

## **MANTA EVO WP**

Packaged water/water heat pumps for indoor installation.

Reversible on hydraulic circuit.

Cooling Capacity: 21 ÷ 464 kW - Heating Capacity: 28 ÷ 605 kW



Hydraulic connections on the top side

Low noise

Single or double refrigerant circuit

Scroll compressors

Plate type heat exchangers

EER up to 4,36

COP up to 4,83

ESEER up to 6,01

**MANTA EVO WP:** Packaged water cooled heat pumps for indoor installation, equipped with fully hermetic scroll compressors, plate type evaporator and condenser.

Inversion on hydraulic circuit.

Cooling Capacity: **21 ÷ 464 kW**

Heating Capacity: **28 ÷ 605 kW**



**LOW NOISE**  
RC Hi-Tech



# MANTA EVO WP



## MAIN FEATURES

- Water cooled liquid chiller.
- 24 models, 2 versions available, for a wide selection opportunity.
- Average step of 30kW.
- EER up to 4,36.
- COP up to 4,83.
- ESEER up to 6,01.
- Scroll compressors.
- R410A Refrigerant charge.
- Plate type heat exchangers.
- Suitable for indoor installation.

## MAIN BENEFITS

- New frame, more compact, suitable to walks in through a standard door;
- Hydraulic connections on the top side of the machine;
- Reduction of service spare around the machine;
- New control software, developed by RC Brand, with an advanced control logic;
- Increased cooling density, up to 220kW per m<sup>2</sup>;
- Total front access for the routine maintenance;
- Up to two three compressors for each refrigerant circuit to reach a high efficiency.
- Units with single or double refrigerant circuits.
- High ESEER.
- Low sound level guaranteed by the cabinet structure;
- Availability of plant side and source side pumping groups.
- Availability of partial heat recovery system.
- Easily of maintenance.
- Eurovent Certification.
- Up to A++ Class. ErP 2015.

## INDOOR INSTALLATION

The machines are designed for indoor installation.

## REDUCED NOISE EMISSION

The machines are characterized by a low sound level guaranteed by the containing structure.

## NEW FRAME, MORE COMPACT

Suitable to walks in through a standard door

## HYDRAULIC CONNECTION ON THE TOP SIDE OF THE MACHINE

## DOMESTIC HOT WATER

On request is possible to install the system for the domestic hot water production.

## WORKING LIMITS IN COOLING MODE

Evaporator chilled water outlet temperature: -12÷20°C

Condenser outlet water temperature: 20÷60°C

## MAIN COMPONENTS

### FRAMEWORK

- Base in aluminium extrusion, painted with epoxy powders. Colour RAL 9005;
- Supporting feet in galvanized steel sheet with holes for floor fixing or rubber shock absorbers installation;
- Inner frame and upper frame in aluminium profile, painted with epoxy powders. The inner frame is provided with seals for the panels. Colour RAL 9005;
- Panels in galvanized steel sheet with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders. Colour RAL 7016 hammered;
- Removable frontal panels for a total front access for routine maintenance;
- Removable side panels with grilles for interior ventilation;
- Compartment for electrical panel on unit front for direct access to control and regulation devices;
- Hydraulic connections on the machine top cover.

### COMPRESSORS

- Orbiting spiral (SCROLL) hermetic compressors with spiral profile optimized for R410A refrigerant;
- ON / OFF capacity control (0 / 100% each compressor);
- 2-pole 3-phase electric motor with direct on line starting;
- Crankcase heater;
- Electric motor thermal protection via internal winding temperature sensors;
- Equalization system of the lubricant oil for units equipped with 2 or 3 compressors operating on the same refrigerating circuit;
- Rubber supports.

### EVAPORATOR

- AISI 316 stainless steel plates type, vacuum brazed using copper as brazing material. Hydraulic and refrigerant connections in AISI 316 stainless steel:
  - With single hydraulic circuit for all machines;
  - With single refrigerant circuit for S version machines;
  - With double refrigerant circuit for D version machines.
- Polyurethane insulation foam with closed cell;
- Temperature sensors on water inlet and outlet;
- Factory assembled differential water pressure switch for water flow control;
- Hydraulic piping insulated with closed cell elastomeric foam;
- Hydraulic connections on the machine top cover.

### CONDENSER

- AISI 316 stainless steel plates type, vacuum brazed using copper as brazing material. Hydraulic and refrigerant connections in AISI 316 stainless steel:
  - With single hydraulic circuit for all machines;
  - With single refrigerant circuit for S version machines;
  - With double refrigerant circuit for D version machines.
- 0÷10V proportional signal to manage the motorized valve for condensing control system;
- Polyurethane insulation foam with closed cell;
- Temperature sensor on water outlet;
- Hydraulic piping insulated with closed cell elastomeric foam;
- Hydraulic connections on the machine top cover.

### REFRIGERANT CIRCUIT

Components for each refrigerant circuit:

- Thermostatic expansion valve;
- Electronic expansion valve for models 236 P2 S – 280 P3 S – 354 P3 S – 472 P4 D;
- Sight glass;
- Electromagnetic valve on liquid line. The valve is not installed on models 236 P2 S – 280 P3 S – 354 P3 S – 472 P4 D;
- Filter dryer on liquid line;
- Service valve on liquid line upstream the filter dryer. The valve is present only with exchangeable cartridge filter;
- Safety valves on high and low pressure side;
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure;
- High pressure safety switch with manual reset;
- Refrigerant circuit with copper tubing with insulation of the suction line;
- Plastic capillary hoses for pressure sensors connection;
- R410A refrigerant charge.

### ELECTRICAL PANEL

In accordance with EN60204-1 norms, suitable for indoor installation, complete with:

- Main switch with door lock safety on frontal panel;
- Magnetothermic switches or fuses for each compressor;
- Contactors for each compressor motor;
- Transformer for auxiliary circuit and microprocessor supply;
- Machine operating mode selector "Loc – Off - Remote":
  - Loc position: Machine is active;
  - Off position: Machine is deactivated;
  - Remote position: The machine is remotely controlled with a command by the Customer. Electric connections in the terminal.
- Machine operating mode selector "Summer – Winter - Remote":
  - Summer position: Summer working mode with chilled water production.
  - Winter position: Winter working mode with hot water production.
  - Remote position: The machine is remotely controlled with a command by the Customer. Electric connections in the terminal.
- Terminals;

### OUTLETS

- Voltage free deviating contact for General Alarm 1.
- Voltage free deviating contact for General Alarm 2 – only for units with single refrigerant circuit.

### INLETS

- External enabling (from timer, ecc. At Customer care);
- Remote control (from operating mode selector. At Customer care);
- Emergency unit stop with signalling on display (external alarm. At Customer care).;
- Panel with machine controls;
- Power supply: 400V / 3Ph / 50Hz.

### CONTROL SYSTEM

Microprocessor control system with graphic display for control and monitor of operating and alarms status. The system includes:

- Built-in clock for alarms date and time displaying and storing;
- Built-in memory for the storing of the intervened events (up to 100 events recorded);
- Predisposition for connectivity board housing ( RCom MBUS/JBUS, LON, BACnet for Ethernet (SNMP- TCP/IP), BACnet for MS/TP). The electronic cards are optional accessories;
- Main components hour-meter;
- Non-volatile "Flash" memory for data storage in case of power supply faulty;
- Analogue set point compensation (0÷10 Vdc) according to an external analogue signal at Customer care;
- Menu with protection password;
- LAN connection (max 15 units).

## OPTIONAL ACCESSORIES

MANTA EVO WP	22 P1 S M1	30 P1 S M1	37 P1 S M1	44 P1 S M1	40 P2 S M2	50 P2 S M2	60 P2 S M2	72 P2 S M2	88 P2 S M2	114 P2 S M3	142 P2 S M3	186 P2 S M3
SIZE												
739 - Pumping group (plant side)	•	•	•	•	•	•	•	•	•	•	•	-
Pumping group (source side)	•	•	•	•	•	•	•	•	•	•	•	-
960 - Free contact enable plant pump	•	•	•	•	•	•	•	•	•	•	•	-
Free contact enable source pump	•	•	•	•	•	•	•	•	•	•	•	-
752 - Hydronic group (1 pump)	•	•	•	•	•	•	•	•	•	•	•	•
753 - Hydronic group (2 pumps)	•	•	•	•	•	•	•	•	•	•	•	•
764 - Water tank	•	•	•	•	•	•	•	•	•	•	•	•
1004 - Antifreezing heater for pumping group	•	•	•	•	•	•	•	•	•	•	•	•
780 - Noise absorption box	•	•	•	•	•	•	•	•	•	•	•	•
610 - Noise deadening cup on compressor	•	•	•	•	•	•	•	•	•	•	•	•
171 - Rubber antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•	•	•
118 - Kit brine A (for glycol solution production up to -6°C)	•	•	•	•	•	•	•	•	•	•	•	•
119 - Kit brine B (for glycol solution production up to -12°C)	•	•	•	•	•	•	•	•	•	•	•	•
460 - Kit for outdoor installation	•	•	•	•	•	•	•	•	•	•	•	•
450 - Partial heat recovery	•	•	•	•	•	•	•	•	•	•	•	•
449 - Voltage free contact for partial heat recovery water pump activation	•	•	•	•	•	•	•	•	•	•	•	•
785 - Sanitary antifreezing heater	•	•	•	•	•	•	•	•	•	•	•	•
1023 - Double circuit version	-	-	-	-	•	•	•	•	•	•	•	•
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•	•	•	•	•	•
1002 - Soft Starter	•	•	•	•	•	•	•	•	•	•	•	•
83 - Compressor operation indicator	•	•	•	•	•	•	•	•	•	•	•	•
220 - Electronic expansion valve	•	•	•	•	•	•	•	•	•	•	•	•
Electronic Expansion valve energy reserve module	•	•	•	•	•	•	•	•	•	•	•	•
552 - Service valves on compressor	•	•	•	•	•	•	•	•	•	•	•	•
Ambient temperature sensor	•	•	•	•	•	•	•	•	•	•	•	•
85 - Demand limit	•	•	•	•	•	•	•	•	•	•	•	•
81 - Phases sequence control	•	•	•	•	•	•	•	•	•	•	•	•
651 - Special power supply 230/3/50 Hz	-	•	•	•	-	•	•	•	•	•	-	-
1003 - Analogic flowmeter	•	•	•	•	•	•	•	•	•	•	•	•
1005 - Power supply analyzer	•	•	•	•	•	•	•	•	•	•	•	•
1009 - Multimeter kit	•	•	•	•	•	•	•	•	•	•	•	•
84 - Additional external alarm	•	•	•	•	•	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•	•	•	•	•	•
RC CLOUD PLATFORM	•	•	•	•	•	•	•	•	•	•	•	•

• available accessory; - not available accessory


## OPTIONAL ACCESSORIES

MANTA EVO WP	211 P2	236 P2	280 P3	354 P3	148 P4	176 P4	228 P4	284 P4	328 P4	372 P4	422 P4	472 P4
SIZE	S	S	S	S	D	D	D	D	D	D	D	D
	M3	M3	M4	M4	M4	M4	M4	M4	M4	M4	M4	M4
739 - Pumping group (plant side)	-	-	-	-	-	-	-	-	-	-	-	-
Pumping group (source side)	-	-	-	-	-	-	-	-	-	-	-	-
960 - Free contact enable plant pump	-	-	-	-	-	-	-	-	-	-	-	-
Free contact enable source pump	-	-	-	-	-	-	-	-	-	-	-	-
752 - Hydronic group (1 pump)	•	•	•	•	•	•	•	•	•	•	•	•
753 - Hydronic group (2 pumps)	•	•	•	•	•	•	•	•	•	•	•	-
764 - Water tank	•	•	•	•	•	•	•	•	•	•	•	•
1004 - Antifreezing heater for pumping group	•	•	•	•	•	•	•	•	•	•	•	•
780 - Noise absorption box	•	•	•	•	•	•	•	•	•	•	•	•
610 - Noise deadening cup on compressor	•	•	•	•	•	•	•	•	•	•	•	•
171 - Rubber antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•	•	•
118 - Kit brine A (for glycol solution production up to -6°C)	•	•	•	•	•	•	•	•	•	•	•	•
119 - Kit brine B (for glycol solution production up to -12°C)	•	•	•	•	•	•	•	•	•	•	•	•
460 - Kit for outdoor installation	•	•	•	•	•	•	•	•	•	•	•	•
450 - Partial heat recovery	•	•	•	•	•	•	•	•	•	•	•	•
449 - Voltage free contact for partial heat recovery water pump activation	•	•	•	•	•	•	•	•	•	•	•	•
785 - Sanitary antifreezing heater	•	•	•	•	•	•	•	•	•	•	•	•
1023 - Double circuit version	•	•	-	-	-	-	-	-	-	-	-	-
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•	•	•	•	•	•
1002 - Soft Starter	•	•	•	•	•	•	•	•	•	•	•	•
83 - Compressor operation indicator	•	•	•	•	•	•	•	•	•	•	•	•
220 - Electronic expansion valve	•	-	-	-	•	•	•	•	•	•	•	-
Electronic Expansion valve energy reserve module	•	-	-	-	•	•	•	•	•	•	•	-
552 - Service valves on compressor	•	•	•	•	•	•	•	•	•	•	•	•
Ambient temperature sensor	•	•	•	•	•	•	•	•	•	•	•	•
85 - Demand limit	•	•	•	•	•	•	•	•	•	•	•	•
81 - Phases sequence control	•	•	•	•	•	•	•	•	•	•	•	•
651 - Special power supply 230/3/50 Hz	-	-	-	-	•	•	•	-	-	-	-	-
1003 - Analogic flowmeter	•	•	•	•	•	•	•	•	•	•	•	•
1005 - Power supply analyzer	•	•	•	•	•	•	•	•	•	•	•	•
1009 - Multimeter kit	•	•	•	•	•	•	•	•	•	•	•	•
84 - Additional external alarm	•	•	•	•	•	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•	•	•	•	•	•
RC CLOUD PLATFORM	•	•	•	•	•	•	•	•	•	•	•	•


• available accessory; - not available accessory




## TECHNICAL DATA MANTA EVO WP

MANTA EVO WP		22 P1	30 P1	37 P1	44 P1	40 P2	50 P2	60 P2	72 P2
SIZE		S M1	S M1	S M1	S M1	S M2	S M2	S M2	S M2
Seasonal energy efficiency class (*) 		A+	A++	A++	A++	A++	A++	A++	A++
Summer working mode - Cooling capacity (1) kW		21,4	29,3	37,6	43,0	39,6	49,8	59,6	73,7
Unit power input	kW	5,5	7,2	9,1	10,9	9,8	12,2	14,0	18,4
Evaporator water flow rate	m³/h	3,7	5,0	6,5	7,4	6,8	8,5	10,2	12,6
Evaporator pressure drop	kPa	33	30	38	25	22	33	29	33
Condenser water flow rate	m³/h	4,6	6,2	8,0	9,2	8,5	10,6	12,6	15,8
Condenser pressure drop	kPa	49	45	57	35	30	28	29	45
Winter working mode - Heating capacity (2) kW		28,5	39,3	49,1	56,3	52,1	64,8	76,6	95,5
Unit power input	kW	6,9	8,9	11,3	13,4	12,3	15,0	17,4	22,4
Evaporator water flow rate	m³/h	3,8	5,3	6,6	7,5	6,9	8,7	10,3	12,7
Evaporator pressure drop	kPa	38	34	40	44	38	58	52	60
Condenser water flow rate	m³/h	3,7	5,0	6,5	7,4	6,8	8,5	10,2	12,6
Condenser pressure drop	kPa	51	42	59	36	31	31	33	49
STANDARD	Compressors	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	1	1	1
	Capacity steps	n.	1	1	1	2	2	2	2
	Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	1,3	2,1	2,2	2,7	2,2	4,6	4,9
	Gas circuits	n.	1	1	1	1	1	1	1
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max unit operating current (FLA)	A	16,8	23,1	32,6	35,7	31,5	44,1	65,1
	Unit starting current (LRA)	A	95	118	140	174	116	132	171
	EER (1)	kW/kW	3,87	4,06	4,15	3,95	4,03	4,08	4,01
OPTION	COP (2)	kW/kW	4,14	4,43	4,33	4,19	4,25	4,32	4,27
	ESEER		4,34	4,62	4,59	4,54	5,41	5,36	5,24
	Sound power level [Lw] (3)	dB(A)	66,7	68,7	70,7	71,7	70,0	72,0	74,0
	Average sound pressure level [Lpm] (4)	dB(A)	51,0	53,0	55,0	56,0	54,0	56,0	58,0
	Net weight	kg	220	245	260	270	330	375	390
	Hydraulic connections								
	Evaporator / Condenser IN/OUT - ISO228/1-G M Ø	1+1/2"	1+1/2"	1+1/2"	1+1/2"	--	--	--	--
	Evaporator / Condenser IN/OUT - OD (5)	Ø mm	--	--	--	60,3	60,3	60,3	60,3
	Partial heat recovery (6)								
	Heating capacity	kW	3,4	4,8	6,0	6,8	6,3	7,8	11,5
OPTION	Pumping group								
	Plant side - Power input	kW	0,75	0,55	0,90	0,90	0,75	0,75	1,10
	Source side - Power input	kW	0,75	0,55	0,90	0,90	0,75	1,10	1,10
	Water tank - volume	l	250	250	250	250	250	250	250


1. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.
2. Referred to hot water outlet temperature at 45°C and chilled water temperature 15/10°C - 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.
3. Sound power level [Lw] according to ISO EN 9614 - 2
4. Average sound pressure level [Lp<sub>m</sub>] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.
6. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.

(\*)  Seasonal energy efficiency class according to energy label directive 2010/30/EU and EU regulations 811/2013.


## TECHNICAL DATA MANTA EVO WP

MANTA EVO WP		88 P2	114 P2	142 P2	186 P2	211 P2	236 P2	280 P3	354 P3
SIZE		S M2	S M3	S M3	S M3	S M3	S M3	S M4	S M4
Seasonal energy efficiency class (*) 		A++	A++	A++	A++	A++	A++	A++	A++
<b>Summer working mode - Cooling capacity (1) kW</b>		<b>87,2</b>	<b>112,0</b>	<b>140,0</b>	<b>183,0</b>	<b>207,0</b>	<b>230,0</b>	<b>275,0</b>	<b>355,0</b>
Unit power input	kW	21,4	27,3	34,3	43,9	50,6	57,6	64,7	85,5
Evaporator water flow rate	m³/h	15,0	19,2	24,0	31,4	35,6	39,4	47,2	60,9
Evaporator pressure drop	kPa	25	37	34	31	33	36	42	48
Condenser water flow rate	m³/h	18,7	23,9	29,9	39,0	44,3	49,4	58,4	75,6
Condenser pressure drop	kPa	26	34	36	41	47	48	48	67
<b>Winter working mode - Heating capacity (2) kW</b>		<b>111,0</b>	<b>153,0</b>	<b>193,0</b>	<b>251,0</b>	<b>283,0</b>	<b>315,0</b>	<b>372,0</b>	<b>468,0</b>
Unit power input	kW	25,9	32,3	40,6	52,0	59,5	66,9	77,3	100,4
Evaporator water flow rate	m³/h	14,8	21,0	26,4	34,4	38,7	42,9	51,1	63,7
Evaporator pressure drop	kPa	79	25	23	21	22	23	27	22
Condenser water flow rate	m³/h	15,0	19,2	24,0	31,4	35,6	39,4	47,2	60,9
Condenser pressure drop	kPa	35	11	12	12	17	13	10	12
Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
Quantity	n.	1	1	1	1	1	1	1	1
Capacity steps	n.	2	2	2	2	2	2	3	3
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Total refrigerant charge (optional excluded)	kg	5,6	7,9	10,4	11,5	12,5	13,3	17,3	21,4
Gas circuits	n.	1	1	1	1	1	1	1	1
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Max unit operating current (FLA)	A	71,4	84,0	101,9	137,3	155,4	173,3	153,3	260,4
Unit starting current (LRA)	A	208	265	320	375	473	490	406	572
EER (1)	kW/kW	4,07	4,10	4,08	4,17	4,09	3,99	4,25	4,15
COP (2)	kW/kW	4,28	4,73	4,75	4,83	4,76	4,71	4,81	4,66
ESEER		5,54	5,29	5,24	5,37	5,25	5,15	5,66	5,48
Sound power level [Lw] (3)	dB(A)	75,0	80,6	83,6	83,6	86,1	87,6	86,0	90,0
Average sound pressure level [Lp <sub>m</sub> ] (4)	dB(A)	59,0	64,0	67,0	67,0	69,5	71,0	68,8	72,8
Net weight	kg	400	675	710	775	810	845	1270	1380
Hydraulic connections									
Evaporator / Condenser IN/OUT - ISO228/1-G M Ø	--	--	--	--	--	--	--	--	--
Evaporator / Condenser IN/OUT - OD (5)	Ø mm	60,3	76,1	76,1	88,9	88,9	88,9	88,9	88,9
Partial heat recovery (6)									
Heating capacity	kW	13,4	19,0	24,0	31,2	35,1	38,9	46,3	57,8
Pumping group									
Plant side - Power input	kW	1,10	1,85	1,85	-	-	-	-	-
Source side - Power input	kW	1,85	1,85	1,85	-	-	-	-	-
Water tank - volume	l	250	380	380	380	380	380	380	380


1. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.
2. Referred to hot water outlet temperature at 45°C and chilled water temperature 15/10°C - 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.
3. Sound power level [Lw] according to ISO EN 9614 - 2
4. Average sound pressure level [Lp<sub>m</sub>] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.
6. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.

(\*)  Seasonal energy efficiency class according to energy label directive 2010/30/EU and EU regulations 811/2013.

## TECHNICAL DATA MANTA EVO WP

MANTA EVO WP		148 P4	176 P4	228 P4	284 P4	328 P4	372 P4	422 P4	472 P4
SIZE		D M4	D M4	D M4	D M4	D M4	D M4	D M4	D M4
STANDARD	Seasonal energy efficiency class (*)	 A++	A++	A++	A++	A++	A++	A++	A++
	Summer working mode - Cooling capacity (1) kW	154,0	178,0	226,0	283,0	326,0	365,0	413,0	464,0
	Unit power input	kW	35,3	42,8	54,6	68,9	78,6	87,7	100,5
	Evaporator water flow rate	m³/h	26,5	30,5	38,8	48,7	55,9	62,6	70,9
	Evaporator pressure drop	kPa	28	36	41	44	41	50	39
	Condenser water flow rate	m³/h	32,5	37,9	48,2	60,5	69,5	77,8	88,4
	Condenser pressure drop	kPa	37	37	43	55	51	48	33
	Winter working mode - Heating capacity (2) kW	202,0	236,0	298,0	371,0	426,0	478,0	542,0	605,0
	Unit power input	kW	42,7	51,6	67,1	84,5	96,2	107,7	122,3
	Evaporator water flow rate	m³/h	27,6	32,0	40,1	49,7	57,2	64,3	72,6
	Evaporator pressure drop	kPa	19	25	37	55	51	63	62
	Condenser water flow rate	m³/h	26,5	30,5	38,8	48,7	55,9	62,6	70,9
	Condenser pressure drop	kPa	17	27	58	64	69	62	68
	Compressors	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	1	1	1
	Capacity steps	n.	4	4	4	4	4	4	4
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	13,0	14,2	18,6	23,8	25,8	27,8	31,0
	Gas circuits	n.	2	2	2	2	2	2	2
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max unit operating current (FLA)	A	130,2	142,8	168,0	203,7	239,4	275,1	310,8
	Unit starting current (LRA)	A	233	276	345	416	471	505	620
	EER (1)	kW/kW	4,36	4,16	4,14	4,11	4,15	4,16	4,11
	COP (2)	kW/kW	4,73	4,57	4,44	4,39	4,43	4,44	4,43
	ESEER		5,86	6,01	5,69	5,59	5,70	5,68	5,65
	Sound power level [Lw] (3)	dB(A)	78,2	79,2	84,2	87,2	87,2	87,2	89,7
	Average sound pressure level [Lp <sub>m</sub> ] (4)	dB(A)	61,0	62,0	67,0	70,0	70,0	70,0	72,5
	Net weight	kg	1000	1010	1350	1470	1500	1520	1650
OPTION	Hydraulic connections								
	Evaporator / Condenser IN/OUT - ISO228/1-G M Ø	--	--	--	--	--	--	--	--
	Evaporator / Condenser IN/OUT - OD (5)	Ø mm	88,9	88,9	88,9	88,9	88,9	88,9	88,9
	Partial heat recovery (6)								
	Heating capacity	kW	25,0	29,0	36,3	45,1	51,8	58,2	65,8
	Pumping group								
	Plant side - Power input	kW	-	-	-	-	-	-	-
	Source side - Power input	kW	-	-	-	-	-	-	-
	Water tank - volume	l	380	380	380	380	380	380	380

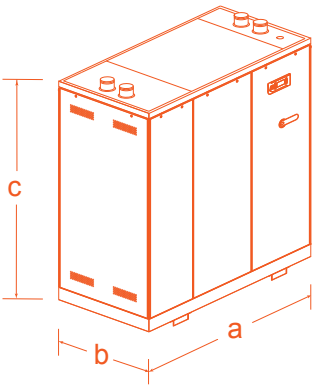
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(\*)  Seasonal energy efficiency class according to energy label directive 2010/30/EU and EU regulations 811/2013.



DIMENSIONS (mm)

SIZE M	a	b	c
M1	785	725	1820
M2	1085	725	1820
M3	1480	935	1875
M4	2360	935	2025





**for a greener tomorrow**

Eco-Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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