

MANTA A HP: Motoevaporating heat pumps
for indoor installation, equipped with scroll compressors and plate heat exchanger
Cooling Capacity: 23,5 ÷ 367,0 kW
Heating Capacity: 27,0 ÷ 431,0 kW



mantra a hp
rcgroupairconditioning



MAIN FEATURES

- Split-system liquid chiller.
- 28 models available, for a wide selection opportunity..
- Average step of 25kW.
- EER up to
- COP up to
- ESEER up to
- Scroll compressors.
- R410A Refrigerant charge.
- Single, double refrigerant circuit.
- Plate type heat exchangers.
- Suitable for indoor installation.
- Split-system.

MAIN BENEFITS

- Units equipped with two compressors for refrigerant circuit to reach a high efficiency.
- Units with single and double refrigerant circuits.
- Availability of remote air/gas heat exchanger with axial fans (TEAM MATE HP series) and with plug fan (TEAM MATE HP PF series).
- Availability of partial and total heat recovery system.
- Easily of maintenance.

INDOOR INSTALLATION

The machines are designed for indoor installation.

REMOTE EXCHANGER

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

REDUCED NOISE EMISSION

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

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
Ambient temperature: -10÷45°C

WORKING LIMITS IN HEATING MODE

Condenser hot water outlet temperature: 28÷58°C
Ambient temperature: -12÷30°C



MAIN COMPONENTS

FRAMEWORK

- Base, self supporting frame and panelling in steel plate with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders.
- Colour: RAL 9002

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.
- Phase sequence electronic relay.
- Crankcase heater.
- Electric motor thermal protection via internal winding temperature sensors.
- Rubber supports.

PLANT SIDE HEAT EXCHANGER

- Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel:
 - With single refrigerant circuit for S version machines.
 - With double refrigerant circuit for D version machines.
- Anticondensate insulation made of polyurethane.
- Temperature sensors on water inlet and outlet.
- Differential water pressure switch for water flow control.

REFRIGERANT CIRCUIT

Components for each refrigerant circuit:

- Reversing valve for refrigeration cycle inversion.
- Electronic expansion valve. The valve allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure. The expansion valve is equipped with energy reserve to allow the closure of the valve in the event of lack of power supply.
- Sight glass.
- Filter dryer on liquid line.
- Service valves on liquid line and gas discharge.
- Non-return valve.
- 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 accessories.
- Oil drainage and oil recovery systems.
- IDEA® defrosting system.

RC Group patented defrosting system based on a dynamic reading of the evaporating parameters.

Through sensors the microprocessor realize the real ice presence on the gas/air heat exchanger and activates the defrosting cycle only when necessary, with consequent energy saving.

- Valves on gas delivery and liquid return for coupling to remote air cooled condenser.
- 0÷10V proportional signal to manage the condensing/evaporating control system of the remote air cooled condenser.
- Refrigerant circuit with copper tubing with anticondensate 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.
- Magnetothermic switch or fuses for each compressor.
- Contactors for each load.
- Transformer for auxiliary circuit and microprocessor supply.
- Panel with machine controls.
- Summer / Winter working mode selector.
- Ambient temperature sensor.
- Power supply 400/3/50.

CONTROL SYSTEM

- MP.COM microprocessor system with graphic display for control and monitor of operating and alarms status. The system includes:
 - Voltage free contact for remote general alarm.
 - Main components hour-meter.
 - Clock card for alarms date and time displaying and storing.
 - Nonvolatile "Flash" memory for data storage.
 - Menu with protection password.
 - LAN connection.

HYDRAULIC CONNECTIONS OF HEAT EXCHANGERS

- The heat exchangers' threaded hydraulic connections are available up to a diameter of 3 " included, and correspond to ISO 228/1 – G M.
- The pipes' threaded hydraulic connections are available up to a diameter of 3 " included, and correspond to ISO 7/1 – R.
- The hydraulic connections with flange (FL) are not supplied with counter flange.
- The hydraulic connections with grooved end are not supplied with flexible joint (optional accessory).



TEAM MATE HP



TEAM MATE HP PF

pg: 159

OPTIONAL ACCESSORIES

MANTA A HP	T 27 P1 S J4	T 30 P1 S J4	T 33 P1 S J4	T 40 P1 S J4	T 40 P2 S J7	T 40 P2 D J7	T 48 P2 S J7	T 48 P2 D J7	T 54 P2 S J7	T 54 P2 D J7	T 60 P2 S J7
SIZE											
TEAM MATE HP remote air/gas heat exchangers	●	●	●	●	●	●	●	●	●	●	●
TEAM MATE HP PF remote air/gas heat exchangers	●	●	●	●	●	●	●	●	●	●	●
172 - Rubber support (kit)	●	●	●	●	●	●	●	●	●	●	●
118 - Kit brine A	●	●	●	●	●	●	●	●	●	●	●
119 - Kit brine B	●	●	●	●	●	●	●	●	●	●	●
Plant heat exchanger flexible joint with adapter pipe (solder type)	-	-	-	-	-	-	-	-	-	-	-
Plant heat exchanger flexible joint with adapter for flange connection	-	-	-	-	-	-	-	-	-	-	-
450 - Desuperheater	●	●	●	●	●	-	●	-	●	-	●
605 - Compr. power factor capacitor - 0,9	-	-	-	-	-	-	●	●	●	●	●
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	●	●	●	●	●	●	●	●	●	●	●
942 - Serial card for GSM Modem	●	●	●	●	●	●	●	●	●	●	●
943 - Data Logger	●	●	●	●	●	●	●	●	●	●	●
889 - Master plant SEQUENCER	●	●	●	●	●	●	●	●	●	●	●
962 - Kit modem GSM	●	●	●	●	●	●	●	●	●	●	●
957 - Plantwatch without modem	●	●	●	●	●	●	●	●	●	●	●
930 - Remote graphic terminal kit	●	●	●	●	●	●	●	●	●	●	●

MANTA A HP	T 60 P2 D J7	T 70 P2 S J7	T 70 P2 D J7	T 90 P2 S J7	T 90 P2 D J7	T 120 P2 S J7	T 120 P2 D J8	T 150 P2 S J8	T 150 P2 D J8	T 170 P4 D J8	T 190 P4 D J9
SIZE											
TEAM MATE HP remote air/gas heat exchangers	●	●	●	●	●	●	●	●	●	●	●
TEAM MATE HP PF remote air/gas heat exchangers	●	●	●	●	●	●	●	●	●	●	●
172 - Rubber support (kit)	●	●	●	●	●	●	●	●	●	●	●
118 - Kit brine A	●	●	●	●	●	●	●	●	●	●	●
119 - Kit brine B	●	●	●	●	●	●	●	●	●	●	●
Plant heat exchanger flexible joint with adapter pipe (solder type)	-	-	-	●	●	●	●	●	●	●	●
Plant heat exchanger flexible joint with adapter for flange connection	-	-	-	●	●	●	●	●	●	●	●
450 - Desuperheater	-	●	-	●	-	●	-	●	●	●	●
605 - Compr. power factor capacitor - 0,9	●	●	●	●	●	●	●	●	●	●	●
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	●	●	●	●	●	●	●	●	●	●	●
942 - Serial card for GSM Modem	●	●	●	●	●	●	●	●	●	●	●
943 - Data Logger	●	●	●	●	●	●	●	●	●	●	●
889 - Master plant SEQUENCER	●	●	●	●	●	●	●	●	●	●	●
962 - Kit modem GSM	●	●	●	●	●	●	●	●	●	●	●
957 - Plantwatch without modem	●	●	●	●	●	●	●	●	●	●	●
930 - Remote graphic terminal kit	●	●	●	●	●	●	●	●	●	●	●

MANTA A HP	T 200 P2 S J9	T 200 P2 D J9	T 240 P4 D J9	T 300 P4 D J9	T 340 P4 D J10	T 380 P4 D J10
SIZE						
TEAM MATE HP remote air/gas heat exchangers	●	●	●	●	●	●
TEAM MATE HP PF remote air/gas heat exchangers	●	●	●	●	●	●
172 - Rubber support (kit)	●	●	●	●	●	●
118 - Kit brine A	●	●	●	●	●	●
119 - Kit brine B	●	●	●	●	●	●
Plant heat exchanger flexible joint with adapter pipe (solder type)	●	●	●	●	●	●
Plant heat exchanger flexible joint with adapter for flange connection	●	●	●	●	●	●
450 - Desuperheater	●	●	●	●	●	●
605 - Compr. power factor capacitor - 0,9	●	●	●	●	●	●
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	●	●	●	●	●	●
942 - Serial card for GSM Modem	●	●	●	●	●	●
943 - Data Logger	●	●	●	●	●	●
889 - Master plant SEQUENCER	●	●	●	●	●	●
962 - Kit modem GSM	●	●	●	●	●	●
957 - Plantwatch without modem	●	●	●	●	●	●
930 - Remote graphic terminal kit	●	●	●	●	●	●

● available accessory; - not available accessory

TECHNICAL DATA MANTA A HP

MANTA A HP		T 27 P1 S J4	T 30 P1 S J4	T 33 P1 S J4	T 40 P1 S J4	T 40 P2 S J7	T 40 P2 D J7	T 48 P2 S J7	T 48 P2 D J7	T 54 P2 S J7	T 54 P2 D J7	
SIZE												
Summer working mode - Cooling capacity (1) kW		23,5	25,7	30,0	35,6	35,6	40,0	47,6	46,8	56,1	51,5	
Unit power input (*)		kW	9,1	10,6	11,6	13,5	13,2	15,4	18,0	17,9	19,8	
Plant exchanger water flow rate		m³/h	4,0	4,4	5,2	6,1	6,1	6,9	8,2	8,1	9,6	
Plant exchanger pressure drop		kPa	42,0	39,0	38,0	30,0	31,0	22,0	37,0	22,0	41,0	
Winter working mode - Heating capacity (2) kW		27,0	30,1	34,4	41,0	40,9	46,7	55,9	55,0	65,3	61,2	
Unit power input (*)		kW	8,8	9,8	11,2	13,5	13,5	15,4	18,1	17,7	20,9	
Compressors		scroll										
Quantity		n.	1	1	1	2	2	2	2	2	2	
Capacity steps		n.	1	1	1	1	2	2	2	2	2	
Refrigerant		R410A										
Total refrigerant charge (optional excluded)		kg	5,6	5,6	5,7	6,2	6,6	10,7	9,3	11,1	10,4	
Gas circuits		n.	1	1	1	1	1	2	1	2	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	400/3/50	
Max unit operating current (FLA) (*)		A	22	25	31	34	42	42	44	44	50	
Unit starting current (LRA)		A	118	118	140	173	132	132	140	140	143	
EER (1) (*)		kW/kW	2,59	2,43	2,59	2,63	2,70	2,60	2,65	2,62	2,83	
COP (2) (*)		kW/kW	3,06	3,08	3,07	3,03	3,03	3,04	3,08	3,11	3,12	
Sound power level [Lw] (3)		dB(A)	65,4	66,4	67,4	68,8	68,9	68,9	68,9	69,9	69,9	
Average sound pressure level [Lpm] (4)		dB(A)	50,0	51,0	52,0	53,0	53,0	53,0	53,0	53,0	54,0	
Net weight		kg	247	250	255	290	415	425	425	433	430	
Hydraulic connections												
Plant side exchanger IN/OUT - ISO228/1-G M Ø		1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2"	2"	2"	
Plant side exchanger IN/OUT - OD (5)		Ø mm	--	--	--	--	--	--	--	--	--	
Refrigerant connection												
Liquid return		n x Ø	16	16	16	16	16	2 x 16	22	2 x 16	22	
Gas delivery		n x Ø	28	28	28	28	28	2 x 22	28	2 x 22	35	
REMOTE AIR/GAS HEAT EXCHANGERS												
Quantity		n.	1	1	1	1	1	2	1	2	1	
Series TEAM MATE HP STD		Mod.	M 35	M 35	M 45	M 50	M 60	M 30	M 70	M 35	M 95	
Nominal power input		kW	0,5	0,5	0,8	1,1	1,1	0,5	1,1	0,5	1,6	
Max operating current		A	2,9	2,9	3,6	5,7	5,7	2,9	5,7	2,9	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	230/1/50	
OPT												
Partial heat recovery (6)												
Heating capacity		kW	8,6	9,4	11,0	13,1	13,1	--	17,5	--	20,6	--

1. Referred to chilled water temperature 12/7°C; ambient temperature 35°C.

2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature.

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

4. Average sound pressure level [L_{pm}] 1m far according to ISO EN 3744.

5. Referred to chilled water temperature 12/7°C; ambient temperature 35°C and recovery hot water temperature 40/45°C.

(**) The value includes the remote air/gas heat exchanger

(***) The remote air/gas heat exchangers has separated power supply.

(***) Remote air/gas heat exchangers not available for this model:

Cooling: Value is referred to 45°C condensation temperature

Heating: Value is referred to 3°C evaporation temperature

TECHNICAL DATA MANTA A HP

	MANTA A HP	T 27 P1 S J4	T 30 P1 S J4	T 33 P1 S J4	T 40 P1 S J4	T 40 P2 S J7	T 40 P2 D J7	T 48 P2 S J7	T 48 P2 D J7	T 54 P2 S J7	T 54 P2 D J7
SIZE											
MANTA A HP + TEAM MATE HP LNO											
Summer working mode - Cooling capacity (1) kW	24,0	26,4	30,3	36,5	35,8	40,0	49,1	47,8	55,0	52,8	
Unit power input (*)	kW	8,9	10,4	11,6	12,9	12,9	15,2	17,5	17,5	20,2	20,3
Winter working mode - Heating capacity (2)	kW	27,4	30,5	34,5	42,2	41,4	47,2	57,1	55,9	64,4	62,0
Unit power input (*)	kW	9,0	9,9	11,3	13,4	13,4	15,2	18,5	18,0	20,7	20,1
EER (1) (*)	kW/kW	2,69	2,55	2,61	2,83	2,77	2,64	2,81	2,73	2,72	2,60
COP (2) (*)	kW/kW	3,06	3,08	3,04	3,16	3,10	3,10	3,09	3,11	3,11	3,09
REMOTE AIR/GAS HEAT EXCHANGERS											
Quantity	n.	1	1	1	1	1	2	1	2	1	2
Series TEAM MATE HP LNO	Mod.	M 45	M 45	M 50	M 70	M 70	M 35	M 95	M 45	M 95	M 45
Nominal power input	kW	0,7	0,7	0,9	0,9	0,9	0,5	1,4	0,7	1,4	0,7
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	230/1/50	230/1/50
MANTA A HP + TEAM MATE HP ELN											
Summer working mode - Cooling capacity (1) kW	23,3	25,5	29,5	35,6	34,9	38,8	47,9	46,5	53,4	51,1	
Unit power input (*)	kW	9,2	10,7	11,8	13,2	13,2	15,6	17,9	18,1	20,9	21,1
Winter working mode - Heating capacity (2)	kW	27,0	30,1	34,0	41,4	40,6	46,5	56,1	54,9	63,4	61,1
Unit power input (*)	kW	8,8	9,8	11,2	13,2	13,2	15,0	18,2	17,7	20,5	19,9
EER (1) (*)	kW/kW	2,54	2,38	2,49	2,69	2,64	2,48	2,67	2,57	2,56	2,42
COP (2) (*)	kW/kW	3,06	3,07	3,04	3,14	3,08	3,09	3,08	3,10	3,10	3,07
REMOTE AIR/GAS HEAT EXCHANGERS											
Quantity	n.	1	1	1	1	1	2	1	2	1	2
Series TEAM MATE HP ELN	Mod.	M 45	M 45	M 50	M 70	M 70	M 35	M 95	M 45	M 95	M 45
Nominal power input	kW	0,6	0,6	0,8	0,8	0,8	0,4	1,1	0,6	1,1	0,6
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	230/1/50	230/1/50
MANTA A HP + TEAM MATE PF HP STD											
Summer working mode - Cooling capacity (1) kW	23,2	26,1	29,9	34,4	35,6	40,5	47,5	46,3	55,4	52,3	
Unit power input (*)	kW	10,0	11,0	12,2	14,4	14,3	16,5	19,4	19,7	22,0	21,6
Winter working mode - Heating capacity (2)	kW	26,8	30,3	34,5	40,5	40,9	47,6	56,0	54,5	64,6	61,6
Unit power input (*)	kW	9,6	10,4	11,7	13,7	14,6	16,9	19,4	19,2	22,7	21,0
EER (1) (*)	kW/kW	2,32	2,38	2,46	2,39	2,49	2,45	2,45	2,35	2,52	2,42
COP (2) (*)	kW/kW	2,80	2,92	2,95	2,96	2,80	2,81	2,88	2,84	2,85	2,93
REMOTE AIR/GAS HEAT EXCHANGERS											
Quantity	n.	1	1	1	1	1	2	1	2	1	2
Series TEAM MATE HP PF STD	Mod.	T 33	T 38	T 44	T 44	T 58	T 33	T 69	T 33	T 86	T 38
External static pressure	Pa	50	50	50	50	50	50	50	50	50	50
Nominal power input	kW	1,3	1,14	1,24	1,24	2,18	1,3	2,39	1,3	3,34	1,14
Power supply (**)	V/ph/Hz	380-480/3F/50-60									
MANTA A HP + TEAM MATE PF HP LNO											
Summer working mode - Cooling capacity (1) kW	23,9	27,7	30,8	35,5	35,8	40,5	48,4	47,6	56,8	55,3	
Unit power input (*)	kW	9,1	10,4	11,8	14,0	13,5	15,4	18,7	17,9	21,4	20,4
Winter working mode - Heating capacity (2)	kW	27,6	31,7	35,2	41,2	41,4	47,6	56,5	56,1	66,3	64,3
Unit power input (*)	kW	9,1	10,6	11,9	13,8	13,9	15,8	19,2	18,2	22,9	21,6
EER (1) (*)	kW/kW	2,62	2,67	2,61	2,54	2,65	2,63	2,59	2,66	2,65	2,71
COP (2) (*)	kW/kW	3,04	2,98	2,97	2,98	2,97	3,01	2,94	3,08	2,90	2,98
REMOTE AIR/GAS HEAT EXCHANGERS											
Quantity	n.	1	1	1	1	1	2	1	2	1	2
Series TEAM MATE HP PF LNO	Mod.	T 44	T 58	T 58	T 58	T 69	T 38	T 86	T 44	T 114	T 58
External static pressure	Pa	36	36	36	36	36	36	36	36	36	36
Nominal power input	kW	0,8	1,4	1,4	1,4	1,51	0,74	2,15	0,8	3,57	1,4
Power supply (**)	V/ph/Hz	380-480/3F/50-60									
MANTA A HP + TEAM MATE PF HP ELN											
Summer working mode - Cooling capacity (1) kW	23,1	27,0	30,0	34,5	34,8	39,4	47,1	46,1	55,4	54,0	
Unit power input (*)	kW	9,2	10,2	11,6	14,0	13,5	15,6	18,5	18,1	20,7	20,0
Winter working mode - Heating capacity (2)	kW	27,1	31,2	34,5	40,5	40,6	46,8	55,5	55,1	65,2	63,3
Unit power input (*)	kW	8,8	10,1	11,3	13,3	13,4	15,3	18,4	17,7	21,4	20,4
EER (1) (*)	kW/kW	2,50	2,65	2,58	2,46	2,58	2,52	2,55	2,54	2,67	2,70
COP (2) (*)	kW/kW	3,09	3,09	3,06	3,05	3,04	3,06	3,02	3,12	3,04	3,10
REMOTE AIR/GAS HEAT EXCHANGERS											
Quantity	n.	1	1	1	1	1	2	1	2	1	2
Series TEAM MATE HP PF ELN	Mod.	T 44	T 58	T 58	T 58	T 69	T 38	T 86	T 44	T 114	T 58
External static pressure	Pa	25	25	25	25	25	25	25	25	25	25
Nominal power input	kW	0,5	0,8	0,8	0,8	0,9	0,5	1,3	0,5	2,1	0,8
Power supply (**)	V/ph/Hz	380-480/3F/50-60									

1. Referred to chilled water temperature 12/7°C; ambient temperature 35°C.
2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature.
3. Sound power level [Lw] according to ISO EN 9614 - 2
4. Average sound pressure level [L_{PA}] 1m far according to ISO EN 3744
5. Referred to chilled water temperature 12/7°C; ambient temperature 35°C and recovery hot water temperature 40/45°C.
- (*) The value includes the remote air/gas heat exchanger
- (**) The remote air/gas heat exchangers has separated power supply.
- (***) Remote air/gas heat exchangers not available for this model:
Cooling: Value is referred to 45°C condensation temperature
Heating: Value is referred to 3°C evaporation temperature

TECHNICAL DATA MANTA A HP

MANTA A HP		T 60 P2 S J7	T 60 P2 D J7	T 70 P2 S J7	T 70 P2 D J7	T 90 P2 S J7	T 90 P2 D J7	T 120 P2 S J7	T 120 P2 D J7	T 150 P2 S J8
SIZE										
Summer working mode - Cooling capacity (1) kW	59,5	58,9	68,9	70,9	89,7	91,5	116,0	115,0	148,0	
Unit power input (*)	kW	22,7	22,7	27,5	27,0	35,0	33,9	42,8	42,6	55,0
Plant exchanger water flow rate	m³/h	10,2	10,1	11,8	12,2	15,4	15,7	19,9	19,7	25,4
Plant exchanger pressure drop	kPa	35,0	22,0	40,0	23	36	23	40	31	37
Winter working mode - Heating capacity (2) kW	68,8	68,7	80,8	82,1	105,0	107,0	135,0	136,0	174,0	
Unit power input (*)	kW	22,9	22,5	26,7	26,5	34,2	33,4	43,8	43,3	54,7
Compressors		scroll	scroll	scroll						
Quantity	n.	2	2	2	2	2	2	2	2	2
Capacity steps	n.	2	2	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A						
Total refrigerant charge (optional excluded)	kg	10,4	11,2	10,9	12,6	15,7	20,2	23,4	28,2	24,5
Gas circuits	n.	1	2	1	2	1	2	1	2	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	400/3/50
Max unit operating current (FLA) (*)	A	62	62	68	68	80	80	97	97	131
Unit starting current (LRA)	A	171	171	207	207	265	265	321	321	375
EER (1) (*)	kW/kW	2,62	2,59	2,51	2,63	2,56	2,70	2,71	2,70	2,69
COP (2) (*)	kW/kW	3,00	3,06	3,03	3,10	3,07	3,20	3,08	3,14	3,18
Sound power level [Lw] (3)	dB(A)	70,9	70,9	71,9	71,9	76,9	76,9	80,1	80,1	81,0
Average sound pressure level [Lpm] (4)	dB(A)	55,0	55,0	56,0	56,0	61,0	61,0	64,0	64,0	64,0
Net weight	kg	432	452	435	460	675	705	725	737	950
Hydraulic connections										
Plant side exchanger IN/OUT - ISO228/1-G M Ø		2"	2"	2"	2"	--	--	--	--	--
Plant side exchanger IN/OUT - OD (5)	Ø mm	--	--	--	--	76,1	76,1	76,1	76,1	76,1
Refrigerant connection										
Liquid return	n x Ø	22	2 x 16	22	2 x 16	22	2 x 22	28	2 x 22	35
Gas delivery	n x Ø	42	2 x 28	42	2 x 28	42	2 x 28	42	2 x 35	54
REMOTE AIR/GAS HEAT EXCHANGERS										
Quantity	n.	1	2	1	2	1	2	1	2	1
Series TEAM MATE HP STD	Mod.	M 95	M 45	M 95	M 50	M 130	M 70	T 185	M 95	T 210
Nominal power input	kW	1,6	0,8	1,6	1,1	2,1	1,1	3,2	1,6	3,2
Max operating current	A	8,5	3,6	8,5	5,7	11,4	5,7	17,1	8,5	17,1
Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50+N	230/1/50	400/3/50+N
OPT TEAM MATE HP										
Partial heat recovery (6)										
Heating capacity	kW	21,8	--	25,3	--	32,9	--	42,5	--	54,2

1. Referred to chilled water temperature 12/7°C; ambient temperature 35°C.

2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature.

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

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

5. Referred to chilled water temperature 12/7°C; ambient temperature 35°C and recovery hot water temperature 40/45°C.

(*) The value includes the remote air/gas heat exchanger

(**) The remote air/gas heat exchangers has separated power supply.

(***) Remote air/gas heat exchangers not available for this model:

Cooling: Value is referred to 45°C condensation temperature

Heating: Value is referred to 3°C evaporation temperature

TECHNICAL DATA MANTA A HP

MANTA A HP		T 60 P2 S J7	T 60 P2 D J7	T 70 P2 S J7	T 70 P2 D J7	T 90 P2 S J7	T 90 P2 D J7	T 120 P2 S J7	T 120 P2 D J7	T 150 P2 S J8
MANTA A HP + TEAM MATE HP LNO										
SIZE										
Summer working mode - Cooling capacity (1) kW	59,3	59,4	71,0	70,7	94,0	94,0	116,0	114,0	149,0	
Unit power input (*)	kW	22,5	22,8	26,4	26,7	33,2	33,1	42,0	42,2	54,6
Winter working mode - Heating capacity (2)	kW	69,0	69,0	82,8	82,5	109,0	109,0	137,0	136,0	175,0
Unit power input (*)	kW	22,7	22,7	26,9	26,1	34,9	34,2	43,5	42,9	55,2
EER (1) (*)	kW/kW	2,63	2,61	2,69	2,65	2,83	2,84	2,76	2,70	2,73
COP (2) (*)	kW/kW	3,04	3,04	3,08	3,16	3,12	3,19	3,15	3,17	3,17
REMOTE AIR/GAS HEAT EXCHANGERS										
Quantity	n.	1	2	1	2	1	2	1	2	1
Series TEAM MATE HP LNO	Mod.	M 110	M 50	M 130	M 60	T 185	M 95	T 210	M 110	T 250
Nominal power input	kW	1,4	0,9	1,8	0,9	2,7	1,4	2,7	1,4	3,6
Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50+N	230/1/50	400/3/50+N	230/1/50	400/3/50+N
MANTA A HP + TEAM MATE HP ELN										
Summer working mode - Cooling capacity (1) kW	57,5	57,9	69,3	68,6	92,1	92,0	113,0	111,0	145,0	
Unit power input (*)	kW	23,4	23,3	27,1	27,6	33,9	33,7	43,1	43,4	56,2
Winter working mode - Heating capacity (2)	kW	67,9	67,9	81,5	81,2	107,0	108,0	134,0	134,0	172,0
Unit power input (*)	kW	22,4	22,3	26,5	25,9	34,3	33,6	42,9	42,3	54,6
EER (1) (*)	kW/kW	2,46	2,48	2,56	2,49	2,72	2,73	2,62	2,56	2,58
COP (2) (*)	kW/kW	3,03	3,04	3,07	3,14	3,12	3,12	3,17	3,17	3,15
REMOTE AIR/GAS HEAT EXCHANGERS										
Quantity	n.	1	2	1	2	1	2	1	2	1
Series TEAM MATE HP ELN	Mod.	M 110	M 50	M 130	M 60	T 185	M 95	T 210	M 110	T 250
Nominal power input	kW	1,1	0,8	1,5	0,8	2,2	1,1	2,2	1,1	3,0
Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50+N	230/1/50	400/3/50+N	230/1/50	400/3/50+N
MANTA A HP + TEAM MATE PF HP STD										
Summer working mode - Cooling capacity (1) kW	58,6	58,7	72,6	68,4	92,1	91,4	111,0	113,0	158,0	
Unit power input (*)	kW	24,9	23,8	29,3	28,6	38,9	36,6	49,8	46,9	46,5
Winter working mode - Heating capacity (2)	kW	68,0	69,0	84,3	81,2	107,0	107,0	131,0	134,0	185,0
Unit power input (*)	kW	24,6	23,3	30,7	26,9	39,5	36,1	48,0	46,7	52,0
EER (1) (*)	kW/kW	2,35	2,47	2,48	2,39	2,37	2,50	2,23	2,41	3,40
COP (2) (*)	kW/kW	2,76	2,96	2,75	3,02	2,71	2,96	2,73	2,87	3,56
REMOTE AIR/GAS HEAT EXCHANGERS										
Quantity	n.	1	2	1	2	1	2	1	2	(***)
Series TEAM MATE HP PF STD	Mod.	T 86	T 44	T 114	T 44	T 144	T 69	T 144	T 86	(***)
External static pressure	Pa	50	50	50	50	50	50	50	50	(***)
Nominal power input	kW	3,34	1,24	5,63	1,24	7,4	2,39	7,4	3,34	(***)
Power supply (**)	V/Ph/Hz	380-480/3F/50-60	380-480/3F/50-60	(***)						
MANTA A HP + TEAM MATE PF HP LNO										
Summer working mode - Cooling capacity (1) kW	60,3	60,4	72,6	70,7	90,1	92,9	122,0	116,0	158,0	
Unit power input (*)	kW	24,2	23,2	28,4	27,6	37,4	35,2	36,5	45,8	46,5
Winter working mode - Heating capacity (2)	kW	70,0	70,3	84,6	82,5	106,0	108,0	144,0	138,0	185,0
Unit power input (*)	kW	24,9	23,7	29,9	27,0	36,8	35,8	41,0	47,4	52,0
EER (1) (*)	kW/kW	2,49	2,60	2,56	2,56	2,41	2,64	3,34	2,53	3,40
COP (2) (*)	kW/kW	2,81	2,97	2,83	3,05	2,88	3,02	3,51	2,91	3,56
REMOTE AIR/GAS HEAT EXCHANGERS										
Quantity	n.	1	2	1	2	1	2	(***)	2	(***)
Series TEAM MATE HP PF LNO	Mod.	T 114	T 58	T 144	T 58	T 144	T 86	(***)	T 114	(***)
External static pressure	Pa	36	36	36	36	36	36	(***)	36	(***)
Nominal power input	kW	3,57	1,4	4,69	1,4	4,69	2,15	(***)	3,57	(***)
Power supply (**)	V/Ph/Hz	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	(***)	380-480/3F/50-60	(***)
MANTA A HP + TEAM MATE PF HP ELN										
Summer working mode - Cooling capacity (1) kW	58,6	58,9	70,9	68,6	87,1	90,6	122,0	113,0	158,0	
Unit power input (*)	kW	23,7	22,9	27,4	27,8	37,1	34,8	36,5	44,3	46,5
Winter working mode - Heating capacity (2)	kW	68,6	69,0	83,1	81,2	104,0	106,0	144,0	136,0	185,0
Unit power input (*)	kW	23,4	22,5	27,8	26,0	34,8	33,9	41,0	44,4	52,0
EER (1) (*)	kW/kW	2,47	2,57	2,59	2,47	2,35	2,60	3,34	2,55	3,40
COP (2) (*)	kW/kW	2,93	3,06	2,99	3,12	2,99	3,13	3,51	3,06	3,56
REMOTE AIR/GAS HEAT EXCHANGERS										
Quantity	n.	1	2	1	2	1	2	(***)	2	(***)
Series TEAM MATE HP PF ELN	Mod.	T 114	T 58	T 144	T 58	T 144	T 86	(***)	T 114	(***)
External static pressure	Pa	25	25	25	25	25	25	(***)	25	(***)
Nominal power input	kW	2,1	0,8	2,8	0,8	2,8	1,3	(***)	2,1	(***)
Power supply (**)	V/Ph/Hz	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	(***)	380-480/3F/50-60	(***)

1. Referred to chilled water temperature 12/7°C; ambient temperature 35°C.

2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature.

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

4. Average sound pressure level [L_{PA}] 1m far according to ISO EN 3744.

5. Referred to chilled water temperature 12/7°C; ambient temperature 35°C and recovery hot water temperature 40/45°C.

(*) The value includes the remote air/gas heat exchanger

(**) The remote air/gas heat exchangers has separated power supply.

(***) Remote air/gas heat exchangers not available for this model:

Cooling: Value is referred to 45°C condensation temperature

Heating: Value is referred to 3°C evaporation temperature

TECHNICAL DATA MANTA A HP

MANTA A HP		T 150 P2	T 170 P4	T 190 P4	T 200 P2	T 200 P2	T 240 P4	T 300 P4	T 340 P4	T 380 P4
STANDARD	SIZE	D J8	D J8	D J9	S J9	D J9	D J9	D J9	D J10	D J10
	Summer working mode - Cooling capacity (1) kW	145,0	171,0	189,0	186,0	186,0	235,0	290,0	338,0	367,0
	Unit power input (*)	kW	55,3	61,3	70,8	71,0	72,1	85,5	110,3	124,3
	Plant exchanger water flow rate	m³/h	24,9	29,4	32,4	32,0	32,0	40,3	49,8	58,2
	Plant exchanger pressure drop	kPa	32	33	25	34	39	49	54	48
	Winter working mode - Heating capacity (2) kW	173,0	191,0	210,0	218,0	218,0	272,0	340,0	396,0	431,0
	Unit power input (*)	kW	54,4	60,4	68,0	67,9	68,3	86,1	109,3	124,5
	Compressors		scroll							
	Quantity	n.	2	4	4	2	2	4	4	4
	Capacity steps	n.	2	4	4	2	2	4	4	4
	Refrigerant		R410A							
	Total refrigerant charge (optional excluded)	kg	30,7	31,4	35,3	30,4	34,2	36,1	52,9	53,5
	Gas circuits	n.	2	2	2	1	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	400/3/50
	Max unit operating current (FLA) (*)	A	131	148	160	164	164	246	262	295
	Unit starting current (LRA)	A	375	333	345	466	466	584	507	597
	EER (1) (*)	kW/kW	2,62	2,79	2,67	2,62	2,58	2,75	2,63	2,72
	COP (2) (*)	kW/kW	3,18	3,16	3,09	3,21	3,19	3,16	3,11	3,18
	Sound power level [Lw] (3)	dB(A)	81,0	81,0	81,0	81,0	84,1	84,1	84,5	84,5
	Average sound pressure level [Lpm] (4)	dB(A)	64,0	64,0	64,0	64,0	67,0	67,0	67,0	67,0
	Net weight	kg	965	1065	1035	1000	1035	1452	1477	1555
	Hydraulic connections									
	Plant side exchanger IN/OUT - ISO228/1-G M Ø		--	--	--	--	--	--	--	--
	Plant side exchanger IN/OUT - OD (5)	Ø mm	76,1	76,1	88,9	88,9	88,9	88,9	88,9	88,9
	Refrigerant connection									
	Liquid return	n x Ø	2 x 22	2 x 28	2 x 28	35	2 x 28	2 x 28	2 x 35	2 x 35
	Gas delivery	n x Ø	2 x 35	2 x 42	2 x 42	54	2 x 42	2 x 42	2 x 54	2 x 54
REMOTE AIR/GAS HEAT EXCHANGERS										
OPT TEAM MATE HP	Quantity	n.	2	2	2	1	2	2	2	2
	Series TEAM MATE HP STD	Mod.	M 110	M 130	M 130	T 250	M 130	T 185	T 210	T 250
	Nominal power input	kW	1,6	2,1	2,1	4,2	2,1	3,2	3,2	4,2
	Max operating current	A	8,5	11,4	11,4	22,8	11,4	17,1	17,1	22,8
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	400/3/50+N	230/1/50	400/3/50+N	400/3/50+N	400/3/50+N
Partial heat recovery (6)										
	Heating capacity	kW	53,1	62,8	69,3	68,4	68,2	86,1	106,0	124,0
										135,0

1. Referred to chilled water temperature 12/7°C; ambient temperature 35°C.

2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature.

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

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

5. Referred to chilled water temperature 12/7°C; ambient temperature 35°C and recovery hot water temperature 40/45°C.

(*) The value includes the remote air/gas heat exchanger

(**) The remote air/gas heat exchangers has separated power supply.

(***) Remote air/gas heat exchangers not available for this model:

Cooling: Value is referred to 45°C condensation temperature

Heating: Value is referred to 3°C evaporation temperature

TECHNICAL DATA MANTA A HP

MANTA A HP		T 150 P2 D J8	T 170 P4 D J8	T 190 P4 D J9	T 200 P2 S J9	T 200 P2 D J9	T 240 P4 D J9	T 300 P4 D J9	T 340 P4 D J10	T 380 P4 D J10
MANTA A HP + TEAM MATE HP LNO										
TEAM MATE HP LNO	Summer working mode - Cooling capacity (1) kW	149,0	171,0	199,0	186,0	195,0	235,0	297,0	337,0	366,0
	Unit power input (*)	kW	53,4	60,9	67,0	71,0	68,2	83,9	106,8	124,4
	Winter working mode - Heating capacity (2)	kW	178,0	193,0	219,0	219,0	226,0	276,0	347,0	398,0
	Unit power input (*)	kW	54,9	60,1	69,3	67,4	69,8	85,2	110,2	136,2
	EER (1) (*)	kW/kW	2,79	2,81	2,97	2,62	2,86	2,80	2,78	2,71
	COP (2) (*)	kW/kW	3,24	3,21	3,16	3,25	3,24	3,24	3,15	3,23
	REMOTE AIR/GAS HEAT EXCHANGERS									
	Quantity	n.	2	2	2	1	2	2	2	2
	Series TEAM MATE HP LNO	Mod.	M 140	M 140	T 185	T 280	T 185	T 210	T 280	T 280
	Nominal power input	kW	1,8	1,8	2,7	3,6	2,7	2,7	3,6	3,6
TEAM MATE HP ELN	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	400/3/50+N	400/3/50+N
	MANTA A HP + TEAM MATE HP ELN									
	Summer working mode - Cooling capacity (1) kW	145,0	166,0	194,0	179,0	191,0	229,0	289,0	327,0	352,0
	Unit power input (*)	kW	54,9	62,9	68,1	74,0	69,5	86,4	109,5	127,7
	Winter working mode - Heating capacity (2)	kW	175,0	189,0	215,0	216,0	222,0	271,0	341,0	391,0
	Unit power input (*)	kW	54,3	59,2	68,3	66,9	68,7	84,2	108,9	121,8
	EER (1) (*)	kW/kW	2,64	2,64	2,85	2,42	2,75	2,65	2,64	2,56
	COP (2) (*)	kW/kW	3,22	3,19	3,15	3,23	3,23	3,22	3,13	3,21
	REMOTE AIR/GAS HEAT EXCHANGERS									
	Quantity	n.	2	2	2	1	2	2	2	2
TEAM MATE HP PF STD	Series TEAM MATE HP ELN	Mod.	M 140	M 140	T 185	T 280	T 185	T 210	T 280	T 280
	Nominal power input	kW	1,5	1,5	2,2	3,0	2,2	2,2	3,0	3,0
	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	400/3/50+N	400/3/50+N
	MANTA A HP + TEAM MATE PF HP STD									
	Summer working mode - Cooling capacity (1) kW	150,0	172,0	194,0	202,0	191,0	247,0	310,0	359,0	398,0
	Unit power input (*)	kW	60,7	68,0	78,5	58,9	79,9	72,9	92,8	105,3
	Winter working mode - Heating capacity (2)	kW	177,0	192,0	215,0	239,0	223,0	292,0	364,0	423,0
	Unit power input (*)	kW	62,5	67,4	78,8	64,4	79,1	80,7	103,1	117,2
	EER (1) (*)	kW/kW	2,47	2,53	2,47	3,43	2,39	3,39	3,34	3,41
	COP (2) (*)	kW/kW	2,83	2,85	2,73	3,71	2,82	3,62	3,53	3,61
	REMOTE AIR/GAS HEAT EXCHANGERS									
	Quantity	n.	2	2	2	(***)	2	(***)	(***)	(***)
TEAM MATE HP PF LNO	Series TEAM MATE HP PF STD	Mod.	T 114	T 114	T 144	(***)	T 144	(***)	(***)	(***)
	External static pressure	Pa	50	50	50	(***)	50	(***)	(***)	(***)
	Nominal power input	kW	5,63	5,63	7,4	(***)	7,4	(***)	(***)	(***)
	Power supply (**)	V/Ph/Hz	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	(***)	380-480/3F/50-60	(***)	(***)	(***)
	MANTA A HP + TEAM MATE PF HP LNO									
	Summer working mode - Cooling capacity (1) kW	150,0	172,0	190,0	202,0	204,0	247,0	310,0	359,0	398,0
	Unit power input (*)	kW	48,7	55,9	65,2	57,9	57,9	71,4	91,0	103,0
	Winter working mode - Heating capacity (2)	kW	178,0	193,0	212,0	239,0	240,0	292,0	364,0	423,0
	Unit power input (*)	kW	51,0	55,9	63,5	63,9	64,3	79,8	102,0	116,0
	EER (1) (*)	kW/kW	--	--	--	--	--	--	--	--
TEAM MATE HP PF ELN	COP (2) (*)	kW/kW	--	--	--	--	--	--	--	--
	REMOTE AIR/GAS HEAT EXCHANGERS									
	Quantity	n.	2	2	2	(***)	(***)	(***)	(***)	(***)
	Series TEAM MATE HP PF LNO	Mod.	T 144	T 144	T 144	(***)	(***)	(***)	(***)	(***)
	External static pressure	Pa	36	36	36	(***)	(***)	(***)	(***)	(***)
	Nominal power input	kW	4,69	4,69	4,69	(***)	(***)	(***)	(***)	(***)
	Power supply (**)	V/Ph/Hz	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	(***)	(***)	(***)	(***)	(***)
	MANTA A HP + TEAM MATE PF HP ELN									
	Summer working mode - Cooling capacity (1) kW	146,0	167,0	183,0	202,0	204,0	247,0	310,0	359,0	398,0
	Unit power input (*)	kW	50,7	58,5	68,8	57,9	57,9	71,4	91,0	103,0
TEAM MATE HP PF ELN	Winter working mode - Heating capacity (2)	kW	175,0	189,0	209,0	239,0	240,0	292,0	364,0	423,0
	Unit power input (*)	kW	50,9	55,8	63,6	63,9	64,3	79,8	102,0	116,0
	EER (1) (*)	kW/kW	--	--	--	--	--	--	--	--
	COP (2) (*)	kW/kW	--	--	--	--	--	--	--	--
	REMOTE AIR/GAS HEAT EXCHANGERS									
	Quantity	n.	2	2	2	(***)	(***)	(***)	(***)	(***)
	Series TEAM MATE HP PF ELN	Mod.	T 144	T 144	T 144	(***)	(***)	(***)	(***)	(***)
	External static pressure	Pa	25	25	25	(***)	(***)	(***)	(***)	(***)
	Nominal power input	kW	2,8	2,8	2,8	(***)	(***)	(***)	(***)	(***)
	Power supply (**) V/Ph/Hz	380-480/3F/50-60	380-480/3F/50-60	380-480/3F/50-60	(***)	(***)	(***)	(***)	(***)	(***)

1. Referred to chilled water temperature 12/7°C; ambient temperature 35°C.

2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature.

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

4. Average sound pressure level [L_{PA}] 1m far according to ISO EN 3744.

5. Referred to chilled water temperature 12/7°C; ambient temperature 35°C and recovery hot water temperature 40/45°C.

(*) The value includes the remote air/gas heat exchanger

(**) The remote air/gas heat exchangers has separated power supply.

(***) Remote air/gas heat exchangers not available for this model:

Cooling: Value is referred to 45°C condensation temperature

Heating: Value is referred to 3°C evaporation temperature

DIMENSIONS (mm)

	a	b	c
J4	1000	650	1400
J7	1200	750	1700
J8	1800	1200	1740
J9	1800	1200	1740
J10	1800	1800	1740

