

# > RVL-I PLUS

REVERSIBLE HEAT PUMP FOR OUTDOOR INSTALLATION  
WITH DC INVERTER COMPRESSOR



EUROVENT CERTIFICATION IN PROGRESS

## Efficiency capacity in heating mode - Average climate

Model	5	7	10	14	14T
Efficiency capacity - medium temperature (water 55°C)	A+	A+	A+	A+	A++
Efficiency season - medium temperature (water 55°C)	115	120	102	123	128
Efficiency capacity - low temperature (water 35°C)	A++	A++	A++	A++	A++
Efficiency season - low temperature (water 35°C)	176	178	162	173	168

**NOTA:** Declared according to **European regulation 811/2013**. The values are referred to units without options and accessories.

## Unit description

This series of air-water heat pumps meets the needs of winter and summer air conditioning of residential and commercial installations of small and medium power.

All units are suitable for outdoor installation and being able to produce water up to 60 ° C may be employed in systems with radiant floor, fancoils, radiators and for the indirect production of domestic hot water (DHW) via an external boiler (not provided).

The units are characterized by the use of a DC inverter compressor that allows you to modulate the capacity from 30 to 120% of the rated capacity and are complete with a hydronic kit including all the essential components for a quick and safe installation.

The units are characterized by high energy efficiency and low noise level and they can be used as the sole generator of the system or integrated with other energy sources such as backup electric heaters or boiler.

All units are supplied with temperature probe (included) for domestic hot water tank (DHW) and with external air temperature probe (already installed on the unit) to realize the climatic control in heating and cooling modes.

All the units are accurately built and individually tested in the factory. The installation only requires the electrical and hydraulic connections.

■ **REFRIGERANT CIRCUIT:** contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with DC inverter motor driven compressor twin rotary type to ensure greater dynamic balancing and reduce vibrations. It is placed on vibration-damping rubber supports and wrapped by a double layer of sound-absorbing material to reduce the noise. Furthermore, the compressor is equipped with crankcase oil heater. The circuit is equipped with stainless steel brazed plates heat exchanger complete with antifreeze heater, bi-flow electronic expansion valve, 4-way valve, axial fans with brushless DC motor complete with safety protection grilles, finned coil made of copper tubes and aluminium fins. The circuit is controlled by means of temperature probes and pressure transducers and protected by high and low pressure switches.

■ **HYDRAULIC CIRCUIT:** contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with electronic circulator (brushless DC motor), water flow switch, automatic air vent, water manometer, expansion vessel, safety valve, Y water filter (included). The plate heat exchanger and all the hydraulic pipes are thermally insulated to avoid the formation of condensation and reduce heat loss.

**TECHNICAL DATA**

**Performances data**

-	Models		5	7	10	14	14T	
<b>A7W35</b>	<b>Heating capacity</b>	<b>nom</b>	<b>4580</b>	<b>6550</b>	<b>10430</b>	<b>14760</b>	<b>14100</b>	<b>W</b>
		min-max	1566 - 8884	2050 - 10910	3586 - 13395	5207 - 16595	4715 - 16763	W
	Power input	<b>nom</b>	<b>970</b>	<b>1450</b>	<b>2280</b>	<b>3400</b>	<b>3260</b>	<b>W</b>
		min-max	327 - 2226	448 - 2734	771 - 3848	1178 - 4768	1077 - 4816	W
	COP		<b>4,72</b>	<b>4,52</b>	<b>4,57</b>	<b>4,34</b>	<b>4,33</b>	<b>W/W</b>
Water flow rate		788	1127	1794	2539	2425	l/h	
<b>A7W45</b>	<b>Heating capacity</b>	<b>nom</b>	<b>4670</b>	<b>6690</b>	<b>10170</b>	<b>14080</b>	<b>14110</b>	<b>W</b>
		min-max	1581 - 6238	2047 - 7661	3429 - 12207	4870 - 15123	4626 - 15276	W
	Power input	<b>nom</b>	<b>1430</b>	<b>2050</b>	<b>3080</b>	<b>4470</b>	<b>4460</b>	<b>W</b>
		min-max	478 - 1944	623 - 2387	1025 - 3948	1525 - 4892	1451 - 4941	W
	COP		<b>3,27</b>	<b>3,26</b>	<b>3,30</b>	<b>3,15</b>	<b>3,16</b>	<b>W/W</b>
Water flow rate		803	1151	1749	2422	2427	l/h	
<b>A35W18</b>	<b>Cooling capacity</b>	<b>nom</b>	<b>4550</b>	<b>6450</b>	<b>10250</b>	<b>14610</b>	<b>14030</b>	<b>W</b>
		min-max	2255 - 8818	2788 - 10829	5037 - 14203	6423 - 17596	5873 - 17774	W
	Power input	<b>nom</b>	<b>1000</b>	<b>1470</b>	<b>2060</b>	<b>3320</b>	<b>3260</b>	<b>W</b>
		min-max	448 - 2447	581 - 3022	931 - 3867	1314 - 4791	1269 - 4839	W
	EER		<b>4,55</b>	<b>4,39</b>	<b>4,98</b>	<b>4,40</b>	<b>4,30</b>	<b>W/W</b>
Water flow rate		783	1109	1763	2513	2413	l/h	
<b>A35W7</b>	<b>Cooling capacity</b>	<b>nom</b>	<b>4550</b>	<b>6710</b>	<b>10440</b>	<b>12950</b>	<b>13800</b>	<b>W</b>
		min-max	1454 - 5524	1850 - 7136	3485 - 11364	4435 - 13629	4480 - 14566	W
	Power input	<b>nom</b>	<b>1550</b>	<b>2570</b>	<b>3280</b>	<b>4530</b>	<b>5140</b>	<b>W</b>
		min-max	483 - 2097	687 - 3029	1077 - 4249	1520 - 5500	1649 - 6288	W
	EER		<b>2,94</b>	<b>2,61</b>	<b>3,18</b>	<b>2,86</b>	<b>2,68</b>	<b>W/W</b>
Water flow rate		783	1154	1796	2227	2374	l/h	

The values are referred to units without options and accessories.

Data declared according to **EN 14511**:

**EER** (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

**COP** (Coefficient Of Performance) = ratio of the total heating capacity to the effective

power input of the unit

**A35W7** = source : air in 35°C d.b. / plant : water in 12°C out 7°C

**A35W18** = source : air in 35°C d.b. / plant : water in 23°C out 18°C

**A7W45** = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C

**A7W35** = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

**General data**

Modelli	5	7	10	14	14T	
Power supply	220-240V~ 50Hz, 1Ph				380-415V~ 50Hz, 3Ph+N	V-ph-Hz
Compressor type	Twin Rotary DC					-
N° compressors / N° refrigerant circuits	1 / 1					n°
Plant side heat exchanger type	stainless steel brazed plates					-
Source side heat exchanger type	finned coil					-
Fans type	DC axial					-
N° fans	1			2		n°
Expansion tank volume	2			5		l
Water safety valve set			3			bar
Hydraulic fittings	1" M			1-1/4" M		"
Minimum water content onf the system			20			l
DHW boiler - minimum surface of the coil	1,4			1,7		m <sup>2</sup>
Refrigerant type	R410A					-
Refrigerant charge	2,40			3,60		kg
Control type	Remote wired					-
SWL - Sound power level*	61	65	66	71	71	dB(A)
SPL - Sound pressure level at 1mt **	46	50	51	56	56	dB(A)
Maximum current input	16	16	32	32	16	A

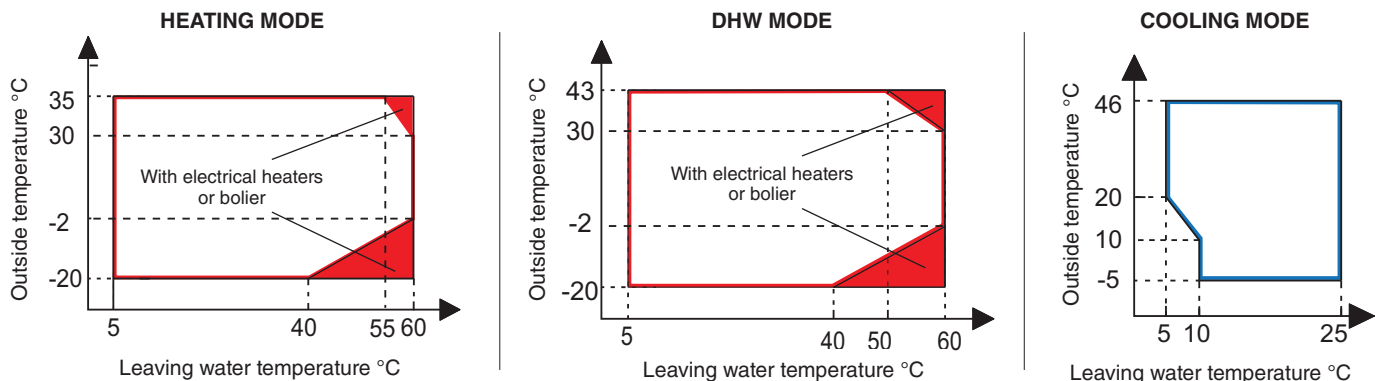
\* **SWL** = Sound power levels, with reference to 1x10<sup>-12</sup> W.

The Total sound power level in dB(A) measured in compliance with ISO 9614 standards. The Total Sound Power in db(A) the only binding acoustic specification.

\*\* **SPL** = Sound pressure levels, with reference to 2x10<sup>-5</sup> Pa.

The sound pressure levels are values calculated by applying the ISO-3744 relation.

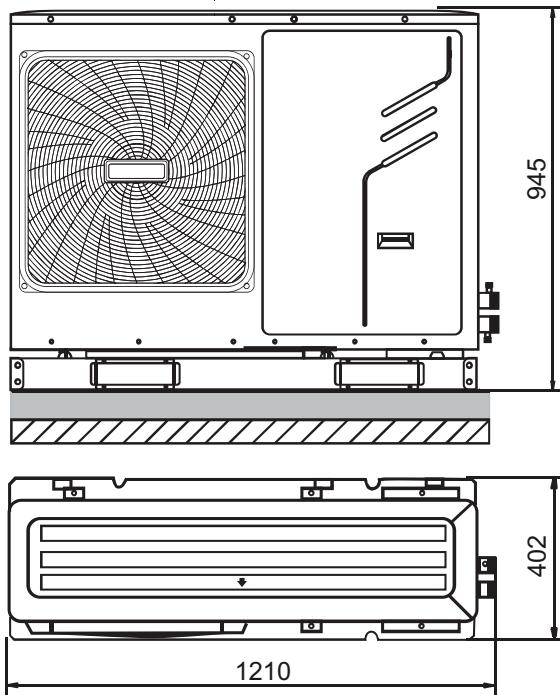
**OPERATING LIMITS**



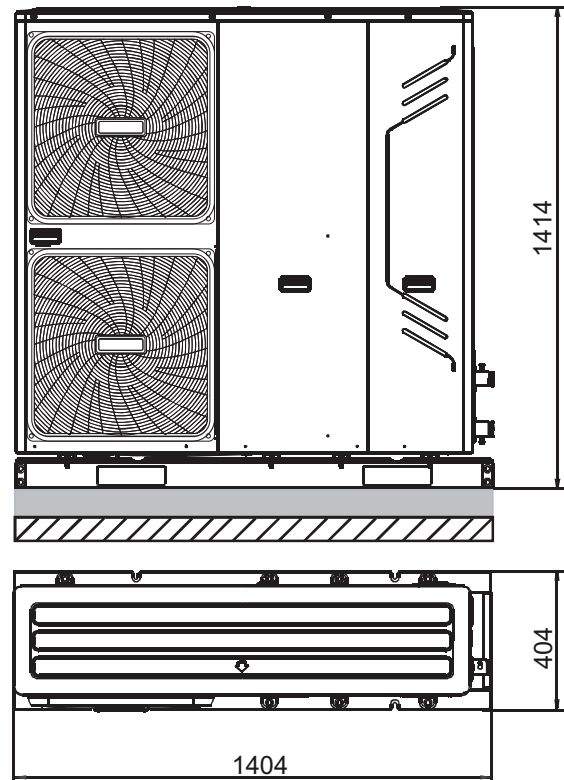
NOTE FOR DHW MODE: leaving water temperature is the temperature of the water produced by the unit and not the DHW temperature available to the user; the DHW temperature is in fact a function of this parameter and of the coil surface of the DHW boiler.

**DIMENSIONS**

**Mod. 05 - 07**

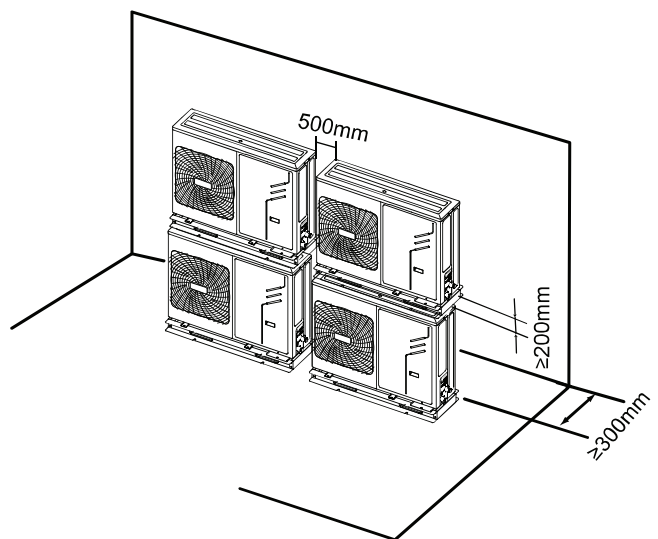
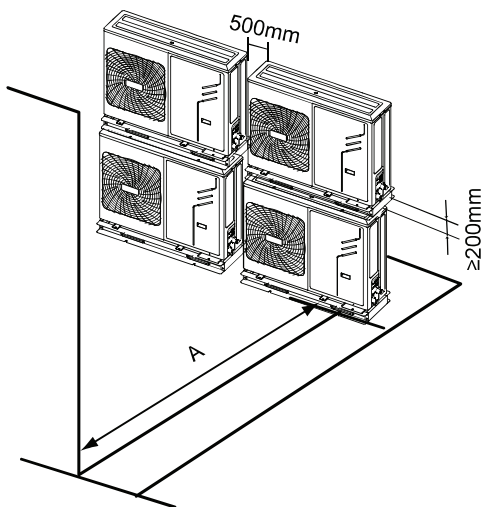


**Mod. 10 - 14 - 14T**



Models	5	7	10	14	14T	
Packaging (WxHxD)	1500x1140x450			1475x1580x440		mm
Weight Net \ Gross	99 / 117			162 / 178		kg

**MINIMUM OPERATING AREA**



Models	5	7	10	14	14T	
A	1000			1500		mm

## THE CONTROL SYSTEM

The user interface consists of a wired remote controller (up to 50 m from the unit) which allows the management of:

- **HEATING AND COOLING SYSTEM**, where the heat pump is the sole energy source. The unit, if activated in heat or cool mode, works by modulating the frequency of the compressor to maintain the temperature of the produced water to the setpoint value set by the controller. Through parameter you can use the remote controller (eg. For single-zone systems) as a room thermostat.

- **DOMESTIC HOT WATER PRODUCTION (DHW)**. The unit is activated in a heat mode to keep the temperature of a DHW tank (not supplied) to the setpoint value. It requires a 3-way diverter valve (not supplied) and a temperature sensor (T5 probe, L = 10m, provided) to be inserted into one well of the DHW tank.

- **ADDITIONAL SOURCES OF ENERGY** (boiler or electrical heater). Depending on the parameters set, these sources can be activated in integration or replacement of the heat pump when the system is used for space heating or for DHW production.

The controller also activate additional energy sources in case the heat pump is not working.

- **ELECTRIC HEATER OF THE DHW TANK**. The controller can manage the activation of an electric heater inserted in the DHW tank as a heat integration to the heat pump, for disinfecting function, or as a source of energy reserve for DHW production in case the heat pump is not working.

**FAST DHW**. This function can be activated manually and it allows you to give priority to DHW production by activating all energy sources (heat pumps, electric heaters, boiler) available for DHW heating to bring in the shortest time possible the DHW tank to the setpoint required.

- **DISINFECT FUNCTION**. You can set from the controller weekly cycles for disinfecting the water in the Dhw tank. In order to successfully execute these cycles, the heat pump must be integrated with DHW electric heater or boiler.

- **SILENT MODE**. If active it allows a reduction of the maximum frequency of the compressor and of the fan speed in order to reduce the noise emitted and the power absorbed by the unit. There are 2 levels of silencing. Through time programming, you can define for 2 daily time bands the desired silent level (eg. during the night).

- **ON / OFF** using an external contact. The unit can be turned on and off (eg. thermostat / remote switch) via an external contact: in this case the unit will operate in the mode set by the controller keyboard.

- **HEAT / COOL** via external contacts. The unit can be activated in heat or cool mode via two external contacts (eg. thermostat that manages the heat and cool demand / remote switch).

- **ECO / COMFORT**. For both modes (heat and cool) it is possible to define daily time bands and corresponding set point for ECO and COMFORT modes.

- **WEEKLY SCHEDULING**. It allows a scheduling of 6 time bands for each day of the week: for each time band it is possible to define the mode (COOL / HEAT / DHW) and the required setpoint.

- **Antifreeze protection**. Guaranteed for outdoor air temperature down to -20°C, thanks to the management of the electronic board of the unit which allows you to heat water using antifreeze heater (standard on the plate heat exchanger), the heat pump itself working in heating mode and the electric booster (if installed).

- **Detailed alarms diagnostics with alarms history**.

- **Display of all operating parameters**.



## ACCESSORIES

**Electrical booster (backup heater box)**. Suitable for indoor installation, is constituted by an electrical heater (3kW, 230V-1-50) mounted inside a painted sheet metal box and complete with electrical control panel. The booster is then handled by the heat pump to integrate / replace in heating mode the hot water production in case the heat pump is stopped for having reached operational limits or for alarm.

**Rubber antivibration dampers**.

**Inertial water tank**. It is constituted of a 60-liter tank in painted sheet metal, thermally insulated and placed inside a painted sheet metal box that can be positioned below the unit.