

> OMNIA M 3.2

REVERSIBLE HEAT PUMP FOR OUTDOOR INSTALLATION
WITH DC INVERTER COMPRESSOR



ERP data

Models		4	6	8	10	12	14	16	12T	14T	16T	UM
Seasonal space heating energy efficiency class	low temperature (water outlet at 35°C)	1,91	1,95	2,05	2,04	1,89	1,85	1,817	1,89	1,85	1,82	ηs class
	medium temperature (water at 55°C)	1,29	1,38	1,31	1,36	1,35	1,35	1,333	1,35	1,35	1,33	ηs class
SCOP	low temperature (water outlet at 35°C)	4,85	4,95	5,21	5,19	4,81	4,72	4,62	4,81	4,72	4,62	W/W
	medium temperature (water at 55°C)	3,31	3,52	3,36	3,49	3,45	3,47	3,41	3,45	3,47	3,41	W/W
SEER	water at 7°C	4,99	5,34	5,83	5,98	4,89	4,86	4,69	4,86	4,83	4,67	W/W
	water at 18°C	7,77	8,21	8,95	8,78	7,10	6,90	6,75	7,04	6,85	6,71	W/W

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 **65°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 (supplied as standard, assembled by the installer) 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 with anti-corrosion treatment** made of copper tubes and aluminium hydrophilic 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 variable electronic circulator (brushless DC motor), managed by the electronic board, water flow switch, automatic air vent, water manometer, expansion vessel, safety valve, **Y water filter (supplied as standard, assembled by the installer)**. 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

-	Modell		4	6	8	10	12	14	16	12T	14T	16T	UM
A7W35	Heating capacity	nom	4,20	6,35	8,40	10,0	12,1	14,5	15,9	12,1	14,5	15,9	kW
	Power input	nom	0,82	1,28	1,63	2,02	2,44	3,15	3,53	2,44	3,15	3,53	kW
	COP		5,10	4,95	5,15	4,95	4,95	4,60	4,50	4,95	4,60	4,50	W/W
	Water flow rate		722	1092	1445	1720	2081	2494	2735	2081	2494	2735	l/h
	Available static pressure		85	84	79	71	61	46	40	61	46	40	kPa
A7W45	Heating capacity	nom	4,30	6,30	8,30	10,0	12,3	14,1	16,0	12,3	14,1	16,0	kW
	Power input	nom	1,13	1,70	2,16	2,67	3,32	3,92	4,57	3,32	3,92	4,57	kW
	COP		3,80	3,70	3,85	3,75	3,70	3,60	3,50	3,70	3,60	3,50	W/W
	Water flow rate		740	1084	1428	1720	2116	2425	2752	2116	2425	2752	l/h
	Available static pressure		85	84	79	71	60	47	40	60	47	40	kPa
A7W55	Heating capacity	nom	4,40	6,00	7,50	9,50	11,9	13,8	16,0	11,9	13,8	16,0	kW
	Power input	nom	1,49	2,03	2,36	3,06	3,90	4,68	5,61	3,90	4,68	5,61	kW
	COP		2,95	2,95	3,18	3,10	3,05	2,95	2,85	3,05	2,95	2,85	W/W
	Water flow rate		473	645	806	1021	1279	1484	1720	1279	1484	1720	l/h
	Available static pressure		85	85	85	84	84	80	71	84	80	71	kPa
A35W18	Cooling capacity	nom	4,50	6,50	8,30	9,90	12,0	13,5	14,9	12,0	13,5	14,9	kW
	Power input	nom	0,82	1,35	1,64	2,18	3,04	3,75	4,38	3,04	3,75	4,38	kW
	EER		5,50	4,80	5,05	4,55	3,95	3,60	3,40	3,95	3,60	3,40	W/W
	Water flow rate		774	1118	1428	1703	2064	2322	2563	2064	2322	2563	l/h
	Available static pressure		85	84	79	71	61	52	46	61	52	46	kPa
A35W7	Cooling capacity	nom	4,70	6,50	7,45	8,20	11,5	12,4	14,0	11,5	12,4	14,0	kW
	Power input	nom	1,36	2,17	2,22	2,52	4,18	4,96	5,60	4,18	4,96	5,60	kW
	EER		3,45	3,00	3,35	3,25	2,75	2,50	2,50	2,75	2,50	2,50	W/W
	Water flow rate		808	1118	1281	1410	1978	2133	2408	1978	2133	2408	l/h
	Available static pressure		85	84	81	79	63	60	49	63	60	49	kPa

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

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

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

A7W55 = source : air in 7°C d.b. 6°C w.b. / plant : water in 47°C out 55°C

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

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

General data

Models		4	6	8	10	12	14	16	12T	14T	16T	UM	
Power supply		220/240-1-50							380/415-3-50			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											n°
Expansion tank volume		2		5									l
Water safety valve set		3											bar
Hydraulic fittings		1		1 1/4									"
Minimum water content onf the system		15		25									l
DHW boiler - minimum surface of the coil	steel	1,4 / 2,5		1,75 / 4,0									m²
(minimum / recommended)	enamel	1,7 / 3,0		2,5 / 5,6									m²
Refrigerant type		R32											type
GWP		675											kg-CO2 eq.
Refrigerant charge		1,4				1,75							kg
		0,95				1,18							t-CO2 eq.
Control type		Remote wired											-
SWL - Sound power level Cooling *	A7W35	55	58	59	60	65	65	69	65	65	69	dB(A)	
	Max	60	61	61	62	65	65	69	65	65	69	dB(A)	
	Sil. 1	56	56	57	58	62	62	63	62	62	63	dB(A)	
	Sil. 2	53	53	55	55	56	56	56	56	56	56	dB(A)	
SWL - Sound power level Heating *	A35W18	56	58	60	60	64	64	69	64	64	69	dB(A)	
	Max	60	61	61	62	65	65	69	65	65	69	dB(A)	
	Sil. 1	55	57	57	58	62	62	63	62	62	63	dB(A)	
	Sil. 2	52	54	54	54	56	56	56	56	56	56	dB(A)	
Max. current input		12	14	16	17	25	26	27	10	11	12	A	

* : SWL = Sound power levels, with reference to 1x10⁻¹² W with unit operating in conditions:

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

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

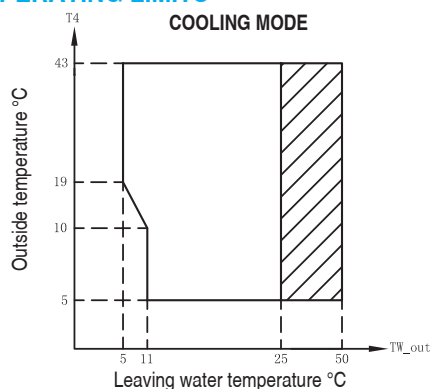
Max = at maximum conditions in heating / cooling mode

Sil. 1 = if silent level 1 active in heating / cooling mode

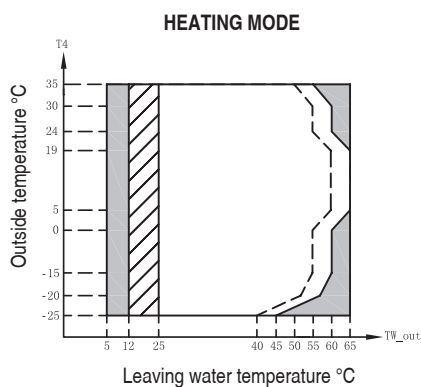
Sil. 2 = if silent level 2 active in heating / cooling mode

The Total sound power level in dB(A) measured in compliance with ISO 9614 standards.

OPERATING LIMITS



Operation range by heat pump with possible limitation and protection.

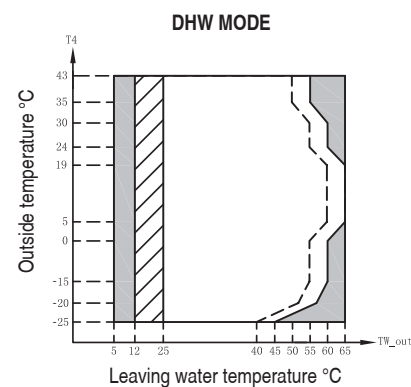


Operation range by heat pump with possible limitation and protection.

If IBH (backup heater) /AHS (boiler) setting is valid, only IBH/AHS turns on;

If IBH/AHS setting is invalid, only heat pump turns on.

Maximum inlet water temperature line for heat pump operation.



Operation range by heat pump with possible limitation and protection.

If IBH (backup heater) /AHS (boiler) setting is valid, only IBH/AHS turns on;

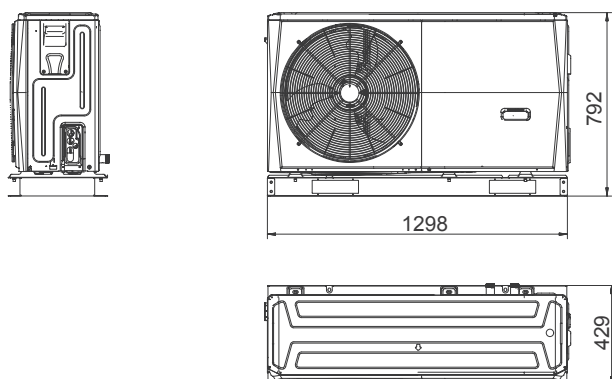
If IBH/AHS setting is invalid, only heat pump turns on.

Maximum inlet water temperature line for heat pump operation.

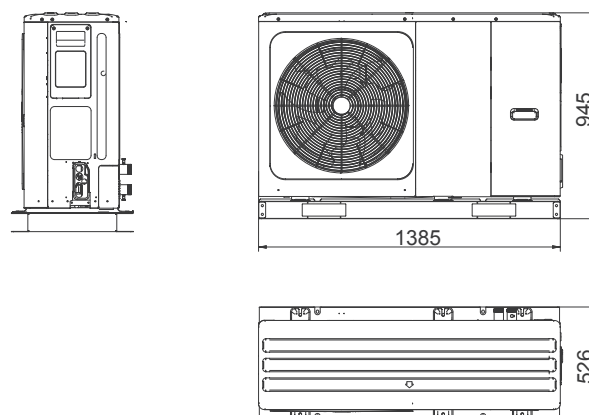
NOTE FOR DHW MODE: leaving water temperature is the temperature of the water produced by the unit and not the DHW temperature available to the user; the DHW temperature is in fact a function of this parameter and of the coil surface of the DHW boiler.

DIMENSIONS

Mod. 4 - 6

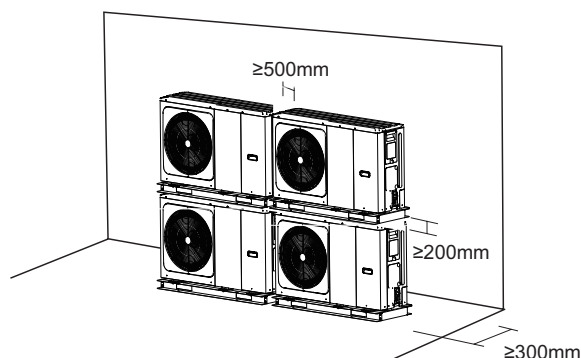
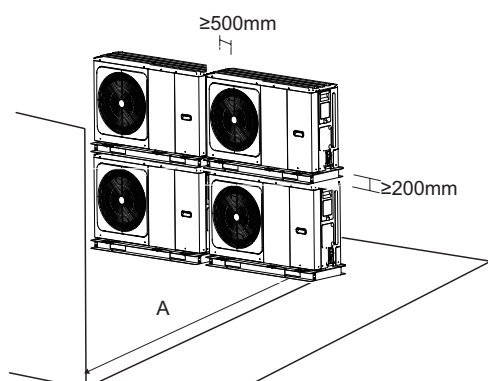


Mod. 8 - 10 - 12 - 12T - 14 - 14T - 16 - 16T



Models	4	6	8	10	12	14	16	12T	14T	16T	UM
Packaging (WxHxD)	1384x945x526		1470x1115x565								mm
Weight Net \ Gross	98 / 121		121 / 148		144 / 170		160 / 188				kg

MINIMUM OPERATING AREA



Models	4	6	8	10	12	14	16	12T	14T	16T	UM
A	1000		1500								mm

THE CONTROL SYSTEM

The user interface consists of a wired remote controller (5 wires, max length 50 m from the unit) with menu in 11 languages (IT Italian, EN English, French FR, Spanish ES, German DE, Dutch NL, Polish PL, Romanian RO, Portuguese PT, Russian RU, Turkish TR) 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 heatt 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 MODE**. For heating mode it is possible to define daily time band and corresponding set point for ECO mode.
- **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).
- **CASCADE FUNCTION** – up to 6 units can be controlled together in cascade mode (1 master unit, 5 slave units), with only one remote controller connected to the master unit. The master unit can be dedicated to the production of DHW (domestic hot water). In case of failure of a slave unit, all other units can operate normally.
- **MANAGEMENT OF UP TO 2 SYSTEM ZONES (1 MIXED AND 1 DIRECT)**. The unit is able to manage the pumps (not supplied) for both zones and, for the mixed zone only, the mixing valve (not supplied) and the water delivery temperature probe (available as an accessory).
- **PHOTOVOLTAIC INPUT AND SMART GRID INPUT**. The unit is equipped with 2 digital inputs for the management of an input from a photovoltaic system and from the electricity grid. Working logic:
 - if the photovoltaic input is closed, the unit turns on DHW mode with DHW setpoint=70°C and(if available) the electrical heater of DHW tank will be turned on. The unit operates in cooling/heating mode as the normal logic.
 - If the photovoltaic input is open and smart grid input is closed, the unit operates normally.
 - If the photovoltaic input is open and smart grid input is open, the unit turns off DHW mode and can operate in cooling/heating mode for a defined period (settable via parameter) then will be turned off.
- **CURRENT INPUT LIMITATION BY PARAMETER.**
- **REMOTE CONTROL OF THE UNIT VIA APP** (available for IOS and Android).
- **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.
- **WATER TEMPERATURE PROBE.**