

MANTA EVO A

Split-system liquid chillers for indoor installation.

Cooling Capacity: 20 ÷ 415 kW



Hydraulic and refrigerant connections on the top side

Low noise

Single or double refrigerant circuit

Scroll compressors

Plate type heat exchanger

EER up to 3,00

MANTA EVO A: Split system water cooled liquid chillers for indoor installation, equipped with fully hermetic scroll compressors and plate type evaporator.
Cooling Capacity: 20 ÷ 415 kW



MANTA EVO A



MAIN FEATURES

- Split system heat pump liquid chiller.
- 22 models, 2 versions available, for a wide selection opportunity.
- Average step of 20kW.
- EER up to 3,00.
- Scroll compressors.
- R410A Refrigerant charge.
- Plate type heat exchangers.
- Suitable for indoor installation.
- Split system.

MAIN BENEFITS

- New frame, more compact, suitable to walk in through a standard door;
- Hydraulic connections on the top side of the machine;
- Reduction of service space around the machine;
- New control software, developed by RC, with an advanced control logic;
- Increased cooling density, up to 185kW per m²;
- Total front access for the routine maintenance;
- Up to two compressors for each refrigerant circuit to reach a high efficiency.
- Units with single or double refrigerant circuits.
- Low sound level guaranteed by the cabinet structure;
- Availability of plant side pumping groups.
- Availability of partial or total heat recovery system.
- Easy of maintenance.

REMOTE EXCHANGER. The units are designed to be matched with remote condenser with axial fans (TEAM MATE series) or plug-fan (TEAM MATE PF series).

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

NEW FRAME, MORE COMPACT to walk in through a standard door.

HYDRAULIC CONNECTION ON THE TOP SIDE OF THE MACHINE

WORKING LIMITS IN COOLING MODE

Evaporator chilled water outlet temperature: -12÷20°C
Ambient temperature: -10÷45°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 and refrigerant 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 – size M1, M2, M3;
 - With double refrigerant circuit for D version machines – size M4
- 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.

REFRIGERANT CIRCUIT

Components for each refrigerant circuit:

- Thermostatic expansion valve;
- Electronic expansion valve for models 236 P2 S – 284 P4 D – 328 P4 D - 372 P4 D – 422 – P4 D - 472 P4 D P4 D;
- Sight glass;
- Electromagnetic valve on liquid line. The valve is not installed on models 236 P2 S - 280 P3 S – 328 P4 D - 372 P4 D – 422 – P4 D - 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;
- Liquid receiver with safety valve and service valve.
- Valves on gas delivery and liquid return for coupling to remote air cooled condenser.
- 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.

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:

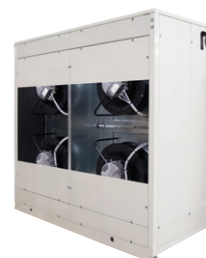
- Built-in clock for alarms date and time displaying and storing;
- Built-in memory for the storing of the intervened events (up to 100 events recorded);
- Predisposition for connectivity board housing (RCom MBUS/JBUS, LON, BACnet for Ethernet (SNMP- TCP/IP), BACnet for MS/TP). The electronic cards are 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).

TO BE MATCHED WITH REMOTE CONDENSER

MANTA EVO A series is designed to be matched with remote condensers with axial fans (TEAM MATE series) or plug-fan (TEAM MATE PF series).



TEAM MATE



TEAM MATE PF

OPTIONAL ACCESSORIES

MANTA EVO A	22 P1	30 P1	37 P1	44 P1	40 P2	50 P2	60 P2	72 P2	88 P2	114 P2	142 P2	186 P2
SIZE	S M1	S M1	S M1	S M1	S M2	S M2	S M2	S M2	S M2	S M3	S M3	S M3
TEAM MATE remote air/gas condenser	•	•	•	•	•	•	•	•	•	•	•	•
TEAM MATE PF remote air/gas condenser	•	•	•	•	•	•	•	•	•	•	•	•
1023 - Double circuit version	-	-	-	-	•	•	•	•	•	•	•	•
739 - Pumping group (plant side)	•	•	•	•	•	•	•	•	•	•	•	-
960 - Free contact enable plant 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	•	•	•	•	•	•	•	•	•	•	•	•
451 - Total heat recovery	•	•	•	•	•	•	•	•	•	•	•	•
Voltage free contact for total heat recovery water pump activation	•	•	•	•	•	•	•	•	•	•	•	•
Total heat recovery machine operation mode selector	•	•	•	•	•	•	•	•	•	•	•	•
785 - Sanitary antifreezing heater	•	•	•	•	•	•	•	•	•	•	•	•
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 A HP	211 P2	236 P2	148 P4	176 P4	228 P4	284 P4	328 P4	372 P4	422 P4	472 P4
SIZE	S	S	D	D	D	D	D	D	D	D
	M3	M3	M4	M4	M4	M4	M4	M4	M4	M4
TEAM MATE remote air/gas condenser	•	•	•	•	•	•	•	•	•	•
TEAM MATE PF remote air/gas condenser	•	•	•	•	•	•	•	•	•	•
1023 - Double circuit version	•	•	-	-	-	-	-	-	-	-
739 - Pumping group (plant side)	-	-	-	-	-	-	-	-	-	-
960 - Free contact enable plant 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	•	•	•	•	•	•	•	•	•	•
451 - Total heat recovery	•	•	•	•	•	•	•	•	•	•
Voltage free contact for total heat recovery water pump activation	•	•	•	•	•	•	•	•	•	•
Total heat recovery machine operation mode selector	•	•	•	•	•	•	•	•	•	•
785 - Sanitary antifreezing heater	•	•	•	•	•	•	•	•	•	•
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 A

MANTA EVO A		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	
STANDARD	Cooling capacity (1)	kW	18,9	26,6	33,1	39,1	36,0	44,5	52,9	67,1
	Unit power input (*)	kW	7,3	9,2	11,7	14,0	12,9	16,1	18,5	23,0
	Evaporator water flow rate	m³/h	3,3	4,6	5,7	6,7	6,2	7,7	9,1	11,5
	Evaporator pressure drop	kPa	26	30	30	22	18	26	23	27
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	2	2	2	2
	Capacity steps	n.	1	1	1	1	2	2	2	2
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	4,5	5,0	5,0	5,1	4,9	6,9	9,8	9,9
	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	17	23	33	36	32	44	46	65
	Unit starting current (LRA)	A	95	118	140	174	116	132	140	171
	EER (1) (*)	kW/kW	2,60	2,88	2,84	2,79	2,80	2,77	2,86	2,92
	Sound power level [Lw] (2)	dB(A)	66,6	68,6	70,6	71,6	69,9	71,9	71,9	73,9
	Average sound pressure level [Lpm] (3)	dB(A)	51,0	53,0	55,0	56,0	54,0	56,0	56,0	58,0
	Net weight	kg	225	249	263	268	329	372	381	391
	Hydraulic connections									
	Evaporator IN/OUT - ISO228/1-G M	Ø	1+1/2"	1+1/2"	1+1/2"	1+1/2"	-	-	-	-
	Evaporator IN/OUT - OD	Ø mm	-	-	-	-	60,3	60,3	60,3	60,3
	Refrigerant connection									
Liquid return - ODS	n x Ø	16	16	18	18	18	22	22	22	
Gas delivery - ODS	n x Ø	18	22	22	22	22	22	28	28	
TEAM MATE	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	
	Series TEAM MATE STD	Mod.	M 25	M 35	M 45	M 50	M 50	M 60	M 70	M 95
	Nominal power inout	kW	0,5	0,5	0,8	1,1	1,1	1,1	1,1	1,6
	Max operating current	A	2,9	2,9	3,6	5,7	5,7	5,7	5,7	8,5
	Power supply (**)	V/Ph/Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50
OPTIONAL	Partial heat recovery (4)									
	Heating capacity	kW	6,9	9,8	12,2	14,3	13,2	16,3	19,4	24,6
	Total heat recovery (5)									
Heating capacity	kW	25,4	34,6	43,9	51,5	47,2	59,0	69,8	86,9	
TEAM MATE LNO	MANTA EVO A + TEAM MATE LNO									
	Cooling capacity (1)	kW	19,4	27,2	33,4	40,2	36,0	44,9	54,7	67,0
	Unit power input	kW	6,9	9,1	11,7	13,3	12,7	15,7	17,9	22,9
	EER (1) (*)	kW/kW	2,82	3,00	2,86	3,03	2,83	2,86	3,06	2,93
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE STD	Mod.	M 30	M 45	M 50	M 70	M 60	M 70	M 95	M 110
	Nominal power input	kW	0,5	0,7	0,9	0,9	0,9	0,9	1,4	1,4
Power supply (**)	V/Ph/Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	
TEAM MATE ELN	MANTA EVO A + TEAM MATE ELN									
	Cooling capacity (1)	kW	18,9	26,4	32,4	39,2	35,0	43,5	53,3	64,9
	Unit power input	kW	7,1	9,4	12,0	13,6	13,2	16,4	18,3	23,6
	EER (1) (*)	kW/kW	2,66	2,82	2,70	2,88	2,66	2,66	2,91	2,75
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE STD	Mod.	M 30	M 45	M 50	M 70	M 60	M 70	M 95	M 110
	Nominal power input	kW	0,4	0,6	0,8	0,8	0,8	0,8	1,1	1,1
Power supply (**)	V/Ph/Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	
TEAM MATE PF STD	MANTA EVO A + TEAM MATE PF STD									
	Cooling capacity (1)	kW	18,9	27,0	33,0	39,9	36,7	44,5	52,9	66,1
	Unit power input	kW	7,4	9,7	12,2	14,7	13,6	17,2	19,8	25,2
	EER (1) (*)	kW/kW	2,56	2,79	2,70	2,71	2,70	2,59	2,67	2,62
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE STD	Mod.	T 24	T 38	T 44	T 58	T 58	T 58	T 69	T 86
	External static pressure	Pa	50	50	50	50	50	50	50	50
Nominal power input	kW	0,6	1,1	1,2	2,2	2,2	2,2	2,4	3,3	
Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	
TEAM MATE PF ELN	MANTA EVO A + TEAM MATE PF ELN									
	Cooling capacity (1)	kW	19,0	26,6	33,1	39,0	35,0	45,5	52,4	67,6
	Unit power input	kW	7,1	8,7	11,7	13,9	13,2	15,8	19,0	23,2
	EER (1) (*)	kW/kW	2,66	3,05	2,83	2,81	2,65	2,88	2,76	2,91
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE STD	Mod.	T 33	T 44	T 58	T 69	T 58	T 86	T 86	T 114
	External static pressure	Pa	50	50	50	50	50	50	50	50
Nominal power input	kW	0,5	0,5	0,8	0,9	0,8	1,3	1,3	2,1	
Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.
 2. Sound power level [Lw] according to ISO EN 9614 - 2
 3. Average sound pressure level [Lp_m] 1m far according to ISO EN 3744.
 4. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.
 5. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m²K/kW.
- (*) The value includes the remote condenser
(**) The remote condenser has separated power supply
(***) Remote condensers not available for this model. Value are referred to 45°C condensation temperature

TECHNICAL DATA MANTA A

MANTA EVO A		88 P2	114 P2	142 P2	186 P2	211 P2	236 P2	148 P4	176 P4	
SIZE		S M2	S M3	S M3	S M3	S M3	S M3	D M4	D M4	
STANDARD	Cooling capacity (1)	kW	78,5	101,0	128,0	163,0	186,0	207,0	138,0	159,0
	Unit power input (*)	kW	27,3	35,9	43,5	56,6	64,4	71,9	46,0	54,6
	Evaporator water flow rate	m³/h	13,5	17,4	21,9	28,1	31,9	35,5	23,7	27,4
	Evaporator pressure drop	kPa	20	28	28	24	26	28	22	29
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	2	2	2	2	2	2	4	4
	Capacity steps	n.	2	2	2	2	2	2	4	4
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	9,9	11,5	23,0	23,2	23,8	23,8	20,4	20,6
	Gas circuits	n.	1	1	1	1	1	1	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	400/3/50
	Max unit operating current (FLA)	A	71	84	102	137	155	173	130	143
	Unit starting current (LRA)	A	208	265	320	375	473	490	233	276
	EER (1) (*)	kW/kW	2,88	2,81	2,94	2,88	2,89	2,88	3,00	2,91
	Sound power level [Lw] (2)	dB(A)	74,9	80,5	83,5	83,5	86,0	87,5	78,2	79,2
	Average sound pressure level [Lpm] (3)	dB(A)	59,0	64,0	67,0	67,0	69,5	71,0	61,0	62,0
	Net weight	kg	395	661	715	771	803	832	983	969
	Hydraulic connections									
	Evaporator IN/OUT - ISO228/1-G M	Ø	-	-	-	-	-	-	-	-
	Evaporator IN/OUT - OD	Ø mm	60,3	76,1	76,1	88,9	88,9	88,9	88,9	88,9
	Refrigerant connection									
	Liquid return - ODS	n x Ø	22	22	28	28	35	35	22	22
	Gas delivery - ODS	n x Ø	28	28	35	42	42	42	28	28
TEAM MATE	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	2	2
	Series TEAM MATE STD	Mod.	M 110	M 130	T 185	T 210	T 250	T 280	M 95	M 110
	Nominal power inout	kW	1,6	2,1	3,2	3,2	4,2	4,2	1,6	1,6
	Max operating current	A	8,5	11,4	17,1	17,1	22,8	22,8	8,5	8,5
	Power supply (**)	V/Ph/Hz	230-1-50	230-1-50	400-3-50+N	400-3-50+N	400-3-50+N	400-3-50+N	230-1-50	230-1-50
OPTIONAL	Partial heat recovery (4)									
	Heating capacity	kW	28,8	37,2	46,8	59,9	68,2	75,8	48,5	56,6
	Total heat recovery (5)									
TEAM MATE LNO	Heating capacity	kW	103,0	132,0	166,0	216,0	244,0	272,0	179,0	209,0
	MANTA EVO A + TEAM MATE LNO									
TEAM MATE LNO	Cooling capacity (1)	kW	79,3	101,0	128,0	163,0	186,0	207,0	138,0	161,0
	Unit power input	kW	27,1	33,8	40,4	53,4	60,2	67,6	45,7	54,4
	EER (1) (*)	kW/kW	2,93	2,99	3,17	3,05	3,09	3,06	3,02	2,96
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	-	2	2
	Series TEAM MATE STD	Mod.	M 130	T 185	T 210	T 250	T 280	(***)	M 110	M 130
	Nominal power input	kW	1,8	2,7	2,7	3,6	3,6	-	1,4	1,8
	Power supply (**)	V/Ph/Hz	230-1-50	400-3-50+N	400-3-50+N	400-3-50+N	400-3-50+N	-	230-1-50	230-1-50
	MANTA EVO A + TEAM MATE ELN									
TEAM MATE ELN	Cooling capacity (1)	kW	77,3	104,0	124,0	161,0	180,0	207,0	133,0	157,0
	Unit power input	kW	27,7	34,4	44,3	57,7	66,2	67,6	47,3	55,9
	EER (1) (*)	kW/kW	2,79	3,02	2,80	2,79	2,72	3,06	2,81	2,81
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	-	2	2
	Series TEAM MATE STD	Mod.	M 130	T 185	T 210	T 250	T 280	(***)	M 110	M 130
	Nominal power input	kW	1,5	2,2	2,2	3,0	3,0	-	1,1	1,5
	Power supply (**)	V/Ph/Hz	230-1-50	400-3-50+N	400-3-50+N	400-3-50+N	400-3-50+N	-	230-1-50	230-1-50
	MANTA EVO A + TEAM MATE PF STD									
TEAM MATE PF STD	Cooling capacity (1)	kW	81,1	104,0	128,0	163,0	186,0	207,0	136,0	165,0
	Unit power input	kW	30,0	39,8	40,4	53,4	60,2	67,6	50,6	60,4
	EER (1) (*)	kW/kW	2,70	2,61	3,17	3,05	3,09	3,06	2,69	2,73
	REMOTE CONDENSER - Quantity	n.	1	1	-	-	-	-	2	2
	Series TEAM MATE STD	Mod.	T 114	T 144	(***)	(***)	(***)	(***)	T 86	T 114
	External static pressure	Pa	50	50	-	-	-	-	50	50
	Nominal power input	kW	5,6	7,4	-	-	-	-	3,3	5,6
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	-	-	-	-	380-480/3/50-60	380-480/3/50-60
TEAM MATE PF ELN	MANTA EVO A + TEAM MATE PF ELN									
	Cooling capacity (1)	kW	79,1	101,0	128,0	163,0	186,0	207,0	139,0	161,0
	Unit power input	kW	28,1	33,8	40,4	53,4	60,2	67,6	46,6	56,5
	EER (1) (*)	kW/kW	2,81	2,99	3,17	3,05	3,09	3,06	2,98	2,85
	REMOTE CONDENSER - Quantity	n.	1	-	-	-	-	-	2	2
	Series TEAM MATE STD	Mod.	T 144	(***)	(***)	(***)	(***)	(***)	T 114	T 144
	External static pressure	Pa	50	-	-	-	-	-	50	50
	Nominal power input	kW	2,8	-	-	-	-	-	2,1	2,8
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	-	-	-	-	-	380-480/3/50-60	380-480/3/50-60

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.

2. Sound power level [Lw] according to ISO EN 9614 - 2

3. Average sound pressure level [Lpm] 1m far according to ISO EN 3744.

4. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution.

Fouling factor of the exchangers 0,043 m²K/kW.

5. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m²K/kW.

(*) The value includes the remote condenser

(**) The remote condenser has separated power supply

(***) Remote condensers not available for this model. Value are referred to 45°C condensation temperature

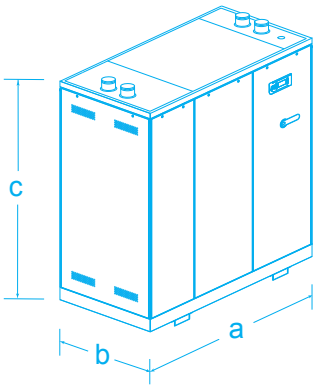
TECHNICAL DATA MANTA A

MANTA EVO A		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
STANDARD	Cooling capacity (1)	kW	203,0	253,0	291,0	326,0	416,0
	Unit power input (*)	kW	69,8	88,8	102,1	112,8	144,4
	Evaporator water flow rate	m³/h	34,9	43,5	50,0	56,0	71,5
	Evaporator pressure drop	kPa	33	36	33	40	42
	Compressors		scroll	scroll	scroll	scroll	scroll
	Quantity	n.	4	4	4	4	4
	Capacity steps	n.	4	4	4	4	4
	Refrigerant		R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	23,4	46,6	47,0	46,8	48,6
	Gas circuits	n.	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
	Max unit operating current (FLA)	A	168	204	239	275	347
	Unit starting current (LRA)	A	345	416	471	505	654
	EER (1) (*)	kW/kW	2,91	2,85	2,85	2,89	2,88
	Sound power level [Lw] (2)	dB(A)	84,2	87,2	87,2	87,2	91,2
	Average sound pressure level [Lp _m] (3)	dB(A)	67,0	70,0	70,0	70,0	74,0
	Net weight	kg	1302	1431	1448	1448	1682
	Hydraulic connections						
	Evaporator IN/OUT - ISO228/1-G M	Ø	-	-	-	-	-
	Evaporator IN/OUT - OD	Ø mm	88,9	88,9	88,9	88,9	88,9
TEAM MATE	Refrigerant connection						
	Liquid return - ODS	n x Ø	22	28	35	35	35
	Gas delivery - ODS	n x Ø	28	35	42	42	42
	REMOTE CONDENSER - Quantity	n.	2	2	2	2	2
	Series TEAM MATE STD	Mod.	M 140	T 185	T 185	T 210	T 280
	Nominal power input	kW	2,1	3,2	3,2	3,2	4,2
	Max operating current	A	11,4	17,1	17,1	17,1	22,8
	Power supply (**)	V/Ph/Hz	230-1-50	400-3-50+N	400-3-50+N	400-3-50+N	400-3-50+N
OPTIONAL	Partial heat recovery (4)						
	Heating capacity	kW	72,9	92,9	104,0	117,0	150,0
	Total heat recovery (5)						
TEAM MATE LNO	Heating capacity	kW	266,0	335,0	383,0	429,0	547,0
	MANTA EVO A + TEAM MATE LNO						
	Cooling capacity (1)	kW	209,0	254,0	300,0	329,0	416,0
	Unit power input	kW	67,9	87,0	98,0	112,7	135,9
	EER (1) (*)	kW/kW	3,08	2,92	3,06	2,92	3,06
	REMOTE CONDENSER - Quantity	n.	2	2	2	2	-
	Series TEAM MATE STD	Mod.	T 185	T 210	T 250	T 250	T 280
	Nominal power input	kW	2,7	2,7	3,6	3,6	-
	Power supply (**)	V/Ph/Hz	400-3-50+N	400-3-50+N	400-3-50+N	400-3-50+N	-
TEAM MATE ELN	MANTA EVO A + TEAM MATE ELN						
	Cooling capacity (1)	kW	205,0	247,0	293,0	321,0	416,0
	Unit power input	kW	69,0	89,8	100,3	115,5	135,9
	EER (1) (*)	kW/kW	2,97	2,75	2,92	2,78	3,06
	REMOTE CONDENSER - Quantity	n.	2	2	2	2	-
	Series TEAM MATE STD	Mod.	T 185	T 210	T 250	T 250	T 280
	Nominal power input	kW	2,2	2,2	3,0	3,0	-
	Power supply (**)	V/Ph/Hz	400-3-50+N	400-3-50+N	400-3-50+N	400-3-50+N	-
TEAM MATE PF STD	MANTA EVO A + TEAM MATE PF STD						
	Cooling capacity (1)	kW	204,0	253,0	290,0	326,0	416,0
	Unit power input	kW	79,7	82,4	95,7	106,5	135,9
	EER (1) (*)	kW/kW	2,56	3,07	3,03	3,06	3,06
	REMOTE CONDENSER - Quantity	n.	2	-	-	-	-
	Series TEAM MATE STD	Mod.	T 144	(***)	(***)	(***)	(***)
	External static pressure	Pa	50	-	-	-	-
	Nominal power input	kW	7,4	-	-	-	-
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	-	-	-	-
TEAM MATE PF ELN	MANTA EVO A + TEAM MATE PF ELN						
	Cooling capacity (1)	kW	203,0	253,0	290,0	326,0	416,0
	Unit power input	kW	65,5	82,4	95,7	106,5	135,9
	EER (1) (*)	kW/kW	3,10	3,07	3,03	3,06	3,06
	REMOTE CONDENSER - Quantity	n.	-	-	-	-	-
	Series TEAM MATE STD	Mod.	(***)	(***)	(***)	(***)	(***)
	External static pressure	Pa	-	-	-	-	-
	Nominal power input	kW	-	-	-	-	-
	Power supply (**)	V/Ph/Hz	-	-	-	-	-

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.
 2. Sound power level [Lw] according to ISO EN 9614 - 2
 3. Average sound pressure level [Lp_m] 1m far according to ISO EN 3744.
 4. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.
 5. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m²K/kW.
- (*) The value includes the remote condenser
(**) The remote condenser has separated power supply
(***) Remote condensers not available for this model. Value are referred to 45°C condensation temperature

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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