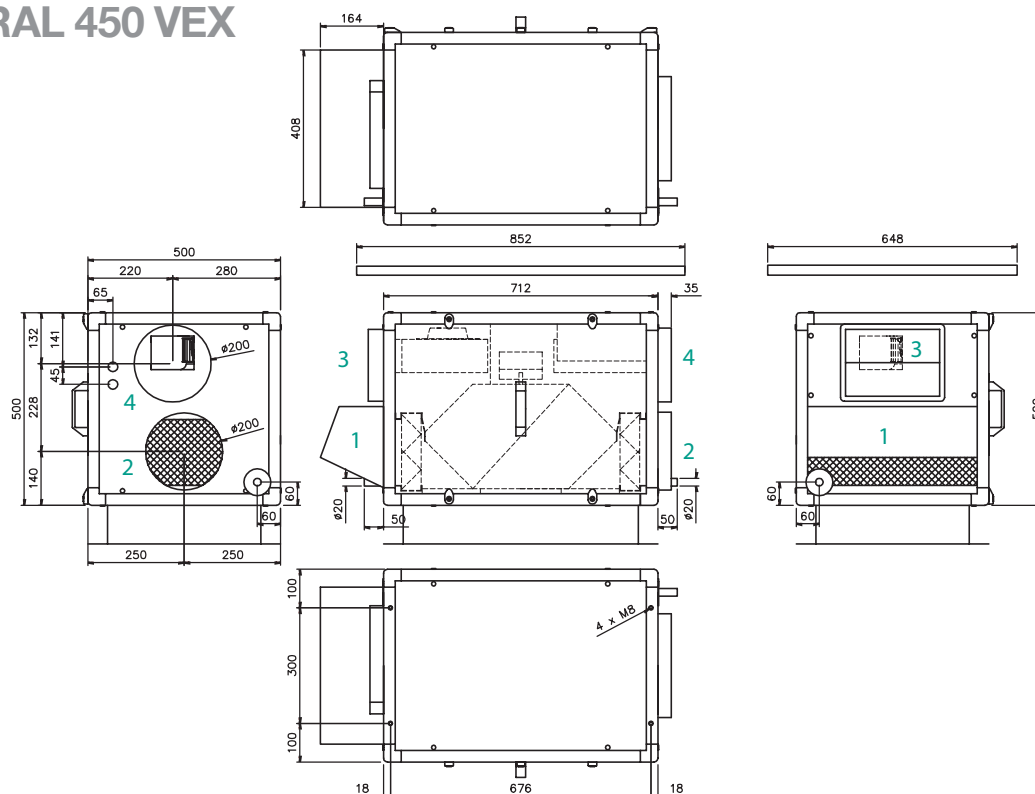
DIMENSIONS (mm)

1 From the outside 2 From the inside 3 To the outside 4 To the inside

HRMURAL 450



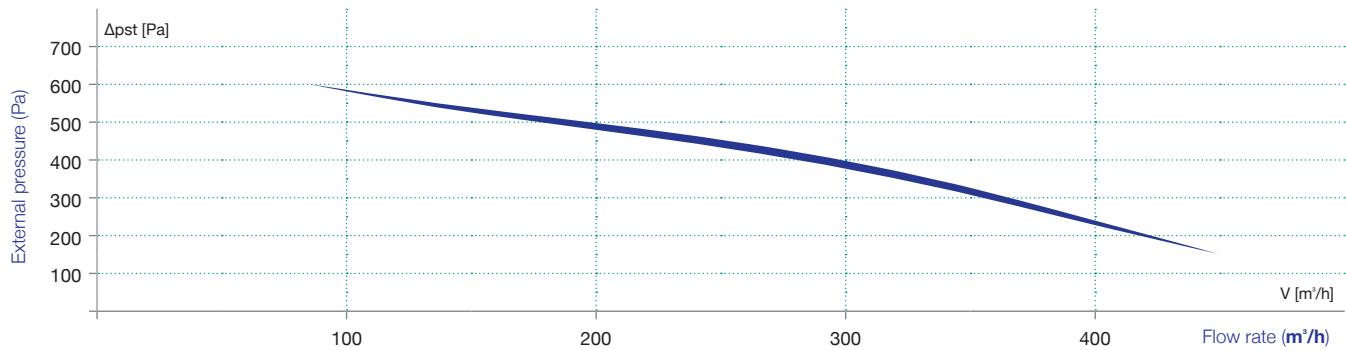
HRMURAL 450 VEX



# HRMURAL.450<sup>eco</sup>



## Technical characteristics



## General characteristics

• AIRFLOW	50 - 450 m³/h
• DIMENSIONS (L X W X H)	1012 x 500 x 500
• WEIGHT	80 / 96 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	1,6 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	G4 / G4 (F7 optional)
• AVAILABLE OPTIONS	ER and SR as standard, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884247 - 884248 (outdoor version - VEX)

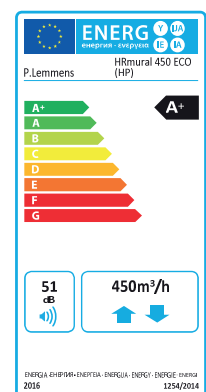
\* The weight may change depending on the options.

## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL
m³/h	W	W/m³/h	%	°C	dB(A)
100	10	0,10	95,6%	20,6	-
200	33	0,17	93,4%	19,9	22,6
300	74	0,25	92,1%	19,5	29,1
450	192	0,43	90,7%	19,0	36,1

Conditions:

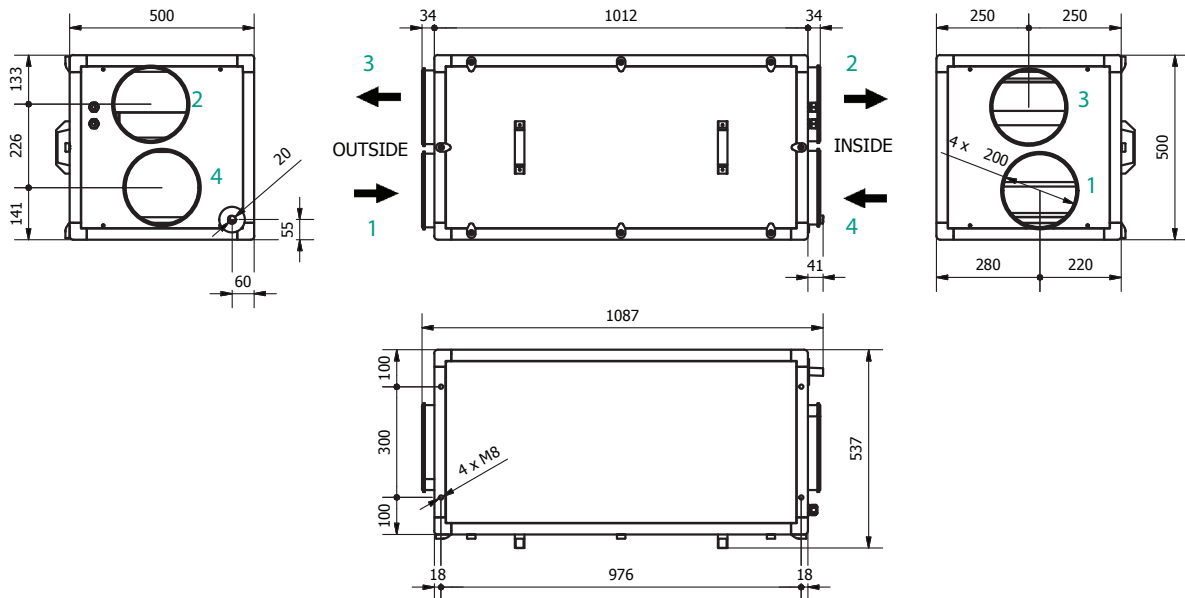
1. values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
2. efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
3. Sound level in the free field at 3m.



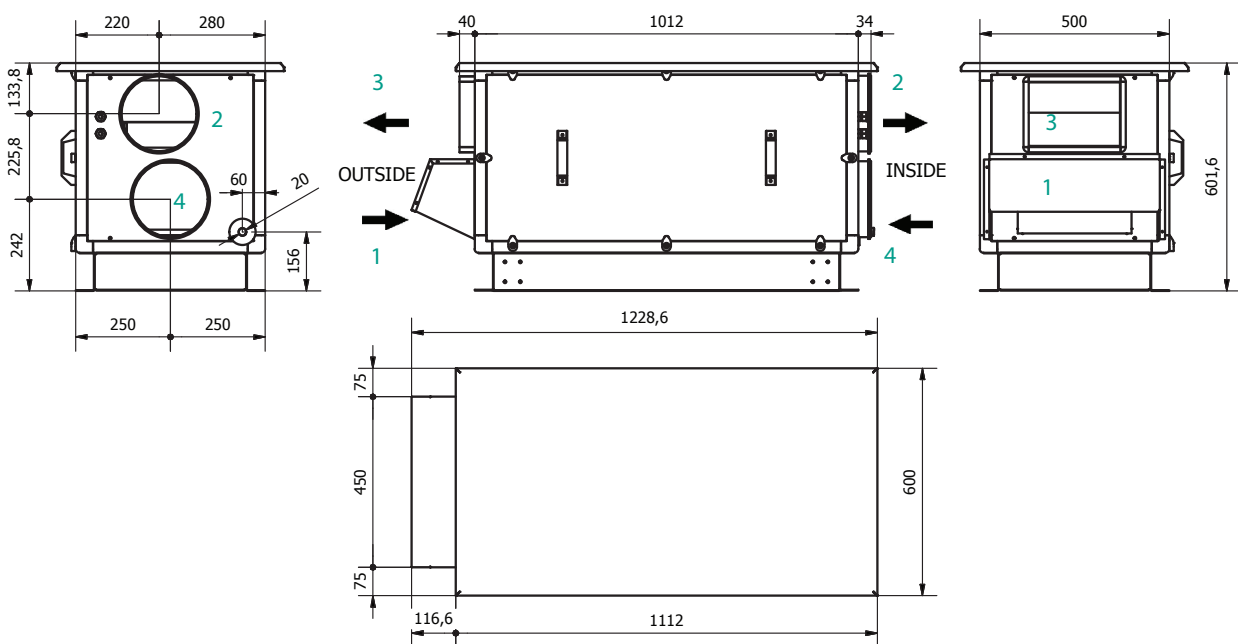
DIMENSIONS (mm)

1 From the outside 2 From the inside 3 To the outside 4 To the inside

### HRMURAL 450ECO



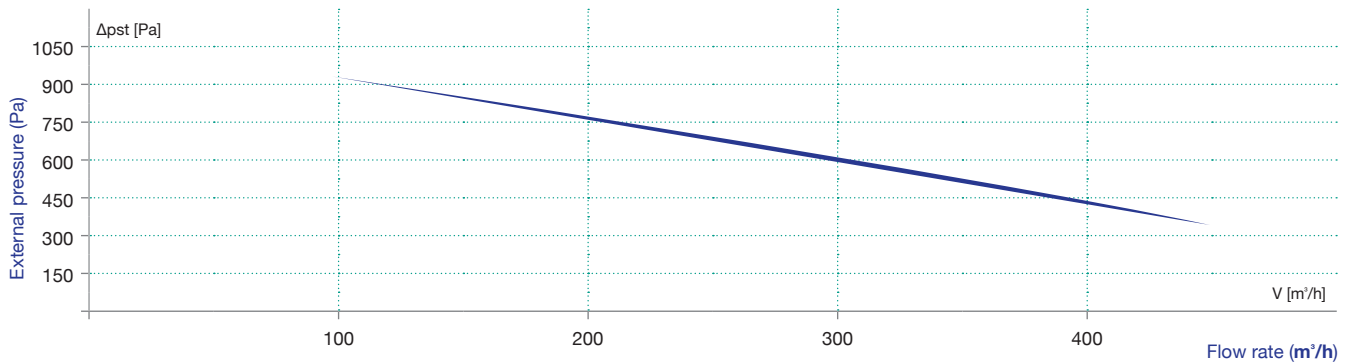
### HRMURAL 450ECO VEX



# HRMURAL.450<sup>eco</sup> HP



## Technical characteristics



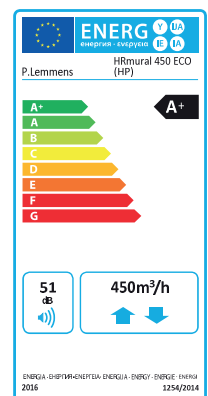
## General characteristics

• AIRFLOW	50 - 450 m³/h
• DIMENSIONS (L X W X H)	1012 x 500 x 500
• WEIGHT	79 / 96 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	2,4 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	G4 / G4 (F7 optional)
• AVAILABLE OPTIONS	ER and SR as standard, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884250 / 884251 (outdoor version - VEX)

\* The weight may change depending on the options.

## Technical data

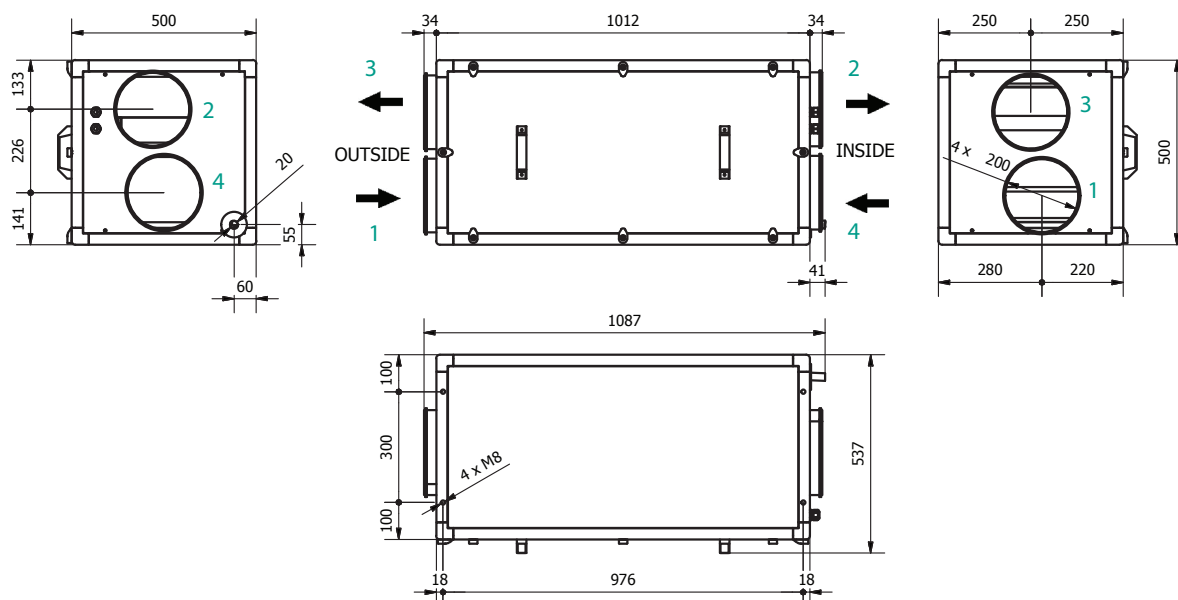
FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL	Conditions:
m³/h	W	W/m³/h	%	°C	dB(A)	
100	10	0,10	95,6%	20,6	-	1. values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
200	33	0,17	93,4%	19,9	22,6	2. efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
300	74	0,25	92,1%	19,5	29,1	3. Sound level in the free field at 3m.
450	192	0,43	90,7%	19,0	36,1	



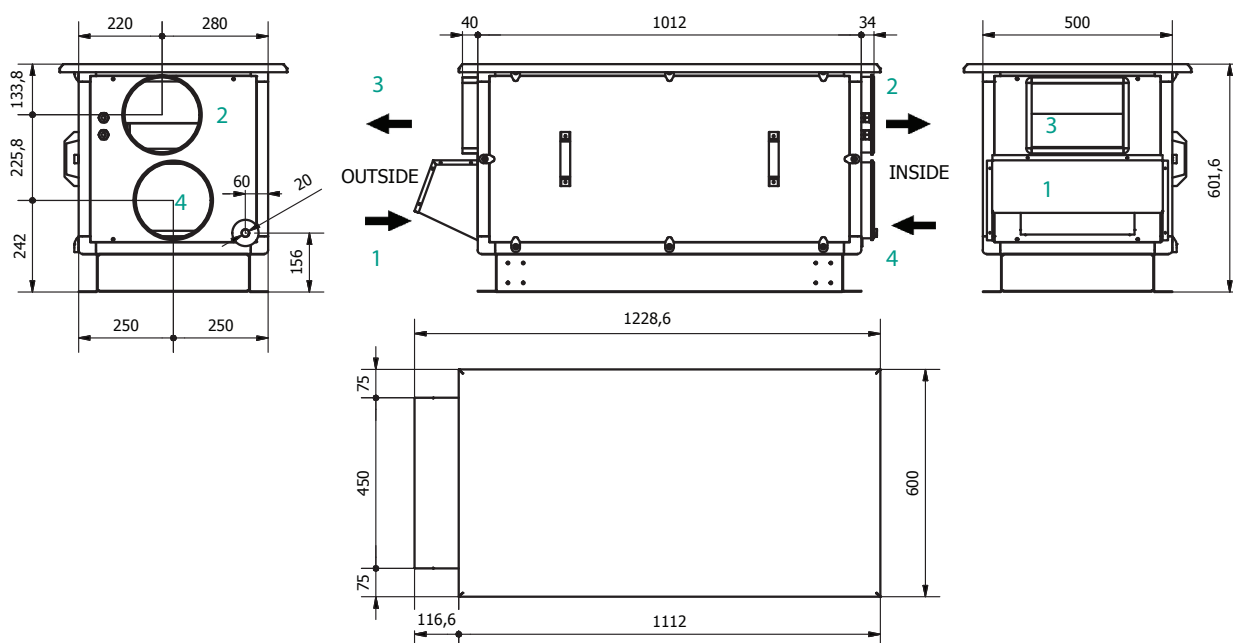
**DIMENSIONS (mm)**

1 From the outside 2 From the inside 3 To the outside 4 To the inside

**HRMURAL 450ECO HP**



**HRMURAL 450ECO HP VEX**

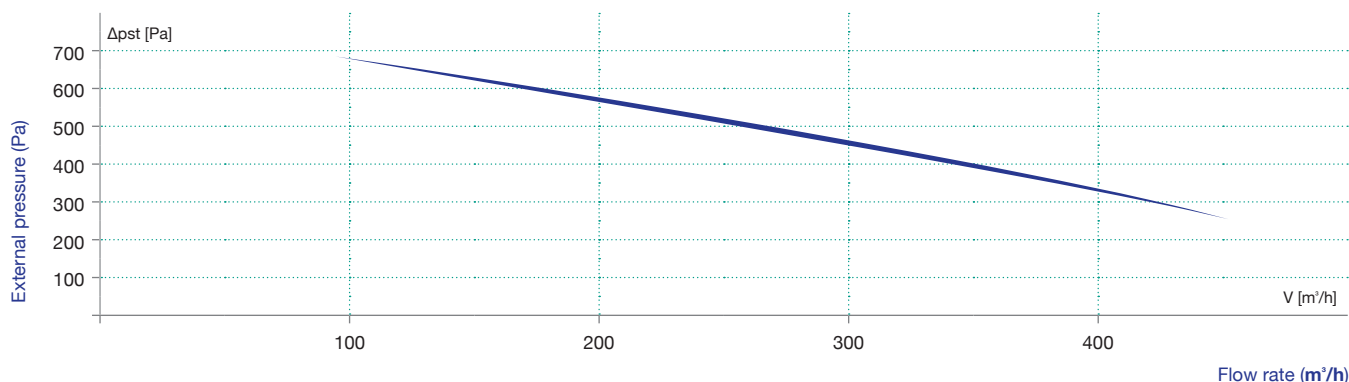




# HRMURALUP.450



## Technical characteristics



## General characteristics

• AIRFLOW	50 - 450 m³/h
• DIMENSIONS (L X W X H)	720 x 500 x 675
• WEIGHT	74,5 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	3,1 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	G4 / G4 (F7 optional)
• AVAILABLE OPTIONS	ER and SR as standard, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884204

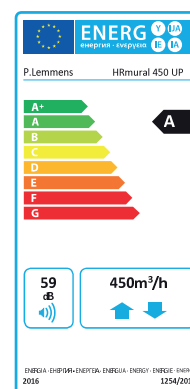
\* The weight may change depending on the options.

## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL
m³/h	W	W/m³/h	%	°C	dB(A)
100	8	0,08	95,6	20,6	-
200	40	0,2	93,4	19,9	22,5
300	108	0,36	92,1	19,5	30,5
450	310	0,69	90,7	19	39,5

Conditions:

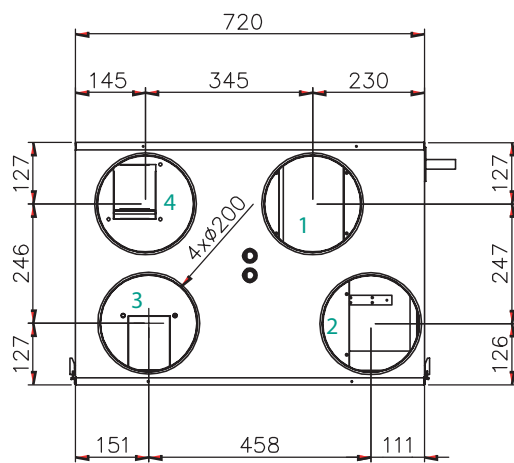
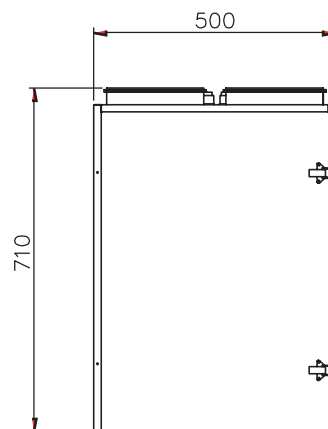
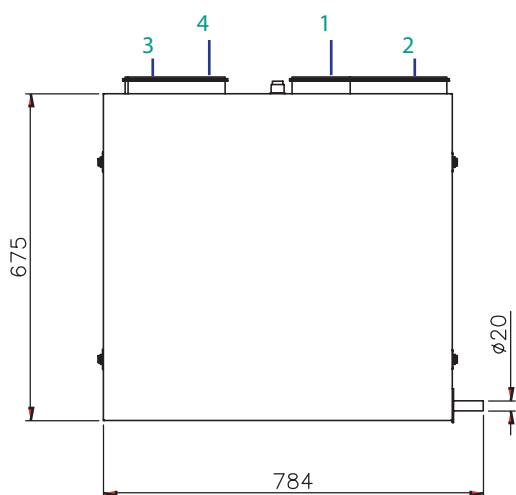
- values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
- efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
- Sound level in the free field at 3m.



**DIMENSIONS (mm)**

1 From the outside 2 From the inside 3 To the outside 4 To the inside

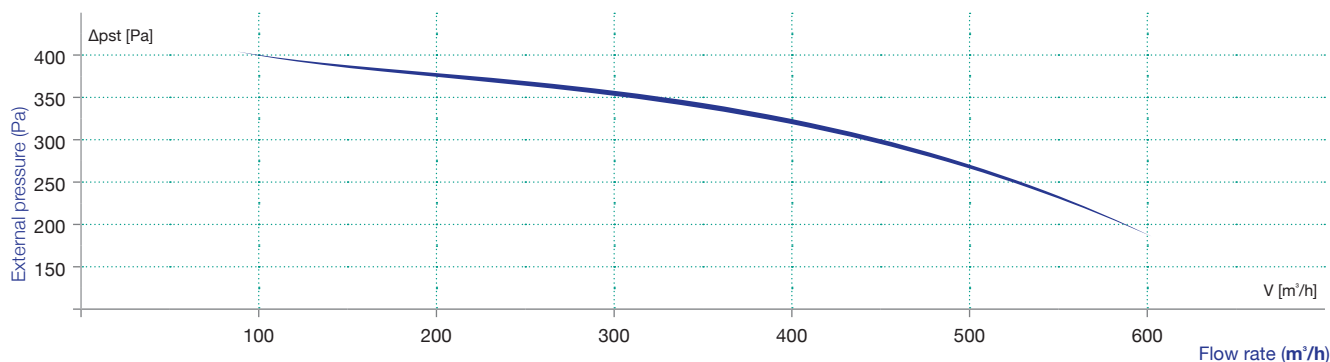
### HRMURAL UP 450



# HRMURAL.600



## Technical characteristics



## General characteristics

• AIRFLOW	60 - 600 m³/h
• DIMENSIONS (L X W X H)	860 x 500 x 860
• WEIGHT	103 / 112 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	2,5 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	M5 / M5
• AVAILABLE OPTIONS	ER and SR as standrad, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884201 / 884206 (outdoor version - VEX)

\* The weight may change depending on the options.

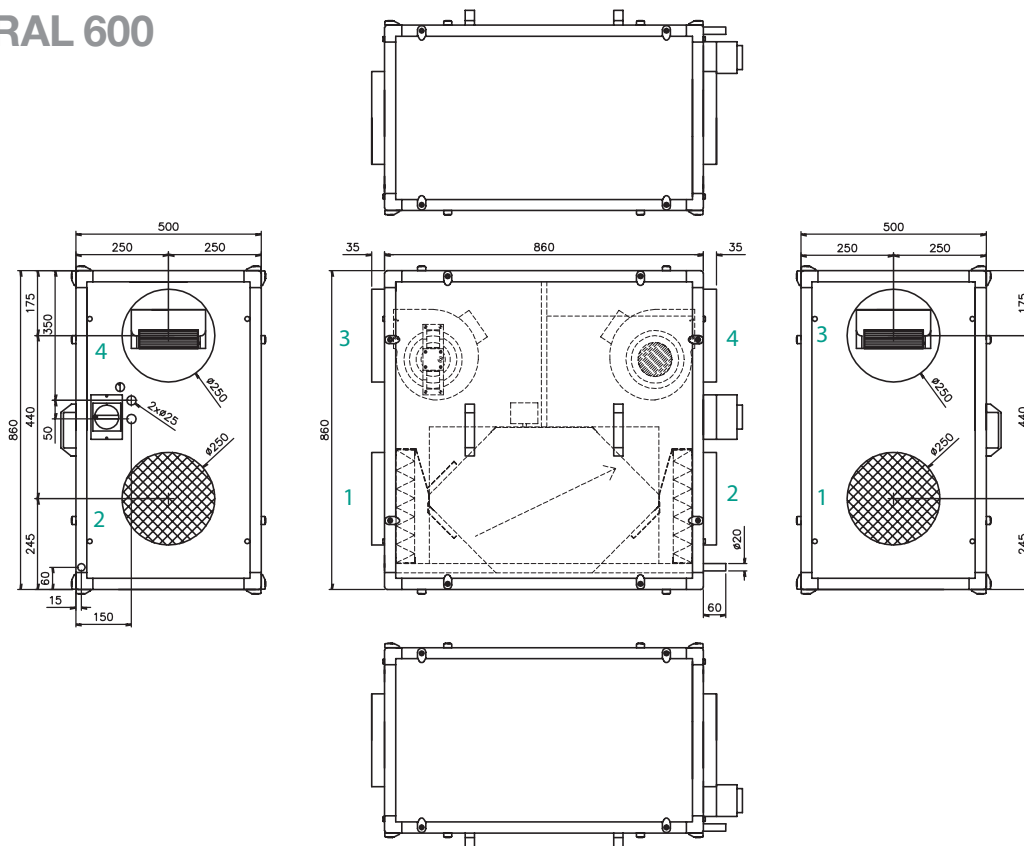
## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL	Conditions:
m³/h	W	W/m³/h	%	°C	dB(A)	
150	10	0.07	94.5%	20.6	-	1. values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
300	52	0.17	92.3%	20	24.8	2. efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
450	132	0.29	90.9%	19.5	31.6	3. Sound level in the free field at 3m.
600	286	0.48	89.9%	19	36.4	

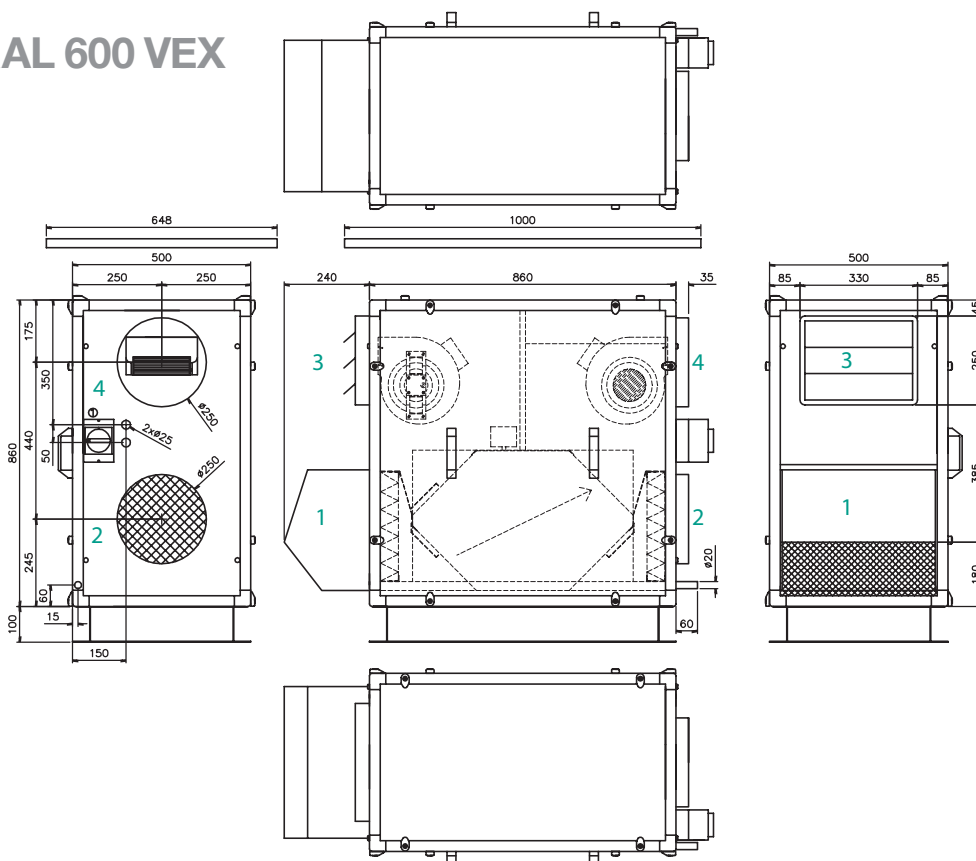
DIMENSIONS (mm)

1 From the outside 2 From the inside 3 To the outside 4 To the inside

HRMURAL 600



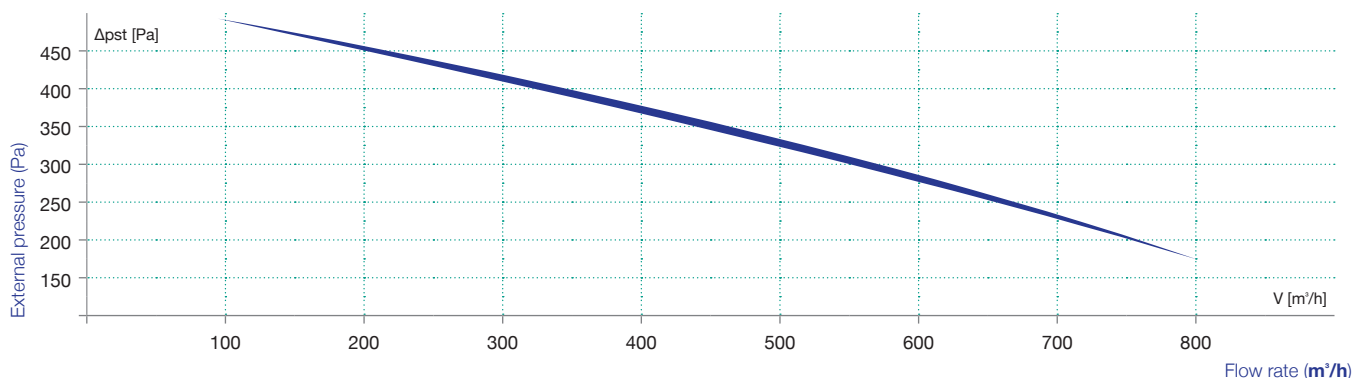
HRMURAL 600 VEX



# HRMURAL.800



## Technical characteristics



## General characteristics

• AIRFLOW	80 - 800 m³/h
• DIMENSIONS (L X W X H)	860 x 500 x 860
• WEIGHT	119 / 129 kg*
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	3,5 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	M5 / M5
• AVAILABLE OPTIONS	ER and SR as standard, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884202 / 884207 (outdoor version - VEX)

\* The weight may change depending on the options.

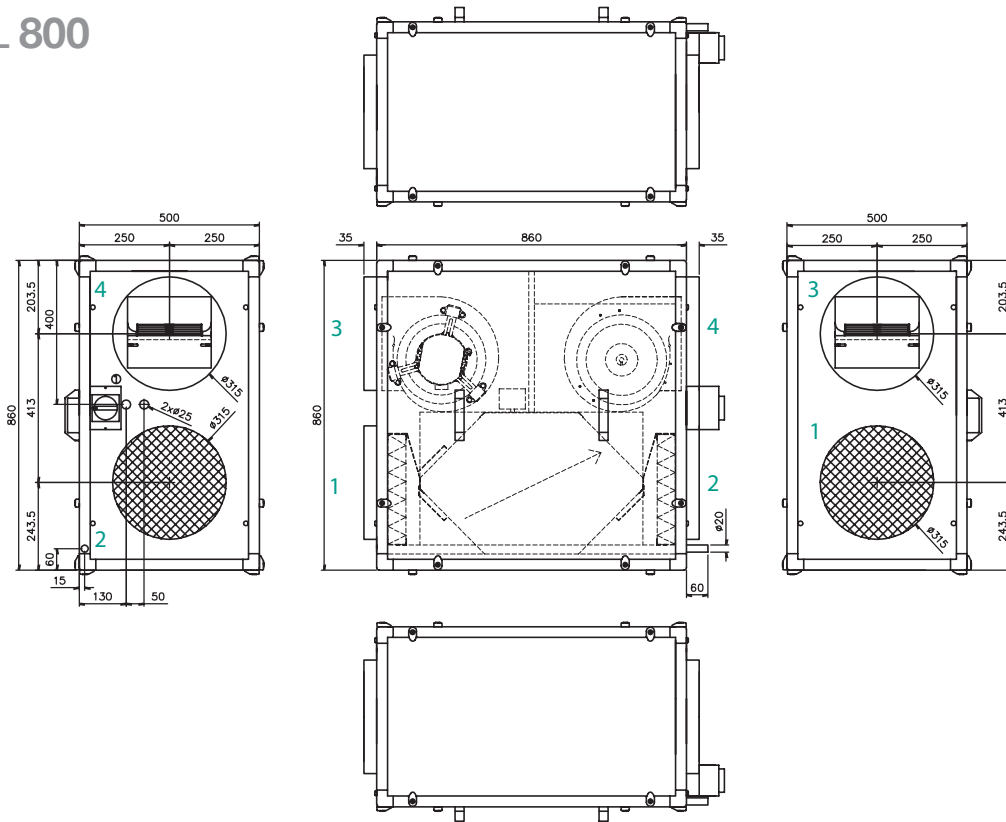
## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL	Conditions:
m³/h	W	W/m³/h	%	°C	dB(A)	
200	20	0,10	94,8	20,3	-	1. values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
400	98	0,25	92,6	19,6	29,2	2. efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
600	262	0,44	91,2	19,2	35,7	3. Sound level in the free field at 3m.
800	519	0,66	90,2	18,9	40,5	

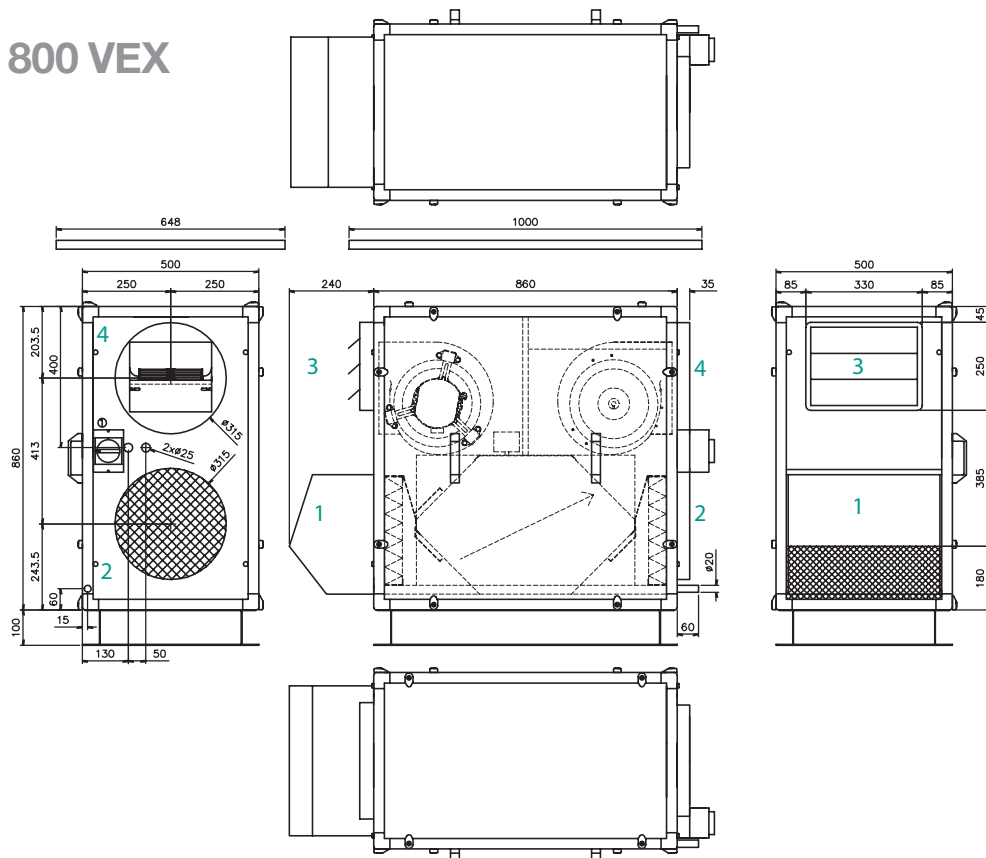
**DIMENSIONS (mm)**

1 From the outside 2 From the inside 3 To the outside 4 To the inside

**HRMURAL 800**



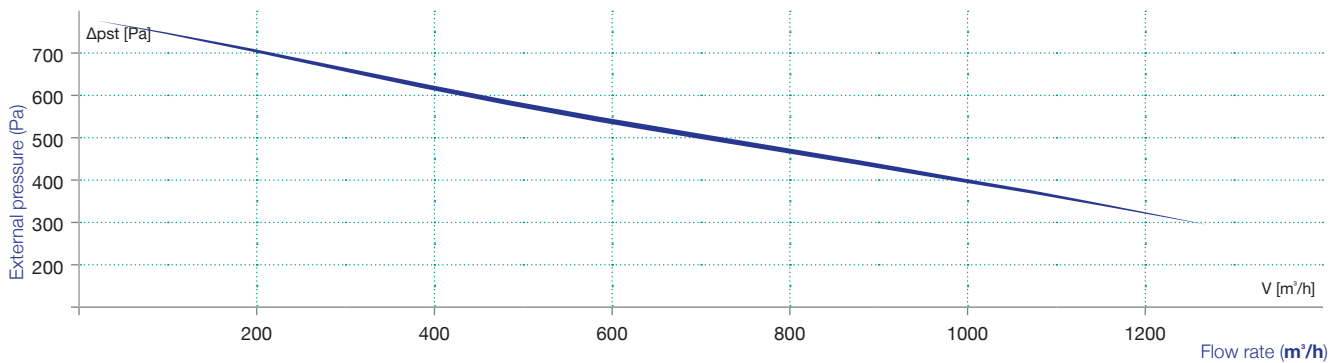
**HRMURAL 800 VEX**



# HRMURAL.1200



## Technical characteristics



## General characteristics

• AIRFLOW	100 - 1200 m <sup>3</sup> /h
• DIMENSIONS (L X W X H)	1000 x 860 x 860
• WEIGHT	173 / 192,2 kg
• NOMINAL VOLTAGE	1 x 230V - 50Hz
• MAXIMUM INTENSITY	4,8 A
• RECOMMENDED ELECTRICAL PROTECTION	8 A / D-10000A-AC3
• SUPPLY / EXTRACTION FILTER	M5 / M5
• AVAILABLE OPTIONS	SR by default, KWin, BA+/-
• AUTOMATIC FREE COOLING	Yes / Partial
• OPERATING TEMPERATURE RANGE	-20°C to +50°C
• COLOUR OF PANELS	RAL 9002
• CID	884203 / 884208 (outdoor version - VEX)

\* The weight may change depending on the options.

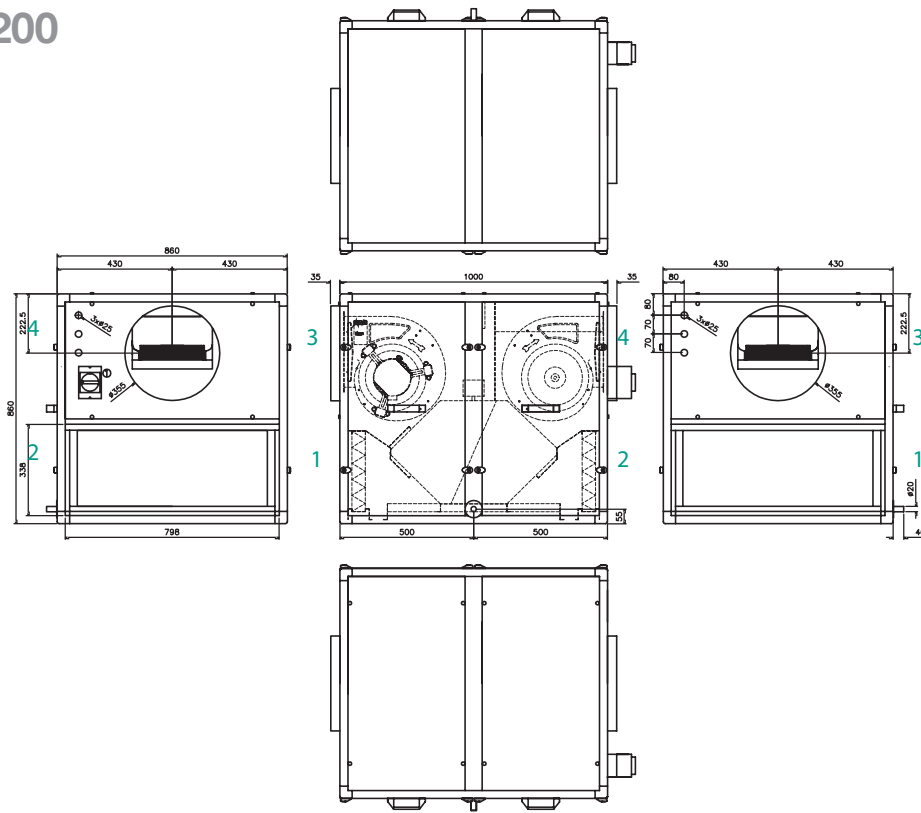
## Technical data

FLOW RATE	POWER ABSORBED	SFP	EXCHANGER EFFICIENCY	OUTLET T° AFTER EXCHANGER	SOUND LEVEL	Conditions:
m <sup>3</sup> /h	W	W/m <sup>3</sup> /h	%	°C	dB(A)	
300	26	0,09	94,8	20,3	-	1. values calculated on the basis of an external 100 Pa system curve at maximum flow rate.
600	125	0,21	92,6	19,6	30,2	2. efficiency calculations for external conditions of -10°C, 90% RH and internal conditions of +22°C, 50% RH.
900	329	0,37	91,2	19,2	36,9	3. Sound level in the free field at 3m.
1200	654	0,55	90,2	18,9	41,7	

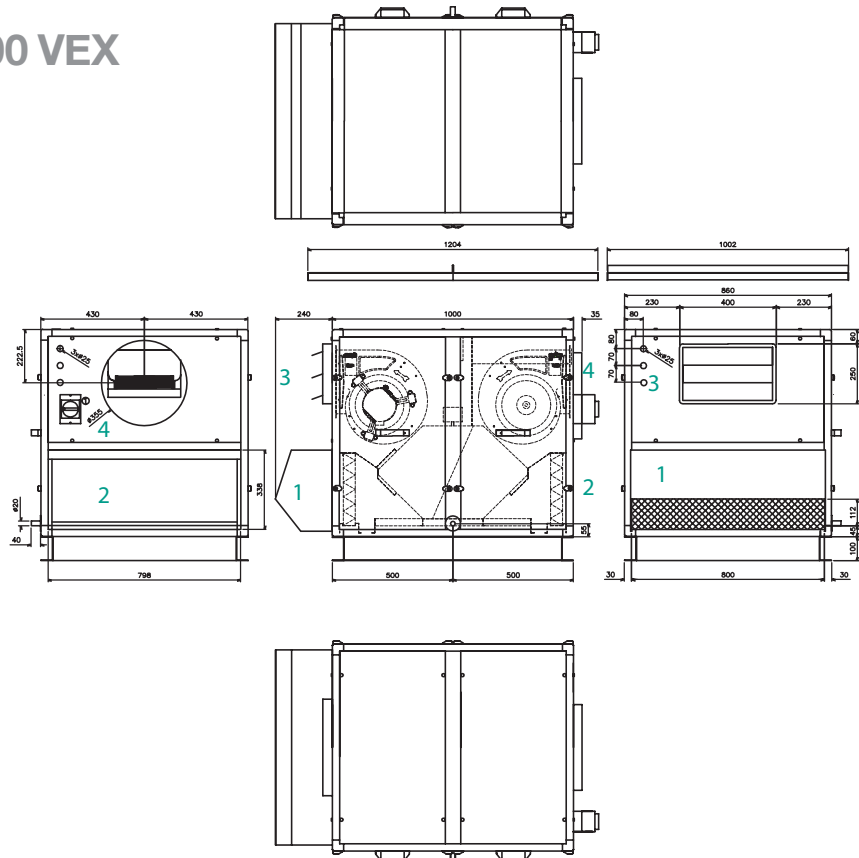
**DIMENSIONS (mm)**

1 From the outside 2 From the inside 3 To the outside 4 To the inside

**HRMURAL 1200**



**HRMURAL 1200 VEX**





## External electrical pre-heating coils (kwin)

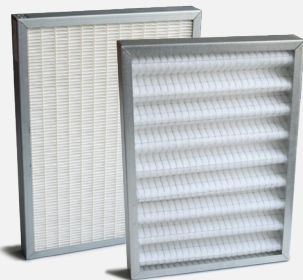
The HRMURAL units can be equipped with an external heating elements at the fresh air entrance (pre-heating). It is possible to insert an electric preheating coil in order to prevent the exchanger to freeze. This option is useful in case of very low exhaust air temperatures. Supplied entirely pre-wired and connected to the TAC5, the Kwin can withstand an outdoor air temperature as low as -40°C without any risks of freezing and even reach a temperature up to +22°C on the outlet air regarding the flowrate and humidity.

The KWin capacity exchanger is modulated to maintain the post-exchange temperature equal to the no frost set point of the counter flow exchanger. If the climate environments are such that the desired temperature cannot be reached even though the maximum power of the KWin, the control will reduce the supply and exhaust air flow rates (balance maintained) to attain the set point.

An internal pre-post heating element is possible on the Mural up 300 & 400.

MODEL	POSITION	MAXIMUM POWER	$\Delta T$ (1)	MINIMUM EXTERIOR T°(1) (3)	MAXIMUM INTENSITY ADMISSIBLE PER PHASE	PRESSURE DROP (2)	CID
		[KW]	[°C]	[°C]	[A]	[PA]	
HRMURAL UP 300 & 400	internal						
HRMURAL (UP) 450 (ECO)	external	1,5	10/15/30	-22/-27/-42	6,5	9	520982
HRMURAL 600	external	3	15/22/44	-27/-34/-56	13	9	520983
HRMURAL 800	external	3	11/17/33	-23/-29/-45	13	14	521043
HRMURAL 1200	external	4,5	15/22/44	-27/-34/-56	6,5	10	520984

## Replacement filter kits



The HRmural units are delivered as a standard with M5 or G4 filters on incoming and outgoing airflows. Class F7 filtering on incoming air is available as an option. A replacement kit with all the necessary filters is available for each unit.

MODEL	CID	FILTERS FRESH AIR IN	FILTERS STALE AIR OUT
HRMURAL UP 300&400 ECO	510115	G4	G4
HRMURAL(UP) 450 (ECO)	510042	G4	G4
HRMURAL(UP) 450 (ECO)	510014	F7	G4
HRMURAL 600/800	510096	M5	M5
HRMURAL 600/800	510083	F7	M5
HRMURAL 1200	510097	M5	M5
HRMURAL 1200	510084	F7	M5

(1) Calculated at 100 %, 66% and 33% of the maximum flow rate.

(2) Calculated at maximum flow rate.

(3) Calculated with extract air at 22°C - 50%RH.

## Module BA+/-



This extra heat or cooling module is easy to install on air ducts. Equipped with a warm (2 or 4 rows) / cold (4 rows) water coil or an evaporation coil (dx) (4rows) or even a condensation dx coil (4 rows) depending on the need. This module enables the final contribution at very competitive prices to deliver the ideal temperature to the supply air. In order to drain the condensation water, cold units will be equipped with

a condensate tank. Optionally, it is equipped with a drain pan and 3-way motorized damper. It can be delivered with a full set of controls, including a temp sensor, designed to pilot a motorized 3-way damper (except for the evaporation coil). Once the desire air temperature is set, the controller will modulate the capacity of the coil to reach it.

### EVAPORATION

MODEL	CONNECTIONS	MAXIMUM POWER (1) (2) (3)	$\Delta T$ (1) (3)	PRESSURE DROP AIR (2)	FLUID FLOW RATE (2) (3)	PRESSURE DROP FLUID (2) (3)	CID
	[MM]	[KW]	[°C]	[PA]	[KG/H]	[KPA]	
HRMURAL (UP) 450 (ECO)	12/22	2,5 / 1,6	11 / 13	53	61,1	0,6	882745 882751
HRMURAL 600	12/22	3,0 / 1,9	10 / 12	80	72,9	0,9	882745 882751
HRMURAL 800	12/28	5,3 / 3,2	13 / 15	35	127,9	3,9	882746 882755
HRMURAL 1200	12/28	8,1 / 4,7	13 / 14	41	196,5	10,2	882747 882756

**Conditions :**  
Exterior air: -30°C and 40% RH  
Interior air: +22°C and 50% RH  
Exit air temperature without BA: 23.5 °C

<sup>(1)</sup> Calculated at 100% and 50% of the maximum flow rate.  
<sup>(2)</sup> Calculated at maximum flow rate.  
<sup>(3)</sup> R410A / Evaporation temperature = 4°C

### CONDENSATION

MODEL	CONNECTIONS	MAXIMUM POWER (1) (3)	$\Delta T$ (1) (3)	PRESSURE DROP AIR (2)	FLUID FLOW RATE (2) (3)	PRESSURE DROP FLUID (2) (3)	CID
	[MM]	[KW]	[°C]	[PA]	[KG/H]	[KPA]	
HRMURAL (UP) 450 (ECO)	22/12	1,9 / 1,2	13 / 16	40	27,2	0,1	882745 882751
HRMURAL 600	22/12	2,3 / 1,4	11 / 14	61	32,2	0,1	882745 882751
HRMURAL 800	28/12	5,2 / 3	19 / 22	27	72,7	0,7	882746 882752
HRMURAL 1200	28/12	7,9 / 4,6	20 / 23	31	110,7	1,7	882747 882759

**Conditions :**  
Exterior air: -10°C and 90% RH  
Interior air: +22°C and 50% RH  
Exit air temperature without BA evaporation: 19°C

<sup>(1)</sup> Calculated at 100% and 50% of the maximum flow rate.  
<sup>(2)</sup> Calculated at maximum flow rate.  
<sup>(3)</sup> R410A / Condensation temperature = 40°C

## HOT WATER (BA+ 4 RANG)

MODEL	CONNECTIONS	WATER TEMPERATURE	MAXIMUM POWER (1)	$\Delta T$ (1)	PRESSURE DROP AIR (2)	WATER FLOW RATE (2)	PRESSURE DROP WATER (2)	CID
		[°C]	[KW]	[°C]	[PA]	[L/H]	[KPA]	
HRMURAL (UP) 450 (ECO)	3/4"	80/60	6,3/3,5	41/46	43	277	0,9	882745
		50/40	2,0/1,6	20/21	41	267	0,9	882749
		40/35	2,3/1,2	15/16	40	396	1,9	
HRMURAL 600	3/4"	80 / 60	7,8/4,5	38/44	65	343	1,3	882745
		50 / 40	3,8/2,1	19/21	62	330	1,3	882749
		40 / 35	2,8/1,6	14/15	61	489	2,7	
HRMURAL 800	3/4"	80 / 60	12,6/6,9	47/51	28	554	2,0	882746
		50 / 40	6,3/3,4	23/25	27	550	2,2	882753
		40 / 35	4,6/2,4	17/18	27	795	4,4	
HRMURAL 1200	3/4"	80 / 60	18,5/10,2	45/50	33	813	2,6	882747
		50 / 40	9,3/5,0	23/25	31	807	2,8	882757
		40 / 35	6,7/3,6	17/18	31	1166	5,6	

## HOT WATER (BA+ 2 RANG)

MODEL	CONNECTIONS	WATER TEMPERATURE	MAXIMUM POWER (1)	$\Delta T$ (1)	PRESSURE DROP AIR (2)	WATER FLOW RATE (2)	PRESSURE DROP WATER (2)	CID
		[°C]	[KW]	[°C]	[PA]	[L/H]	[KPA]	
HRMURAL (UP) 450 (ECO)	3/4"	80/60	4,0/2,4	26 / 31	21	174	1,2	882745
		50/40	1,9/1,1	12,5/ 15	21	169	1,3	882748
		40/35	1,5/0,9	10/ 11	20	256	2,7	
HRMURAL 600	3/4"	80 / 60	4,8/2,9	25/29	32	209	1,7	882745
		50 / 40	2,3/1,4	12/23	31	202	1,7	882748
		40 / 35	1,8/1,0	8,7/10	31	305	3,7	
HRMURAL 800	3/4"	80 / 60	8,3/4,9	31/36	14	363	2,8	882746
		50 / 40	4,2/2,4	15/17	13	361	3,1	882752
		40 / 35	3,1/1,8	11/13	13	535	6,4	
HRMURAL 1200	3/4"	80 / 60	11,5/6,8	28,3/34	16	505	1,2	882747
		50 / 40	5,6/3,5	14/16	15	492	1,3	882756
		40 / 35	4,3/2,46	10/12	15	742	2,8	

Conditions : Outside air:-10°C and 90% RH, Extract air: +22°C and 50% RH, exit air temperature without BA cond: 19°C  
(1) Calculated at 100% and 50% of the maximum flow rate.

(2) Calculated at maximum flow rate.

## COLD WATER (BA-)

MODEL	CONNECTIONS	WATER TEMPERATURE	MAXIMUM POWER (1)	$\Delta T$ (1)	PRESSURE DROP AIR (2)	WATER FLOW RATE (2)	PRESSURE DROP WATER (2)	CID
		[°C]	[KW]	[°C]	[PA]	[L/H]	[KPA]	
HRMURAL (UP) 450 (ECO)	3/4"	7 / 12	1,4/1,0	8,0/9,7	43	240	0,9	882745
		10 / 15	1,0/0,7	6,5/8,1	39	171	0,5	882750
		13 / 18	0,7/0,5	4,6/6	38	119	0,3	
HRMURAL 600	3/4"	7 / 12	1,6/1,1	6,8/8,8	66	275	1,2	882745
		10 / 15	1,1/0,8	5,7/7,3	58	197	0,6	882750
		13 / 18	0,8/0,5	4,0/5,3	59	136	0,3	
HRMURAL 800	3/4"	7 / 12	3,9/2,0	10,2/10,7	32	663	3,7	882746
		10 / 15	2,3/1,4	7,8/8,9	27	401	1,5	882754
		13 / 18	1,4/0,9	5,4/6,7	25	246	0,6	
HRMURAL 1200	3/4"	7 / 12	5,7/2,8	10,0/10,1	37	980	4,7	882747
		10 / 15	3,6/1,9	7,9/8,4	32	620	2,1	882758
		13 / 18	2,0/1,3	5,0/	29	344	0,7	

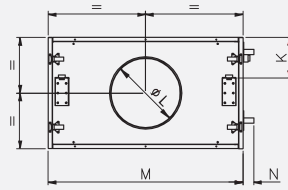
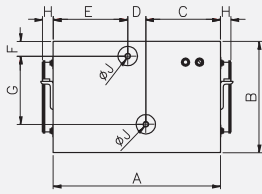
Conditions : Outside air: 30°C and 40% RH, Extract air: +22°C and 50% RH, supply air temperature without BA+: 23,5°C

(1) Calculated at 100% and 50% of the maximum flow rate.

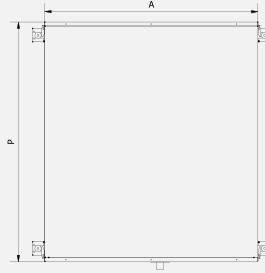
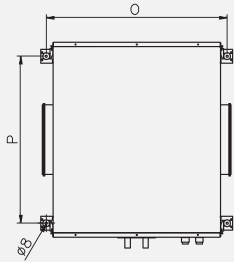
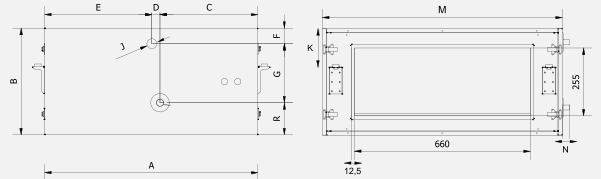
(2) Calculated at maximum flow rate.

## DIMENSIONS BA W (HOT WATER/COLD WATER)

400 / 600 / 800



1200



**MODEL**  
**4 ROWS**  
**HOT & COLD WATER**

**A B C D E F G H J K L M N O P**

<b>HRMURAL 450 / 600</b>	600	320	267	65	268	51	158	40	3/4"	107	250	500	35	650	400
<b>HRMURAL 800</b>	600	400	267	65	268	55	245	40	3/4"	142	250	700	35	650	600
<b>HRMURAL 1200</b>	600	400	367	65	368	55	245	-	3/4"	142	660 x 255	900	35	850	800

**MODEL**  
**2 ROWS**  
**HOT WATER**

**A B C D E F G H J K L M N O P**

<b>HRMURAL 450 / 600</b>	600	320	290	22	288	51	158	40	3/4"	107	250	500	35	650	400
<b>HRMURAL 800</b>	600	400	290	22	288	55	245	40	3/4"	147	250	700	35	650	600
<b>HRMURAL 1200</b>	800	400	368	22	400	55	245	40	3/4"	147	660 X 255	900	35	850	800

## BA DX DIMENSIONS (EVAPORATION/CONDENSATION)

MODEL 4 ROWS	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
<b>HRMURAL 450 / 600</b>	600	320	267	65	268	90	100	40	12/22	107	250	500	35	650	400	130
<b>HRMURAL 800</b>	600	400	267	130	203	58	222	40	12/22	142	250	700	35	650	600	120
<b>HRMURAL 1200</b>	800	400	367	65	403	58	222	-	12/28	142	660 x 255	900	35	850	800	120

## TAC5: Advanced airflow control technology

Depending on the requirements and characteristics of the application, there is an airflow control mode that will fit the situation: constant airflow (CA), constant pressure (CPs), variable constant airflow linked to a 0-10V signal (LS) or constant torque (TQ) are the 4 airflow controls from which to choose.

The master/slave link between supply and exhaust (which may be deactivated if necessary) always ensures for a balanced ventilation. When the exhaust airflow fluctuates because of a higher ventilation request, the supply airflow will be adapt in order to preserve the preset balanced between the 2 flows. This occurs, regardless from the pressure conditions.

- **Constant airflow (CA mode)** is used when one or several stable air volumes are needed. The fan will deliver the requested airflow regardless from the pressure conditions. This is the simplest mode, it allows 3 different pre-set airflows (low, medium, high) and is used with simple control systems.
- **Variable constant airflow (LS mode)** is probably the most economical ventilation mode, because the airflow provided depends on the actual air renewal needed, so there will not be superfluous ventilation.

In this case, the constant airflow requested is linked to a 0-10V signal. Measuring the CO2 level for example. When the level is high (many people present), the airflow rate will be adjusted accordingly, and vice-versa, when there are few people in the room. Energy consumption will follow the real ventilation requirement.

- **Variable flow rate to maintain a constant pressure (CPs mode):** a particularly interesting application of this operating mode is undoubtedly the individualized ventilation of apartments by a centralized ventilation unit. Once configured, the ventilation of each apartment remains constant even if several apartments change their ventilation demand, as the pressure in the network is maintained constant. A pressure measurement sensor is used to configure this very useful mode.
- **Constant torque mode (TQ mode):** This mode simulates the 'normal' way for a fan to operate when using a frequency controller or a transformer. The fan torque is modulated instead of the airflow. The mode allows the preset of 3 different 'percentages' of the maximum fan torque. This mode is available for Eco units with plug fans when constant airflow is not required.

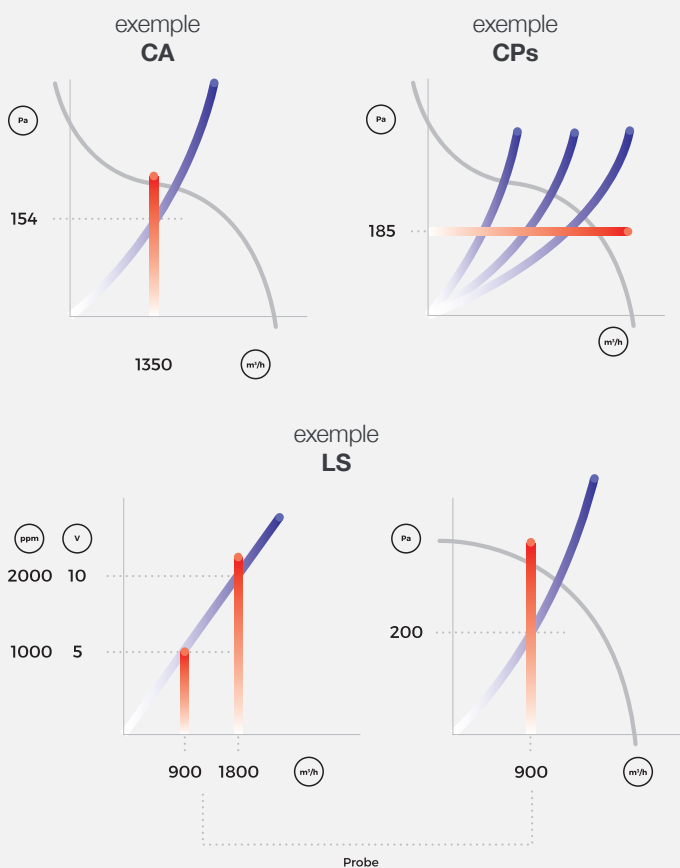
## The 4 operating modes: concrete examples

**CA** stands for "constant airflow." This means that one (or more) airflow is selected and the TAC5 controller will operate the fan to provide the actual airflow request, regardless of the pressure drop. Example: A setpoint of 1350 m<sup>3</sup>/h will provide not about 1350 m<sup>3</sup>/h but exactly 1350m<sup>3</sup>/h.

**LS** stands for "link to a 0-10V signal." This means that a specific linear relationship between a 0/10V value (representing temperature, humidity, CO2 rate, etc.) and the actual airflow is configured. The fan/control will ensure this link will be delivered irrespective of the network pressure drop. Consider for example a link between the airflow and a CO2 level as shown on graph 2. For a CO2 level of 1000 ppm, the fan will deliver 900m<sup>3</sup>/h independently from the pressure conditions."

**CPs** stands for "constant pressure." During the setup, the initialization flow rate will determines the resulting pressure. This pressure value will be stored and used as reference in order to maintain the pressure constant. The pressure setpoint can also be introduced manually. The fan will operate as CA mode, but with the mission to keep the stored pressure value constant. For example: "Once the network is balanced, each apartment of a building has an airflow of 150 m<sup>3</sup>/h, if a pressure drop of 185 Pa (for example) appears. The controller will act in order to maintain the set pressure. This will ensure a constant flow rate in each apartment, irrespective of the air demands of each room..."

**TQ** stands for "constant torque". This means the fan will operate like a "normal" fan without constant airflow features, just like if an AC motor being powered through a variable frequency controller.



### ■ Alarms :

The TAC5 can generate up to 74 specific alarms out of the following 16 categories:

1. Fan failure alarm
2. Pressure variation alarm
3. Alarm in cas of problem during reference pressure initialization
4. Alarm if the system cannot fulfil the set point
5. Alarm in case of data failure in the control circuit
6. Fire alarm
7. Maintenance alarm
8. Alarm reporting a communication breakdown between the TAC5 circuit and the RC
9. T° sensor failure alarm
10. Drain pump alarm
11. Alarm reporting that the comfort T° is too low (set T° value not achieved)
12. Alarm reporting that the comfort T° is too high (set T° value not achieved)
13. Alarm reporting a too low supply T°
14. Alarm reporting the heat exchanger anti-frost activation
15. Alarm reporting the hydraulic coils anti-frost
16. Alarm reporting a bad positioning of the bypass

■ **Boost** : activates preset configurable supply and exhaust airflows. The activation of the boost has a higher priority than any normal working mode.

■ **Basic Time table** : enables the automatic working of the unit based on 4 time slots having their own configurable set points. Each day of the week has the same time slots but can be set as an offday.

■ **Advanced Time table (available with GRC option or through Modbus communication)** : enables the automatic working mode of the unit following 6 time slots having their own configurable set points. Each days of the week has its own 6 time slots with independent settings. In addition, for each time slot, the bypass status can be forced and a different comfort temperature can be configured.

■ **Seasonal management** : allows to disable features such as bypass, post heating and post cooling according to the current period of the year.

■ **Free cooling** : automatic free cooling of the building during summer nights, when specific temperature conditions are met, with:

- Open/closed bypass: based on inside and outside T°.

The bypass is opened to supply fresh air in the building without energy recovery to cool the building down. The bypass will be closed automatically when set temperatures values are reached. The opening can also be forced independently from T° values.

■ **Post heating / cooling** : automatic power control of a heating or cooling coil to reach the set temperature and keep it constant. The temperature reference can be either on supply or exhaust air ("room t°").

■ **Comfort T°** : comfort temperature control can be made by the post heating/cooling or the free cooling with bypass.

■ **Advanced anti frost protection of the heat exchanger :**

The TAC5 controls the exhaust T° after the heat exchangers and keep it above a set value (antifrost T°)

2 types of protection are available :

1. Warming up the incoming fresh air using an electrical or water preheating coil.
2. Reduction of the supply airflow.

■ **A new intelligent control is also available:** taking into account measured inlet temperature (in the ventilation duct or in a local) of stale air, it allows the variation of the outlet temperature of the heating coil. This technology allows the AHU to arrive quickly at its set temperature while keeping the consumption at its minimum.

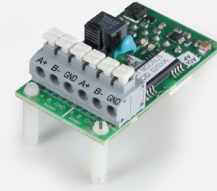


The TAC5 regulation mounted in the HR units can be combined with different options :

## TAC5 SAT MODBUS

- MODBUS communication circuit to be plugged on the TAC5 control board.
- It gives the possibility to communicate in a network with one or several HR units. It allows to configure, control and display them from a central point.
- A direct application of the SAT MODBUS is the integration of HR units in a BMS system.

ARTICLE	CID
SAT TAC5 MODBUS	025006



## TAC5 SAT ETHERNET

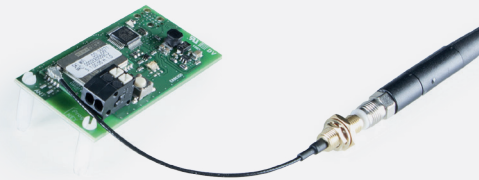
- MODBUS TCP/IP communication device to be plugged on the TAC5 control board.
- Ethernet 10 base T to set in network HR units to configure, control display from one or several access points.
- Interface with dedicated App for computer.
- Configuration enabling remote access through the internet.

ARTICLE	CID
TAC5 SAT ETHERNET	025072

## TAC5 SAT WIFI

- MODBUS TCP/IP communication device to be plugged in the TAC5 control board.
- Wireless WIFI to set in network HR units to configure, control display from one or several access points.
- Works as Access Point and creates automatically its own Wi-Fi network or as base station to an already existing Wi-Fi network.
- Interface with dedicated App for smartphone and tablet.
- Configuration enabling remote access through the internet.

ARTICLE	CID
TAC5 SAT WIFI	025071



## TAC5 SAT KNX

- KNX communication device to be plugged on the TAC5 control board.
- It allows the communication with a deported KNX device for the set up, visualisation and control of the HR unit.

ARTICLE	CID
TAC5 SAT KNX	025045



## TAC5 RC

- Remote control box that includes an LCD screen (2x8 characters), LEDs and 5 control buttons.
- It is used to configure the HR unit based on sequential menus and to visualize all actual parameters.
- It is used to manage 4 time slots and OFF days.
- It can be connected temporarily or permanently to set and/or to display the settings.

## TAC5 GRC

- This is a 4.3" colour touch screen.
- It can be mounted or built in.
- It contains a very user-friendly and intuitive, Windows type menu.
- It is used to configure the HR unit based on sequential menus and to visualize all actual parameters.
- It is used to manage 6 different time slots per day, as well as the seasonal management of the bypass, the post-heating and post-cooling coil.
- A GRC can be connected to several units (247 maximum); provide one SAT TAC5 MODBUS per unit.



ARTICLE	CID
KIT GRC TAC5	372002
EXPOSED ASSEMBLY KIT	372020
BUILT-IN ASSEMBLY KIT	372013



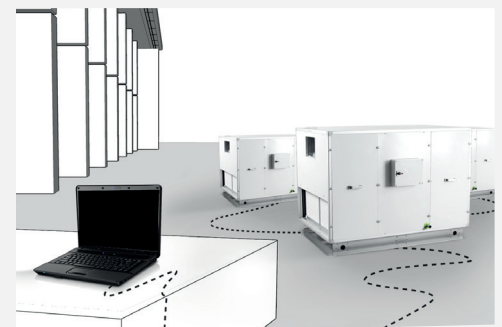
## Application

Dedicated Lemmens App for tablet and smartphone featuring:

- Complete control of the unit
- Synoptic view of the unit with actual airflows, pressures and temperatures
- Basic and advanced setup
- Alarm diagnostic
- Time scheduler with 6 time slots for each day of the week
- Seasonal management
- Automatic detection of the unit(s) inside the network for fast and easy access.
- To obtain the advantages of the Lemmens App you need SAT-Ethernet or WIFI- extra board on each unit.

## PC

- The TAC5 control built in the HR units can communicate in MODBUS, which means that the unit can be networked. A Pc application (to be developed by the user) can then be used to communicate easily with the units.
- A converter of the COM or USB port to RS485 is needed to be able to connect to the MODBUS network.
- Each unit has to be equipped with the SAT MODBUS option.
- The gate of creativity is wide open here...



## Building management systems (BMS)



The TAC5 control box can be connected to the network thanks to its communication option.

The integration into a BMS system is then possible and very easy.

The building management system can send the different settings (flow rate, pressure, etc.) and read all the settings of the HR units in real time.

Communication is possible in several ways:

- KNX
- MODBUS
- WIFI
- ETHERNET

## COM4

- Remote 4 position switch to start/ stop the unit and control the setpoint.

ARTICLE	CID
COM 4	010007



## SAT3

- This boards integrates 2 relays associated to 3 functions: Fan alarm, Pressure alarm and Bypass status.
- The signaling is carried out by potential-free contact as well as by an LED placed above each relay.

- It is very simple to install: just plug it in the TAC5 control board.

ARTICLE	CID
SAT 3	370005

## TAC SAT BA/KW

- This is a regulation circuit for hot (water/electric) and/or cold (water) coils.
- It regulates the external heat exchangers (BA+ option) to maintain constant a set temperature. It can operate in both summer or winter logic.

- It is very simple to install: just plug it in the TAC5 control circuit.

ARTICLE	CID
SAT TAC5 BA/KW KIT	372004

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