

# EVHRDS EC Compact unit for controlled mechanical ventilation, dehumidification and air handling systems

## from 300 to 500 m<sup>3</sup>/h

- BLDC INVERTER-driven rotary compressor.
- High dehumidifying capacity EVHRDS EC 30 - 65l/day EVHRDS EC 50 - 85l/day.
- Software and algorithm to achieve maximum dehumidifying capacity
- Modulating integration air flow rate and dehumidification. The inverter-driven compressor allows for room comfort to be managed with maximum efficiency.



### Description

The EVHRDS EC is a compact INVERTER-driven unit for Controlled Mechanical Ventilation systems with a dehumidification section and cooling and heating integration. The unit is supplied as a plug-and-play solution for quick and easy installation. The unit consists of a one-piece structure including every component for correct operation with wide temperature ranges.

### Characteristics

Painted sheet metal self-supporting perimeter structure.  
The panels are insulated with 6 mm thick polyethylene.  
Dual-suction fans with Brushless EC motor.  
Very high efficiency and low noise levels in accordance with Erp regulations.  
Coarse filters with low pressure drop easily removable on the recirculation air.  
Cooling circuit made of brazed copper complete with: high efficiency compressor, filter drier, finned coils, water exchanger, solenoid valves, throttling device, liquid receiver, high pressure switches.

### Command electronics

Version K:  
On-board electrical panel with microprocessor and dedicated control. Fan management, motorised recirculation damper management, timed dirty filter management, recirculation and fresh air management. Possibility of controlling the unit with these three solutions:  
1: management via external controls and 0...10vdc signal for air flow rate control from minimum to maximum;  
2: management via EVCNU remote panel with built-in T/H sensor;  
3: MODBUS RTU RS 485 communication.

### Use

The unit is particularly suitable for residential, commercial or collective residential buildings where dehumidification is required in addition to air exchange due to the presence of radiant systems.

### Versions DC

Version DC all outside air: unit for the dehumidification of the air coming from the heat recovery unit and for the cooling/heating integration to the radiant air conditioning system.

During summer (compressor on) the unit can operate in 2 modes:

- dehumidification: the unit condenses partially in air and partially in water by means of the plate condenser, obtaining dehumidified air;
- dehumidification + Cooling integration: the unit condenses completely in water, thus obtaining dehumidified and cooled air.

During winter (compressor off), the water coil is supplied with hot water from the heating system and behaves like a fan coil with heat recovery unit.

Models:

- EVHRDS EC 30 H K DC
- EVHRDS EC 50 H K DC

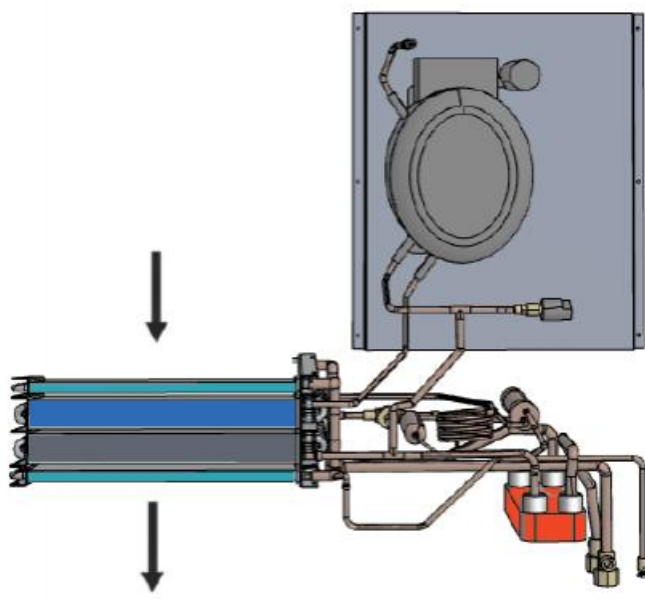
Version DC outside air and recirculation: unit for the dehumidification of the air coming partially from the heat recovery unit and partially from the indoor environment, with cooling/heating integration to the radiant air conditioning system.

During summer (compressor on) the unit can operate in 2 modes:

- dehumidification: the unit condenses partially in air and partially in water by means of the plate condenser, obtaining dehumidified air;
- dehumidification + Cooling integration: the unit condenses completely in water, thus obtaining dehumidified and cooled air.

During winter (compressor off), the water coil is supplied with hot water from the heating system and behaves like a fan coil with heat recovery unit.

- EVHRDS EC 30 H R K DC
- EVHRDS EC 50 H R K DC



### General data

Size		horizontal configuration	
		EVHRDS EC 30	EVHRDSEC 50
Power supply	V/Ph/Hz	230/1/50	
IP protection rating	IP	20	
Total air flow rate	m <sup>3</sup> /h	300	500
Nominal outside air flow rate (versions R with recirculation)	m <sup>3</sup> /h	130	190
Pressure drop on CMV side	Pa	31	38
Nominal power consumption of recirculation fan	kW	0,1	0,1

## Versions DC

(1) Outside air temperature 33°C; relative humidity 50%. room temperature 25°C; relative humidity 50%, water temperature 16°C. Nominal air and water flow rates.

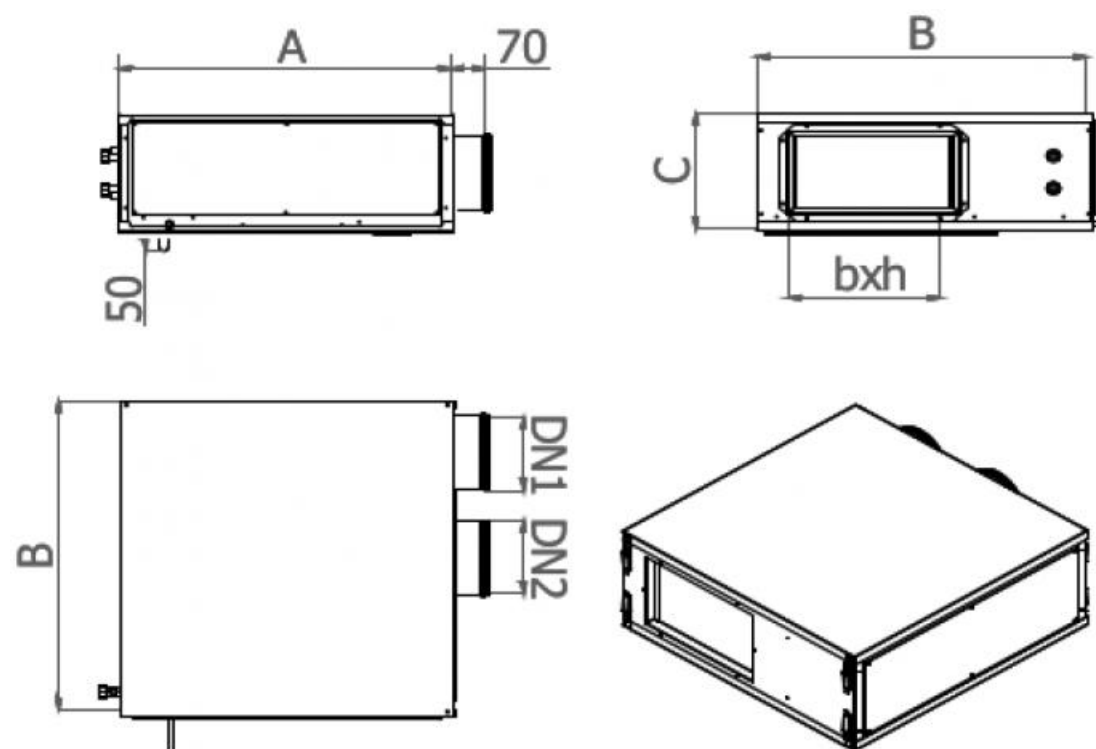
(2) Outside air temperature 33°C; relative humidity 50%. room temperature 25°C; relative humidity 50%, water temperature 16°C. Nominal air and water flow rates.

(3) Room temperature 20°C; relative humidity 50%, nominal air flow rate; Water in 35°C.

VERSION DC		EVHRD 30	EVHRD 50
Useful dehumidifying capacity <sup>1</sup>	l/24h	56	89
Total cooling capacity <sup>2</sup>	kW	2,6	3,95
Compressor power consumption	kW	0,69	0,95
Compressor frequency	Hz	55	73
EER		3,75	4,15
Sensible cooling capacity	kW	1,18	1,69
Heat output provided <sup>3</sup>	kW	0,53	1,15
Water flow rate	m <sup>3</sup> /h	0,12	0,18
Pressure drop	Kpa	9	7
Sound pressure Lp at 3m	dB(A)	39,5	40,8
Electrical power supply	V/Ph/Hz	230/1/50	
Maximum current consumption in operation	A	3,7	5,1
Maximum power consumption in operation	kW	0,79	1,11
Maximum current consumption of components	A	6,78	7
Maximum power consumption of components	kW	1,49	1,55

## Dimensions

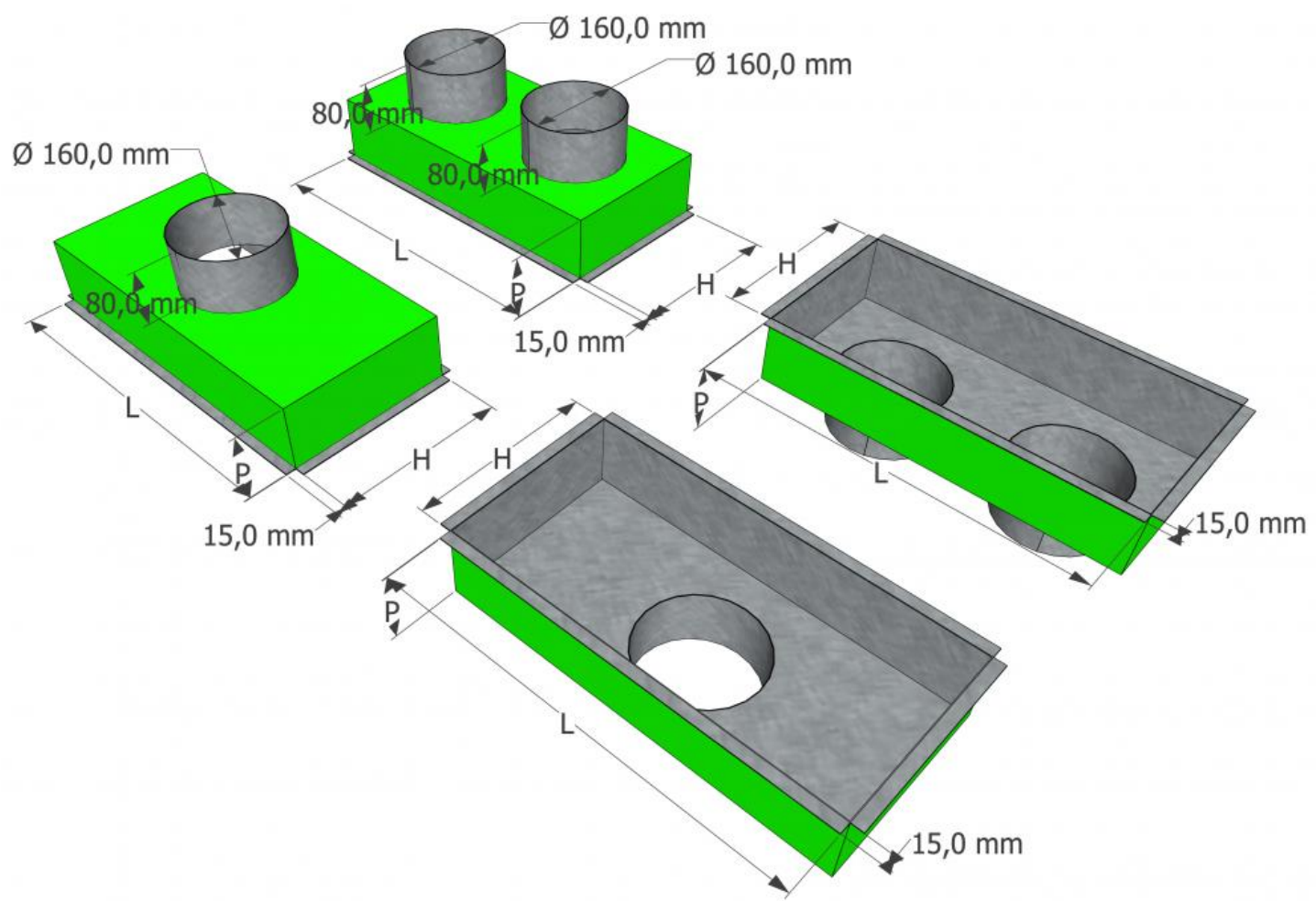
DIMENSIONS		EVHRDS EC 30	EVHRDS EC 50
Width <b>A</b>	mm	690	690
Depth <b>B</b>	mm	690	800
Height <b>C</b>	mm	270	320
Recirculation air inlet <b>DN1 (not present in the version without recirculation)</b>	mm	160	200
Primary air inlet (from the ventilation machine) <b>DN2</b>	mm	160	200
Supply <b>bxh</b>	mm	347x177	518x252
Supply/return water connections	Ø"	1/2" - 1/2"	1/2" - 1/2"
Diameter of condensate drain	Ø mm	12	12
Weight of version DC	kg	43	56
Weight of version R DC	kg	46	57



## Supply plenum dimensions

All dimensions are expressed in mm.

Model	L	H	P	Ø
EVHRDS EC 30	347	177	100	1x160
EVHRDS EC 50	518	252	100	2x160



Heat recovery units and accessories price list VERSION K

Item normally available from stock								
model	versions without recirculation	versions with recirculation	accessories					
	DC	R DC	remote electronic control	room humidistat	2-way on/off water valve 1/2"	3-way on/off water valve 1/2"	filter kit for versions with recirculation	Insulated supply plenum
	euro	euro	EVCNU	UMR	euro	euro	euro	euro
EVHRDS EC 30	✓	✓	✓	✓	✓	✓	✓	✓
EVHRDS EC 50	✓	✓	✓	✓	✓	✓	✓	✓



