



HORUS



AIR-WATER HEAT PUMP FOR OUTDOOR INSTALLATION



*Due to its efficiency, HORUS with HEOH and SUP options (pag 4), may be eligible for subsidies in Your Country. Please contact Your tax office or utility.

- ✓ **Versatile use: radiant panels, terminals and domestic hot water**
- ✓ **Production of hot water up to 60°C**
- ✓ **Operation with air at -15°C**
- ✓ **COP > 3.9**
- ✓ **Innovative design**
- ✓ **Reliability and easy of maintenance**
- ✓ **Low noise**

WSAR-MT-E 21 - 81 (R407C)

Size	Heating [kW]	Cooling [kW]
21	6.13	6.44
25	8.16	8.50
31	10.0	10.7
41	11.2	11.9
51	14.0	14.5
61	17.7	18.1
81	22.9	22.4

The heating of the future that respects the environment. The HORUS series of heat pumps is a turning point in the development of this kind of unit, which is optimized for heating but can also be used in cooling mode. It contains the very latest technology, featuring:

EFFICIENCY

Thanks to its unique features, the HORUS series allows high energy efficiency even in the most demanding conditions.

AUTO-ADAPTATION

Its advanced electronics allow it to adapt its operating parameters to the load conditions of the systems where it is installed, optimizing consumption, efficiency and lifetime of the components.

EASE OF INSTALLATION

Each unit may be equipped with a hydronic group that is complete and tested in the factory. Installation is quick and easy.

Clivet is participating in the EUROVENT Certification Programme "Liquid Chilling Packages". Products are listed in the EUROVENT Directory of Certified Products and in the site www.eurovent-certification.com. Eurovent Chillers Certification Programme covers air cooled packaged chillers up to 600 kW and water cooled packaged chillers up to 1500 kW.



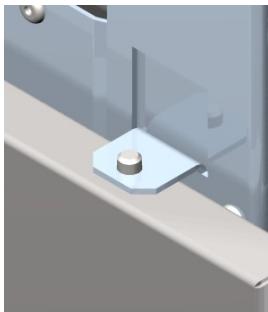
According to the EN 14511-1:2008

CERTIFIED QUALITY SYSTEM UNI EN ISO 9001:2008

GENERAL CHARACTERISTICS

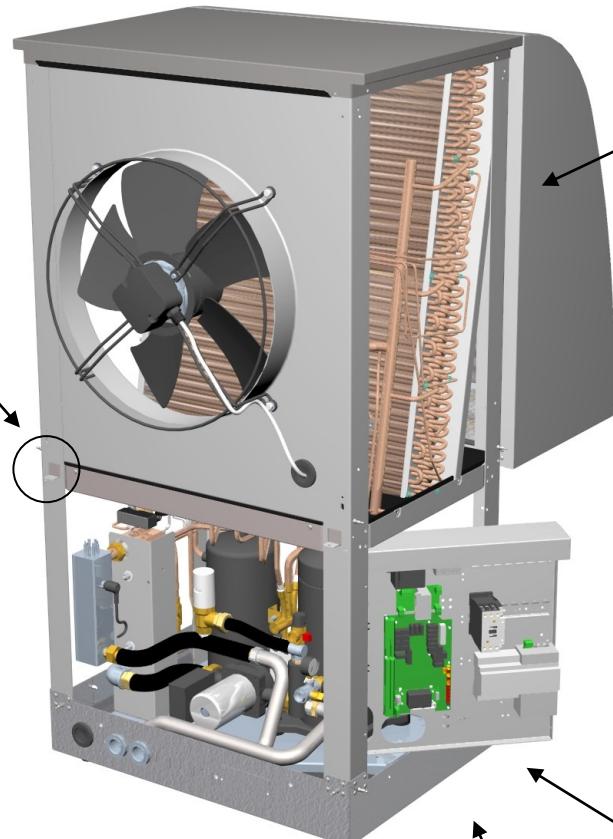
PANEL FASTENING POINTS

The internal structure of the cabinet includes firm anchoring points for the side panels and for the covering caps, allowing them to be easily removed for access and maintenance.



REMOVABLE INTAKE AND SUPPLY CAPS

The unit fits with removable caps for supply/return air which face downwards to provide the best acoustic insulation of the unit.



VARYFLOW

VARIABLE REVOLUTION FAN

Noise is one of the most critical factors of this unit type. The application of special adjustment logic enables to adapt the fan operating speed to the system load and to the external air temperature. This optimizes the energy efficiency, guarantees the lowest possible noise level, above all in the evening and at night, when the air temperature is lower and noise is more annoying.

A series of automatically-activated devices assure the unit operation even when the system water is under critical conditions, that would lock the operation of the old generation units:

- if the water temperature exceeds the max. operating temperatures, the electronic control decrease the water flow rate of the circulator;
- if the external air temperature exceeds the max. operating temperatures, the electronic control forces the fan rotation speed at 100%.

AXIAL FAN

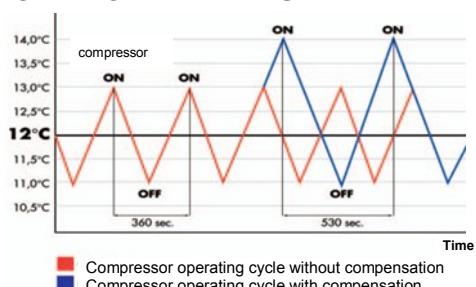


Helical fan with profiled blades to increase efficiency and minimize sound level, directly coupled to the electric motor, mono-phase with external rotor, VDE compliant, with built-in thermal protection. It is housed in aerodynamically shaped flow nozzles.

ELECTRICAL PANEL

The electrical panel attached to the side of the unit can turn 150° to allow easy access to all components of the refrigeration circuit.

GLIDING TEMPERATURE



The HORUS electronic control permits the adjustment of the supply temperature of the water generated by the unit to the load conditions which are detected by the unit. This function is called GLIDING TEMPERATURE a concept by which the unit is continuously hunting for the best balance between the supplied capacity and the energy spent to produce it. It's a Dynamic Set Point controlled by the microprocessor. By this function the number of start and stop of compressor are reduced and the overall efficiency of the unit is further increased.

GENERAL CHARACTERISTICS

MULTI-FUNCTION REMOTE KEYPAD

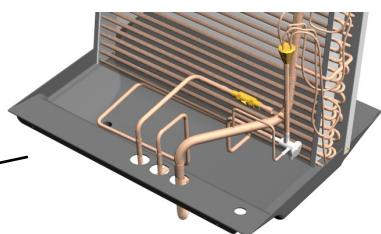
The unit is standard equipped with a versatile remote keypad for all system situations. The interface can be extracted from its housing for convenient, practical use even on a sofa.

**EASY MAINTENANCE**

All of the external panels can easily be removed for quick, convenient maintenance.

**ICE PROTECTION SYSTEM**

Is a special measure for the refrigeration circuit that reduces the risk of the formation of ice at the base of the air exchanger during operation in heat pump.

**HYDRONIC KIT**

Management of the circulating pump at variable flow rates ensures optimal operation of the units even in the most critical system conditions, and makes it possible to make the summer/winter changeover quickly.

**INTEGRATION HEATING ELEMENTS**

Modular integration electric heater 2-4 and 6kW

STANDARD UNIT SPECIFICATIONS

COMPRESSOR

Hermetic orbiting scroll compressor complete with motor over-temperature and over-current devices and protection against excessive gas discharge temperature. Fitted on rubber antivibration mounts and complete with oil charge. An oil heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops.

STRUCTURE

The units are assembled on a solid "ALUZINK" channel base. Base in satin finish stainless steel 304 equipped with adjustable feet with a floating compressor plate to ensure maximum absorption of vibrations and to reduce sound emissions.

PANELLING

External panels in galvanized steel painted RAL 9007 which ensures excellent resistance to corrosion for outdoor installation and eliminates the need for periodic painting. The panels can be easily removed to allow total access to internal components. They are covered on the inside with sound-absorbent material to limit the sound levels of the unit. Side protection caps made of galvanized sheet metal painted RAL 9006 with internal sound absorbent insulation, gasket along lateral profile to ensure maximum waterproofing of the structure and removable protection grilles on accesses for supply/return.

INTERNAL EXCHANGER

Direct expansion heat exchanger, with 316 stainless steel braze-welded plates and large exchange surface, complete with external anti-condensate heat insulation.

The exchanger comes complete with:

- antifreeze heater to protect the water side exchanger, preventing the formation of frost if the water temperature falls below a set value.

EXTERNAL EXCHANGER

Direct expansion finned exchanger, made from copper pipes in staggered rows and mechanically expanded to the fin collars. The fins are made from aluminum with a corrugated surface and adequately distanced to ensure the maximum heat exchange efficiency.

REFRIGERANT CIRCUIT

The circuit is complete with:

- filter dryer
- expansion device
- high pressure switch
- low pressure switch
- liquid receiver
- 4-way reverse cycle valve
- Ice Protection System: system to prevent ice on the bottom of air coil

TRAY

Thermoformed ABS condensate collection tray fitted with drain pipe.

FAN

Helical fan with profiled blades to increase efficiency and minimize sound level, directly coupled to the electric motor, mono-phase with external rotor, VDE compliant, with built-in thermal protection. It is housed in aerodynamically shaped flow nozzles.

ELECTRICAL PANEL

The Power Section includes:

- setup to control one electrical line with a standard tariff and one at an economical rate, available in some European countries (available only with voltage 400/3/50+N)
 - fan and auxiliary circuit fuse
 - compressor control contactor
 - compressor overload protection
- The control section includes:
- microprocessor control
 - device with variable fan speed
 - automatic defrost control
 - set point compensation with outside temperature probe
 - compressor overload protection and timer
 - relay for remote cumulative fault signal

STANDARD-SUPPLIED USER KEYPAD

Control keypad including:

- 5 keys for ON/OFF, mode change, parameter settings and controls
- spacious display with settings, status, and water inlet/outlet temperatures
- range up to 50 meters

HYDRAULIC CIRCUIT

- differential pressure switch, water side
- steel mesh strainer
- water connection hoses
- 2 cut-off valves with discharge

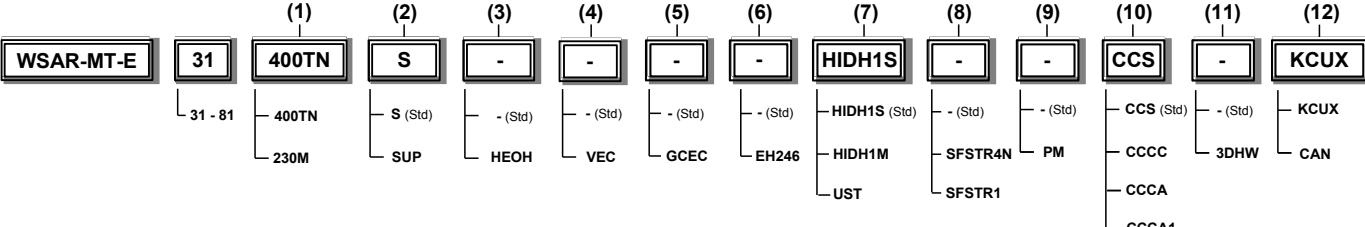
ACCESSORIES

- exchanger coil in copper / aluminium with acrylic coating
- exchanger coil in copper / aluminium with Fin Guard (Silver) treatment
- copper / copper exchanger coil
- breakaway current reducing device (SOFT STARTER)
- phase monitor
- system multifunction keypad (BMS, system accessories, up to 1km)
- set point compensation according to the outside enthalpy
- hydronic kit
- modular integration electric heater 2-4 and 6kW

SYSTEM ACCESSORIES

- 300 litres domestic hot water kit
- 500 litres domestic hot water kit
- 100 litres hydraulic breaker
- mixing group control module
- radiant panels management kit with mixing group
- boiler control kit.

CONFIGURATION CODE



(1) VOLTAGE

Supply voltage 400/3/50+N (400TN)

400TN = 400/3/50+N (for size 21-25-31-41-51-61-81)

Supply voltage 230/1/50 (230M)

230M = 230/1/50 (for size 21-25-31-41)

(2) UNIT INSTALLATION

Basic (S) standard

Full optional (SUP)

Hydronic kit including:

- circulator
- 3bar water safety valve
- heating element 2/4/6 kW
- high-pressure valve (bypass differential) (only for size 21-51)
- 18 litres plumbing circuit expansion tank (only for size 61-81)

(3) ENERGY EFFICIENCY

High energy efficiency only in heating HEOH (available only with SUP option)

(4) HIGH EFFICIENCY FAN

High efficiency fan: Not required (-) standard

High efficiency fan (VEC)

(5) HIGH EFFICIENCY CIRCULATION GROUP

High efficiency circulation group: Not required (-) standard

High efficiency circulation group (GCEC) available only with SUP option

(6) INTEGRATION HEATING ELEMENTS

Already present in the SUP version

Integration heating elements: not required (-) standard

modular integration electric heater 2-4 and 6kW (EH246)

(7) MULTI-FUNCTION KEYPAD

Standard Multi-function keypad (up to 50m) (HIDH1S) standard

System multifunction keypad (BMS, system accessories, up to 1km) (HIDH1M)

Multifunction keypad : not required (UST)

(8) SOFT STARTER

Disposal for inrush current reduction: Not required (-) standard

Disposal for inrush current reduction, for unit 400/3/50+N (SFSTR4N)

Disposal for inrush current reduction, for unit 230/1/50 (SFSTR1)

(9) PHASE MONITOR

Phase monitor : Not required (-) standard

Phase monitor (PM) available only with 400TN option

(10) CONDENSING COIL

Standard condenser coil (CCS) standard

Copper / aluminium condenser coil with acrylic lining (CCCA)

Copper / copper condenser coil (CCCC)

Copper / aluminium condenser coil with Fin Guard treatment (Silver) (CCCA1)

(11) HYDRAULIC CIRCUIT

3-way valve for domestic hot water : not required (-) standard

3-way valve for domestic hot water (3DHW) on-board

(12) INSTALLATION

External metallic hoods kit (kcux)

Ductable with high efficiency EC fans (CAN)

BASE CONFIGURATION

GENERAL TECHNICAL SPECIFICATIONS

SIZE		21	25	31	41	51	61	81
400/3/50+N								
HEATING A7(6)W30/35								
Heat output	1	kW	6.13	8.16	10.0	11.2	14.0	17.7
Total power input	1	kW	1.57	2.05	2.51	2.87	3.55	4.42
COP _{EUROVENT}	4		3.95	4.03	4.03	3.96	4.00	4.06
COP _{EN14511}			3.91	3.98	3.98	3.90	3.94	4.01
COP _{EN14511} (with high efficiency option only in heating)			4.10	4.12	4.10	4.16	4.11	4.14
HEATING A2(1)W30/35								
Heat output	2	kW	4.81	6.49	7.83	8.80	11.1	13.9
Total power input	2	kW	1.49	1.92	2.35	2.72	3.33	4.11
COP _{EN14511}			3.24	3.38	3.33	3.24	3.34	3.31
COOLING A35W23/18								
Cooling capacity	3	kW	6.44	8.50	10.7	11.9	14.5	18.1
Total power input	3	kW	2.26	2.99	3.81	4.46	5.61	6.26
EER _{EUROVENT}	4		2.88	2.87	2.83	2.68	2.61	2.92
ESEER	5		2.62	2.62	2.71	2.57	2.46	2.74
230/1/50								
HEATING A7(6)W30/35								
Heat output	1	kW	6.22	7.91	10.2	11.3	-	-
Total power input	1	kW	1.69	2.03	2.73	3.01	-	-
COP _{EUROVENT}	4	kW	3.72	3.94	3.78	3.80	-	-
COP _{EN14511}			3.69	3.90	3.73	3.75	-	-
COP _{EN14511} (with high efficiency option only in heating)			4.10	4.14	4.11	4.12	-	-
HEATING A2(1)W30/35								
Heat output	2	kW	4.92	6.25	8.01	8.91	-	-
Total power input	2	kW	1.59	1.90	2.54	2.83	-	-
COP _{EN14511}			3.10	3.29	3.15	3.14	-	-
COOLING A35W23/18								
Cooling capacity	3	kW	6.46	8.03	10.3	11.9	-	-
Total power input	3	kW	2.47	3.15	4.11	4.76	-	-
EER _{EUROVENT}	4		2.64	2.57	2.52	2.52	-	-
ESEER	5		2.38	2.49	2.41	2.47	-	-
NOISE LEVELS								
Sound pressure level (10m)	6	dB(A)	31	33	35	36	37	43
COMPRESSOR								
Type of internal compressor			SCROLL	SCROLL	SCROLL	SCROLL	SCROLL	SCROLL
No. of internal compressor	Nr	1	1	1	1	1	1	1
Std Capacity control steps	Nr	1	1	1	1	1	1	1
Refrigerant circuits	Nr	1	1	1	1	1	1	1
Refrigerant charge (R407C)	7	kg	3.1	5.8	5.8	5.8	6.2	7.5
INTERNAL EXCHANGER								
Type of internal exchanger	8		PHE	PHE	PHE	PHE	PHE	PHE
No. of internal exchangers	Nr	1	1	1	1	1	1	1
Water flow rate	1	l/s	0.29	0.39	0.48	0.54	0.67	0.85
Exchanger pressure drops	1	kPa	18	19	20	23	23	20
Water content	I	0.5	0.6	0.7	0.7	0.8	1.1	1.4
FANS								
Type of fans	9		AX	AX	AX	AX	AX	AX
Number of fans	Nr	1	1	1	1	1	1	1
Standard air flow		m ³ /h	2500	2800	3200	3400	3400	7000
HYDRAULIC CIRCUIT								
Max water side pressure		kPa	270	270	270	270	270	270
Safety valve calibration		kPa	300	300	300	300	300	300
Water fittings			1"	1"	1"	1"	1 ¼"	1 ¼"
DIMENSIONS / STANDARD UNIT WEIGHTS								
Length		mm	1370	1370	1370	1370	1370	1625
Depth		mm	800	800	800	800	800	1250
Height		mm	1515	1515	1515	1515	1515	1765
Unit packing volume		m ³	1.67	1.67	1.67	1.67	1.67	2.12
Casing packing volume		m ³	1.08	1.08	1.08	1.08	1.08	1.37
Unit / panels / hoods shipping weight		kg	108/37/50	108/37/50	113/37/50	113/37/50	133/37/50	195/55/75
Operating weight		kg	195	205	210	210	235	315

All of the above data are compliant with standard EN 14511-1:2008 unless otherwise specified.

Defrost cycles have already been taken into consideration.

(1) Data referred to the following conditions:
water to internal exchanger 30/35°C

outdoor air temperature +7°C DB; +6°C WB

(2) Data referred to the following conditions:

water to internal exchanger 30/35°C

outdoor air temperature +2°C DB; +1°C WB

(3) Data referred to the following conditions:

water to internal exchanger 23/18°C

outdoor air temperature: +35°C DB; 50% RH

Performance refers to a unit operating in optimal conditions of installation with the heat exchangers perfectly clean.

(4) efficiency in accordance with EUROVENT documentation "Rating Standard for Liquid Chilling Packages" 6/C/003-2006, also considering possible defrost cycles.

Total input is obtained from the compressor input and fan input.

(5) ESEER = European Seasonal Energy Efficiency Ratio. Water outlet = 7°C

(6) The sound pressure at 10 m from the external surface of the unit in open field conditions, in accordance with EN 3744.

(7) approximate values

(8) PHE = plates

(9) AX = axial-flow fan

SOUND LEVELS

SIZE	Sound Power Level (dB)									Sound pressure level	Sound power level
	Octave band (Hz)										
	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)	
31	76	74	63	59	57	52	42	34	47	63	
25	80	76	65	61	58	54	44	36	49	65	
31	83	78	68	62	61	55	45	38	51	67	
41	83	79	68	64	62	57	47	39	52	68	
51	85	80	69	65	63	57	48	40	53	69	
61	88	85	75	71	68	63	53	45	58	75	
81	92	84	76	72	69	65	55	47	59	76	

Measures according to EN 3744 regulations, with respect to the EUROVENT 8/1 certification.

The sound pressure is measured at 1 m from the external surface of the unit in open field conditions.

Data referred to the following conditions :
water to internal exchanger 30/35°C
outdoor air temperature 7°C DB / 6°C WB

FOULING CORRECTION FACTOR

INTERNAL EXCHANGER		
m ² °C/W	F1	FK1
0.44 x 10 ⁻⁴ (-4)	1,00	1,00
0.88 x 10 ⁻⁴ (-4)	0,97	0,99
1.76 x 10 ⁻⁴ (-4)	0,94	0,98

The cooling performance values provided in the tables are based on the external exchanger having clean plates (fouling factor 1). For different fouling factor values, multiply the performance by the coefficients shown in the table.

F1 = Cooling capacity correction factors

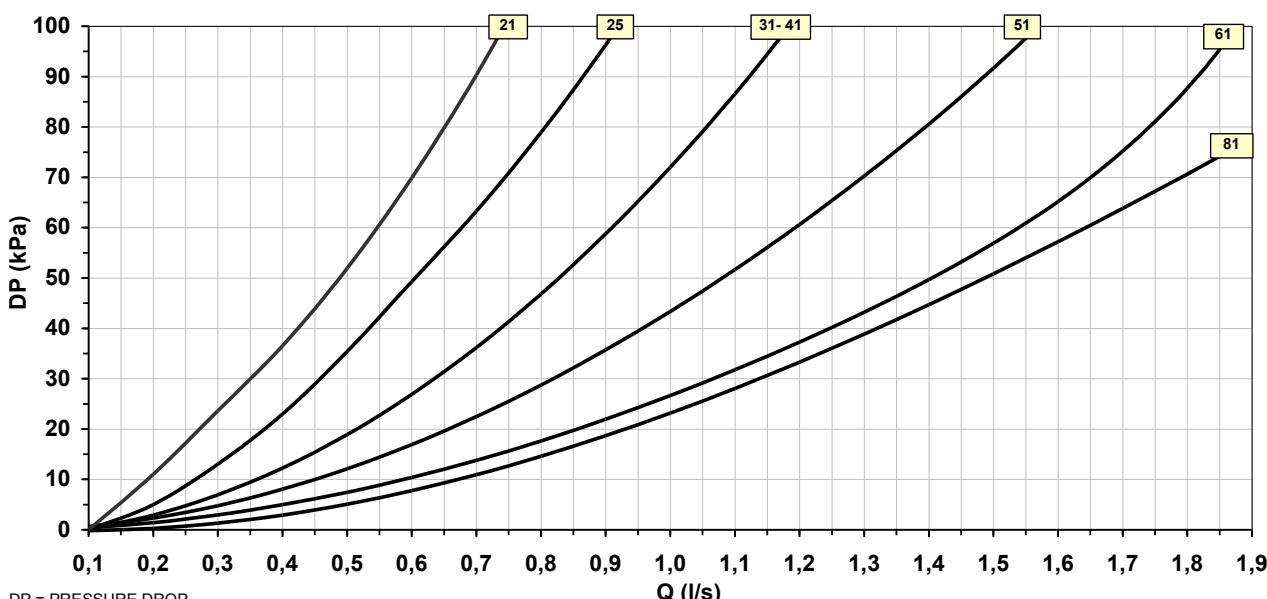
FK1 = Compressor power input correction factor

CORRECTION FACTOR FOR ANTIFREEZE SOLUTIONS

% ethylene glycol by weight		5%	10%	15%	20%	25%	30%	35%	40%
Freezing temperature	°C	-2.0	-3.9	-6.5	-8.9	-11.8	-15.6	-19.6	-23.4
Safety temperature	°C	3.0	1.0	-1.0	-4.0	-6.0	-10.0	-14.0	-19.0
Cooling Capacity Factor	Nr	0.995	0.990	0.985	0.981	0.977	0.974	0.971	0.968
Compressor input Factor	Nr	0.997	0.993	0.990	0.988	0.986	0.984	0.982	0.981
Internal exchanger Glycol solution flow Factor	Nr	1.003	1.010	1.020	1.033	1.050	1.072	1.095	1.124
Pressure drop Factor	Nr	1.029	1.060	1.090	1.118	1.149	1.182	1.211	1.243

The correction factors shown refer to water and glycol ethylene mixes used to prevent the formation of frost on the exchangers in the water circuit during inactivity in winter.

INTERNAL EXCHANGER PRESSURE DROP



Data referred to the following conditions :

- water to internal exchanger 30/35°C
- outdoor air temperature 7°C DB / 6°C WB

OPERATING LIMITS (COOLING)

SIZES	21	25	31	41	51	61	81
EXTERNAL EXCHANGER							
Max air intake temperature	1 °C	43	43	43	43	43	43
INTERNAL EXCHANGER							
Max water outlet temperature	2 °C	18	18	18	18	18	18
Min water outlet temperature	2 °C	4	4	4	4	4	4

OPERATING LIMITS (HEATING)

SIZES	3	4	5	6	7	8	9	10
Max air intake temperature	3 °C	4 °C	5 °C	6 °C	7 °C	8 °C	9 °C	10 °C
Min air intake temperature	-15	-15	-15	-15	-15	-15	-15	-15

ATTENTION: IN CASE OF PREDOMINANT WINDS, WINDBREAK BARRIERS ARE NECESSARY.

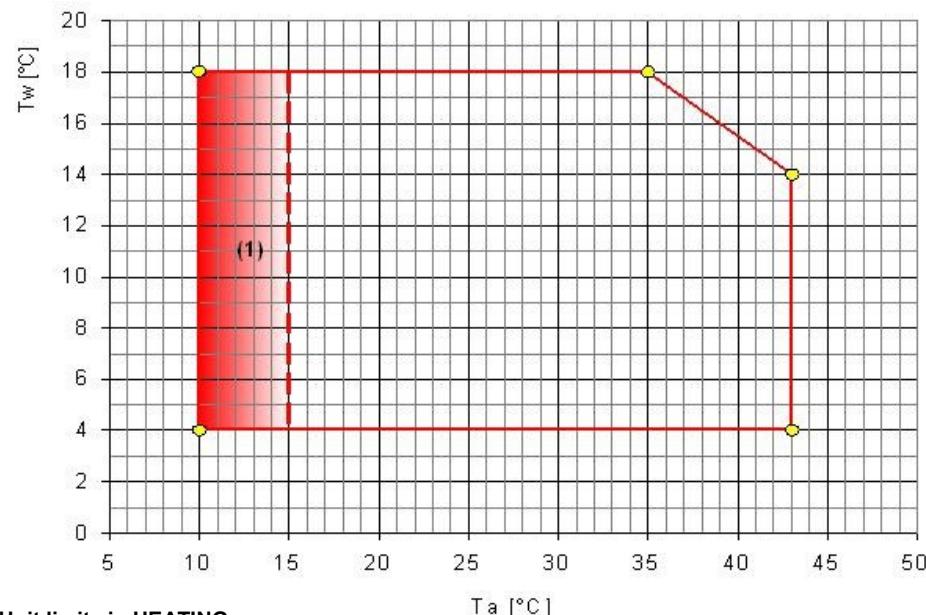
difference between inlet / outlet water temperature = 5°C

- (1) water to internal exchanger = 12/ 7°C
- (2) external heat exchanger inlet air 35°C D.B.
- (3) data referred to still air and operation with air flow rate in modulation (maximum outlet water temperature 52°C)

(4) water to internal exchanger 40/45°C

(5) outdoor air temperature = 0°C DB; 88% RH

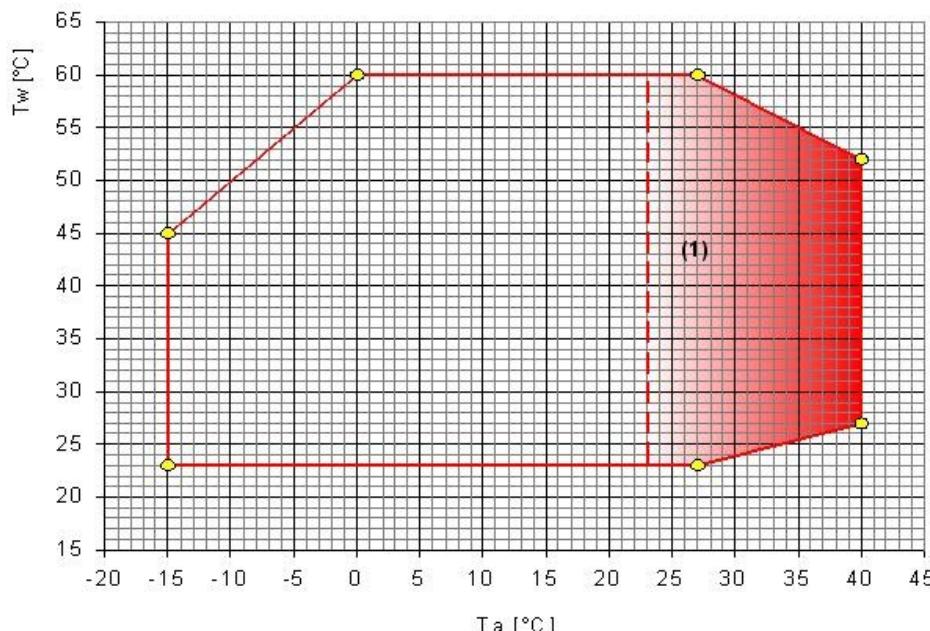
(6) minimum temperature of heat exchanger inlet water 14°C for a maximum of 15 minutes, thanks to the flow rate variation device of the circulator pump.

Unit limits in COOLING

The limits are indicative and have been calculated considering:
- values general and not specifications,
- clean coil without frost,
- non-critical positioning and correct use of the unit,
- operation at full load.

(1) The shaded area shows operation with air flow rate in modulation

Tw [°C] = heat exchanger outlet water temperature
Ta [°C] = dry bulb air temperature difference between inlet / outlet water temperature = 5°C

Unit limits in HEATING

The limits are indicative and have been calculated considering:
- values general and not specifications,
- clean coil without frost,
- non-critical positioning and correct use of the unit,
- operation at full load.

(1) The shaded area shows operation with air flow rate in modulation

Tw [°C] = heat exchanger outlet water temperature
Ta [°C] = dry bulb air temperature (R.H. = 50%)
difference between inlet / outlet water temperature = 5°C

BASE CONFIGURATION (MAXIMUM LOAD)

ELECTRICAL DATA 400/3/50+N

SIZE	21	25	31	41	51	61	81
F.L.A. - FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS							
F.L.A. - Compressor	A	4,00	5,15	6,61	7,39	9,15	10,69
F.L.A. - Fan	A	0,84	0,84	0,84	0,84	0,84	2,65
F.L.A. - Total	A	4,84	5,99	7,45	8,23	9,99	13,34
F.L.I. FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITION							
F.L.I. - Compressor	kW	2,40	3,19	3,90	4,47	5,50	6,42
F.L.I. - Fan	kW	0,19	0,19	0,19	0,19	0,19	0,61
F.L.I. - Total	kW	2,59	3,38	4,09	4,66	5,69	7,03
M.I.C. MAXIMUM INRUSH CURRENT							
M.I.C. - Value	A	26,84	32,84	46,84	52,34	64,84	76,65
							101,65

ELECTRICAL DATA 230/1/50

SIZE	21	25	31	41
F.L.A. - FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS				
F.L.A. - Compressor	A	11,95	15,36	19,14
F.L.A. - Fan	A	0,84	0,84	0,84
F.L.A. - Total	A	12,79	16,2	19,98
F.L.I. FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITION				
F.L.I. - Compressor	kW	2,63	3,22	4,02
F.L.I. - Fan	kW	0,19	0,19	0,19
F.L.I. - Total	kW	2,82	3,41	4,21
M.I.C. MAXIMUM INRUSH CURRENT				
M.I.C. - Value	A	58,84	76,84	97,84
				108,84

ACCESSORY ELECTRICAL DATA

SIZE	21	25	31	41	51	61	81
CIRCULATING PUMP DATA							
F.L.A. - Pump	A	0,95	0,95	1,24	1,24	1,24	3,20
F.L.I. - Pump	kW	0,20	0,20	0,26	0,26	0,26	0,66
ADDITIONAL HEATING ELEMENT DATA							
F.L.A. - Additional heating element	1 A	26,08	26,08	26,08	26,08	-	-
F.L.A. - Additional heating element	2 A	8,67	8,67	8,67	8,67	8,67	8,67
F.L.I. - Additional heating element	3 kW	6,00	6,00	6,00	6,00	6,00	6,00

HIGH EFFICIENCY ELECTRICAL DATA (VEC/GCEC)

SIZE	21	25	31	41	51	61	81
CIRCULATING PUMP DATA							
F.L.A. - Pump	A	1,20	1,20	1,20	1,20	1,20	1,40
F.L.I. - Pump	kW	0,14	0,14	0,14	0,14	0,14	0,31
EXTERNAL FAN DATA							
F.L.A. - Fan	A	1,30	1,30	2,10	2,10	2,10	3,30
F.L.I. - Fan	kW	0,17	0,17	0,33	0,33	0,33	0,73

(1) data referred to 230/1/50 voltage

(2) data referred to 400/3/50+N voltage

(3) data referred to the highest step of input available on the additional heating elements

INTEGRATED HEATING CAPACITIES

To select the defrost start times (timer-controlled), the control used by our units, in addition to reading the temperature on the coils, has an important feature that allows dynamic control of defrost times between one defrost and the next. The electronics analyze a number of parameters that are directly connected to the capacity of the finned package to exchange heat and which therefore determine the amount of ice present, and based on this accelerates, or decelerates to a stop, the defrost time.

This control logic optimizes the number of defrosts, preventing start-up unless it is actually necessary. Further optimization of defrost times may be obtained with the external enthalpy probe accessory.

To obtain the integrated heating capacities (the real heating capacity considering the defrost cycles too), multiply the kW value in the heating performance tables by the following coefficient.

Air temperature external exchanger inlet °C (D.B. / W.B.)	-5 / -5.4	-2 / -2.5	2 / 1	OTHERS
Heating capacity multiplication coefficient	0.940	0.925	0.920	1.000
Absorbed capacity multiplication coefficient	0.978	0.975	0.980	1.000

COOLING PERFORMANCE

SIZE	To (°C)	EXTERNAL AIR TEMPERATURE (°C)													
		25		30		32		35		37		40			
		kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe		
21	6	5,04	1,53	4,80	1,66	4,70	1,72	4,54	1,81	4,42	1,88	4,25	1,98	4,06	2,10
	7	5,21	1,55	4,96	1,68	4,85	1,74	4,68	1,83	4,57	1,90	4,39	2,01	4,20	2,12
	8	5,38	1,56	5,11	1,70	5,00	1,76	4,83	1,85	4,71	1,92	4,53	2,03	4,34	2,15
	10	5,72	1,60	5,43	1,74	5,32	1,80	5,14	1,90	5,01	1,97	4,83	2,09	4,64	2,21
	12	6,07	1,64	5,76	1,78	5,64	1,84	5,45	1,95	5,32	2,02	5,13	2,14	4,94	2,27
	15	6,60	1,70	6,26	1,85	6,13	1,91	5,94	2,02	5,81	2,10	5,62	2,23		
	18	7,14	1,76	6,78	1,91	6,64	1,99	6,44	2,10	6,31	2,19				
25	6	6,72	2,06	6,38	2,24	6,25	2,31	6,05	2,44	5,92	2,53	5,73	2,67	5,53	2,83
	7	6,93	2,10	6,59	2,27	6,45	2,35	6,25	2,47	6,11	2,56	5,91	2,71	5,72	2,86
	8	7,15	2,13	6,79	2,30	6,65	2,38	6,44	2,51	6,30	2,60	6,10	2,74	5,90	2,90
	10	7,58	2,20	7,20	2,37	7,06	2,45	6,84	2,57	6,70	2,66	6,49	2,81	6,28	2,96
	12	8,02	2,27	7,62	2,44	7,47	2,51	7,24	2,64	7,10	2,73	6,88	2,87	6,68	3,03
	15	8,69	2,37	8,26	2,54	8,10	2,61	7,86	2,73	7,71	2,82	7,50	2,96		
	18	9,37	2,48	8,91	2,64	8,74	2,71	8,50	2,82	8,35	2,91				
31	6	8,68	2,56	8,27	2,78	8,09	2,88	7,83	3,03	7,64	3,14	7,36	3,31	7,06	3,49
	7	8,95	2,61	8,53	2,83	8,35	2,93	8,07	3,08	7,89	3,19	7,60	3,36	7,30	3,54
	8	9,22	2,65	8,78	2,87	8,60	2,97	8,32	3,13	8,13	3,24	7,84	3,41	7,54	3,59
	10	9,75	2,74	9,28	2,96	9,10	3,06	8,81	3,22	8,62	3,33	8,32	3,51	8,02	3,69
	12	10,3	2,82	9,78	3,05	9,59	3,15	9,29	3,31	9,10	3,43	8,81	3,60	8,51	3,79
	15	11,0	2,95	10,5	3,18	10,3	3,29	10,0	3,45	9,82	3,56	9,53	3,75		
	18	11,7	3,07	11,2	3,31	11,0	3,42	10,7	3,58	10,5	3,70				
41	6	9,75	3,04	9,25	3,35	9,05	3,48	8,76	3,67	8,56	3,81	8,27	4,01	7,98	4,21
	7	10,0	3,08	9,53	3,40	9,33	3,53	9,03	3,72	8,83	3,85	8,53	4,06	8,23	4,26
	8	10,3	3,13	9,82	3,44	9,61	3,57	9,30	3,77	9,10	3,90	8,79	4,10	8,48	4,31
	10	10,9	3,22	10,4	3,53	10,2	3,66	9,83	3,86	9,62	4,00	9,29	4,20	8,96	4,41
	12	11,5	3,30	10,9	3,62	10,7	3,75	10,4	3,95	10,1	4,09	9,78	4,29	9,42	4,51
	15	12,3	3,43	11,7	3,74	11,5	3,87	11,1	4,07	10,9	4,21	10,5	4,43		
	18	13,1	3,54	12,5	3,85	12,3	3,98	11,9	4,19	11,6	4,34				
51	6	11,6	3,84	11,0	4,20	10,8	4,35	10,4	4,58	10,2	4,73	9,82	4,97	9,45	5,21
	7	12,0	3,90	11,4	4,26	11,1	4,41	10,7	4,64	10,5	4,80	10,1	5,03	9,75	5,28
	8	12,3	3,96	11,7	4,32	11,4	4,47	11,1	4,70	10,8	4,86	10,4	5,10	10,0	5,34
	10	13,0	4,09	12,4	4,45	12,1	4,60	11,7	4,83	11,5	4,98	11,1	5,22	10,7	5,46
	12	13,7	4,22	13,1	4,58	12,8	4,73	12,4	4,96	12,1	5,11	11,7	5,34	11,3	5,57
	15	14,8	4,42	14,1	4,78	13,8	4,93	13,4	5,14	13,1	5,30	12,7	5,52		
	18	15,9	4,64	15,1	4,99	14,9	5,13	14,5	5,33						
61	6	14,3	4,06	13,7	4,43	13,4	4,58	12,9	4,82	12,7	4,98	12,2	5,22	11,8	5,48
	7	14,8	4,13	14,1	4,50	13,8	4,65	13,4	4,89	13,1	5,05	12,6	5,30	12,2	5,55
	8	15,2	4,20	14,5	4,57	14,2	4,72	13,8	4,96	13,5	5,12	13,0	5,37	12,5	5,63
	10	16,1	4,34	15,4	4,71	15,1	4,86	14,6	5,11	14,3	5,27	13,8	5,53	13,3	5,79
	12	17,1	4,48	16,3	4,86	16,0	5,01	15,5	5,26	15,1	5,43	14,6	5,69	14,0	5,96
	15	18,5	4,71	17,7	5,08	17,3	5,25	16,8	5,50	16,4	5,67	15,8	5,95		
	18	20,0	4,94	19,1	5,32	18,7	5,49	18,1	5,75						
81	6	17,4	5,53	16,7	5,89	16,4	6,05	15,9	6,30	15,6	6,48	15,1	6,76	14,5	7,05
	7	18,0	5,60	17,2	5,97	16,9	6,13	16,4	6,39	16,1	6,57	15,6	6,85	15,0	7,15
	8	18,5	5,68	17,8	6,05	17,4	6,22	16,9	6,48	16,6	6,66	16,0	6,95	15,5	7,26
	10	19,6	5,83	18,8	6,23	18,5	6,40	18,0	6,67	17,6	6,85	17,0	7,15	16,4	7,47
	12	20,8	6,00	19,9	6,41	19,6	6,58	19,0	6,86	18,6	7,05	18,0	7,36	17,4	7,67
	15	22,6	6,26	21,7	6,69	21,3	6,88	20,7	7,16	20,2	7,36	19,6	7,67		
	18	24,5	6,54	23,4	7,00	23,0	7,19	22,4	7,48	21,9	7,68				

kWf = Cooling capacity in kW

kWe = Compressor power input in kW

Data referred to a unit with voltage 400/3/50+N

To = Internal exchanger water outlet temperature in °C

Performances in function of the inlet/outlet water temperature differential = 5°C

The duties are referred to nominal airflow and clean coils

HEATING PERFORMANCE

SIZE	Ta (°C) DB/WB	INTERNAL EXCHANGER WATER OUTLET TEMPERATURE (°C)									
		35		40		45		50		55	
		kWt	kWe	kWt	kWe	kWt	kWe	kWt	kWe	kWt	kWe
21	-10 / -10.5	3,75	1,26	3,72	1,38	3,70	1,51	3,69	1,64		
	-7 / -8	4,00	1,28	3,98	1,40	3,96	1,53	3,93	1,68		
	-5 / -5.4	4,30	1,30	4,30	1,43	4,27	1,56	4,22	1,71	4,14	1,87
	2 / 1	5,23	1,36	5,23	1,49	5,19	1,64	5,10	1,80	4,96	1,98
	7 / 6	6,13	1,41	6,12	1,54	6,06	1,70	5,95	1,87	5,79	2,06
	10 / 8.2	6,57	1,43	6,55	1,57	6,49	1,72	6,37	1,90	6,20	2,10
	15 / 10.8	7,14	1,46	7,10	1,59	7,02	1,75	6,90	1,94	6,73	2,15
25	-10 / -10.5	4,90	1,65	4,87	1,80	4,81	1,95	4,72	2,10		
	-7 / -8	5,32	1,67	5,28	1,83	5,21	2,00	5,14	2,17		
	-5 / -5.4	5,79	1,70	5,73	1,87	5,66	2,05	5,59	2,24	5,52	2,44
	2 / 1	7,05	1,79	6,96	1,96	6,88	2,16	6,83	2,39	6,78	2,64
	7 / 6	8,16	1,88	8,04	2,05	7,95	2,26	7,89	2,50	7,84	2,76
	10 / 8.2	8,68	1,92	8,56	2,09	8,46	2,30	8,38	2,54	8,33	2,81
	15 / 10.8	9,33	1,97	9,19	2,14	9,08	2,35	8,99	2,59	8,93	2,87
31	-10 / -10.5	5,89	1,97	5,86	2,18	5,96	2,39	6,18	2,61		
	-7 / -8	6,37	2,01	6,32	2,21	6,38	2,43	6,53	2,67		
	-5 / -5.4	6,92	2,05	6,86	2,26	6,87	2,49	6,96	2,73	7,11	3,00
	2 / 1	8,51	2,17	8,41	2,38	8,33	2,63	8,27	2,90	8,24	3,19
	7 / 6	9,99	2,28	9,85	2,50	9,70	2,75	9,57	3,03	9,43	3,34
	10 / 8.2	10,7	2,33	10,5	2,55	10,4	2,80	10,2	3,09	10,0	3,41
	15 / 10.8	11,6	2,40	11,4	2,62	11,2	2,87	11,0	3,16	10,8	3,48
41	-10 / -10.5	6,82	2,26	6,92	2,56	6,98	2,85	6,99	3,15		
	-7 / -8	7,30	2,31	7,42	2,62	7,48	2,92	7,47	3,23		
	-5 / -5.4	7,87	2,36	7,99	2,68	8,04	2,99	8,01	3,31	7,91	3,64
	2 / 1	9,56	2,50	9,61	2,82	9,60	3,15	9,52	3,49	9,37	3,84
	7 / 6	11,2	2,60	11,1	2,93	11,0	3,27	10,9	3,62	10,7	3,98
	10 / 8.2	12,0	2,65	11,8	2,98	11,6	3,32	11,5	3,67	11,4	4,04
	15 / 10.8	12,9	2,71	12,7	3,04	12,5	3,38	12,3	3,73	12,2	4,11
51	-10 / -10.5	7,92	2,76	8,23	3,11	8,44	3,45	8,54	3,79		
	-7 / -8	8,81	2,84	8,93	3,19	9,00	3,54	9,02	3,89		
	-5 / -5.4	9,75	2,93	9,70	3,27	9,65	3,63	9,60	3,99	9,55	4,36
	2 / 1	12,1	3,12	11,8	3,47	11,6	3,84	11,4	4,23	11,3	4,63
	7 / 6	14,0	3,27	13,7	3,63	13,4	4,01	13,2	4,41	13,0	4,82
	10 / 8.2	14,9	3,33	14,5	3,69	14,3	4,08	14,0	4,48	13,9	4,91
	15 / 10.8	15,9	3,40	15,6	3,77	15,4	4,16	15,2	4,57	15,0	5,00
61	-10 / -10.5	10,6	3,28	10,6	3,62	10,6	3,99	10,4	4,39		
	-7 / -8	11,4	3,36	11,3	3,71	11,3	4,09	11,1	4,49		
	-5 / -5.4	12,3	3,44	12,2	3,81	12,1	4,20	12,0	4,61	11,8	5,03
	2 / 1	15,1	3,69	14,9	4,08	14,6	4,48	14,4	4,90	14,2	5,34
	7 / 6	17,7	3,91	17,4	4,30	17,1	4,72	16,8	5,16	16,5	5,62
	10 / 8.2	19,0	4,01	18,6	4,41	18,2	4,83	17,9	5,28	17,6	5,76
	15 / 10.8	20,6	4,14	20,2	4,53	19,8	4,96	19,4	5,42	18,9	5,92
81	-10 / -10.5	13,3	4,38	13,0	4,73	12,8	5,07	12,7	5,41		
	-7 / -8	14,6	4,51	14,3	4,86	14,1	5,21	13,9	5,57		
	-5 / -5.4	16,0	4,65	15,7	4,99	15,5	5,36	15,2	5,75	14,8	6,15
	2 / 1	19,7	5,00	19,4	5,35	19,1	5,74	18,7	6,18	18,2	6,67
	7 / 6	22,9	5,28	22,5	5,64	22,1	6,06	21,8	6,54	21,4	7,08
	10 / 8.2	24,4	5,40	23,9	5,77	23,5	6,20	23,2	6,70	23,0	7,26
	15 / 10.8	26,2	5,55	25,7	5,93	25,3	6,37	25,0	6,89	24,9	7,47

kWt = Heating capacity (kW)

kWe = Compressor power input in kW

Ta = external exchanger air intake temperature

Data referred to a unit with voltage 400/3/50+N

Performances in function of the inlet/outlet water temperature differential = 5°C

The duties are referred to nominal airflow, and they don't consider clean coils and the effect of possible defrosting.

TALK MEDIUM ELECTRONICS

Characteristics of the new Talk Medium card.

Dynamic set point, controlled by the micro-processor:

- compensation of the number of ON/OFF cycles
- control of minimum set temperature differential to restart cycle
- set compensation for ambient temperature (if multi-function thermostat present in room).

Available sets:

- domestic hot water
- air conditioning system
- maintenance in standby phase
- control of an economic set

It also allows control/signalling of alarms in the refrigerator, water and electrical circuits.

Control is also provided for the various unit functions, such as:

- pump/circulator and fan used with modulating signal
- second pump/circulator for control of system water
- control of exchange valve for domestic hot water or system through clean contact
- module for RS 485 signal from supervisor
- output for control (ON/OFF or 0-10V) and set of additional component complementary to the pump/chiller system thanks to a dedicated temperature probe.



MULTI-FUNCTION REMOTE KEYPAD

Main features of multi-function control:

Machine interface keypad

Makes it possible to set up and operate the machine, with the same features as the 7-segment keypad, i.e. basic commands such as ON/OFF and mode change, and the ability to read the information that resides on the base such as states, parameters, and alarms.

Room timer-thermostat

Detects the room temperature, both to compensate the water temperature and for room heat adjustment. Activates water circulation and controls operation of the PDC or of the auxiliary heating components. It also makes it possible to schedule the levels of room comfort over the course of the day or week. The memory for scheduling resides in the room terminal, which is equipped with its own time.

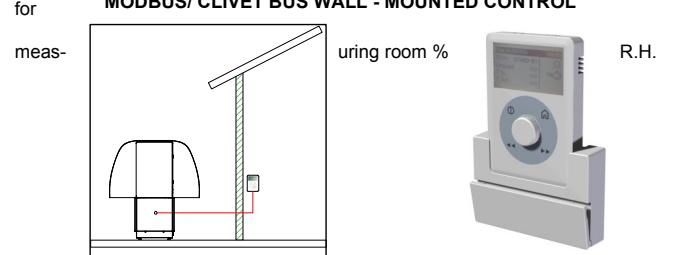
System supervisor (HIDH1M)

The new terminal includes the system supervisor functions. It is necessary in all cases in which the ACS (domestic hot water) module or the mixer module for radiant panels is present. As an alternative, it can manage a clivet talk local network through a master-slave system implemented as a parameter on the main card via serial port.

In order to perform the aforementioned tasks, the new room terminal is equipped with:

- A master modbus channel (which can also be selected as slave) for connection of devices that are subject to it
- A slave modbus channel, for connection to the system supervisor A Clivet Bus channel for connection to PDC
- Housing for batteries
- Housing for wireless module on base
- Electrical power supply (2 terminals) on base
- A probe for measurement of room temperature

MODBUS/ CLIVET BUS WALL - MOUNTED CONTROL



INSTALLATION

It is possible to configure HORUS+ for outdoor installation by using two covering caps or, with two flanges, to arrange it for one supply duct and one return duct. The latter solution, which is required for indoor installation, uses high efficiency axial fans.

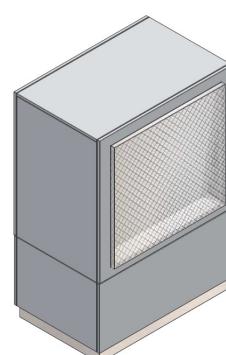
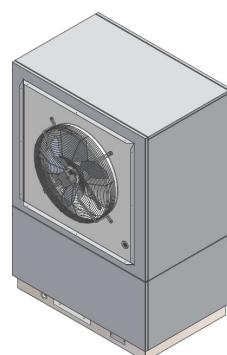
(KCUX) EXTERNAL METALLIC HOODS KIT

Sound reduction caps for minimising the sound emissions and for weather protection. Equipped with a removable grille for easy cleaning.



(CAN) CANALIZZABILE CON VENTILATORI ALTA EFFICIENZA

Version with high-efficiency EC axial fans which, at nominal flow rate, ensure a useful static pressure of 60 Pa. In place of the metallic caps, there are two flanges for connection to the supply and return ducts.



VERSIONS

The basic version does not include the hydronic kit since it may be installed in an equipment compartment in the rooms. It is however included in the full optional version. The ventilation area does not require ducting. Two soundproofed caps with an innovative design are used. They reduce the acoustic emissions of the unit and at the same time protect it from atmospheric agents. Safety is ensured by protective grilles that can be removed for easy cleaning.

STANDARD UNIT INSTALLATION (S)

- soundproof panels in galvanized steel painted RAL 9007 (separate delivery)
- axial ventilator
- differential pressure switch water side
- valves with discharge
- stainless steel mesh mechanical filter
- water connection hoses

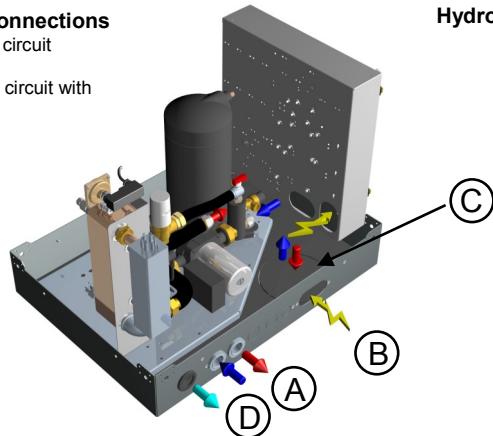
FULL-OPTIONAL INSTALLATION (SUP)

- soundproof panels in galvanized steel painted RAL 9007 (separate delivery)
- axial ventilator
- differential pressure switch water side
- valves with discharge
- stainless steel mesh mechanical filter
- water connection hoses
- 2 cocks with isolator switch

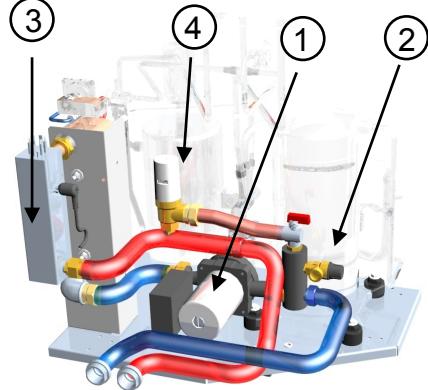
Hydronic kit: (1) circulator
 (2) 3bar water safety valve
 (3) heating element 2/4/6 kW
 (4) high-pressure valve (bypass differential) (only for size 21-51)
 18 litres plumbing circuit expansion tank (only for size 61-81)

Unit hydraulic and electrical connections

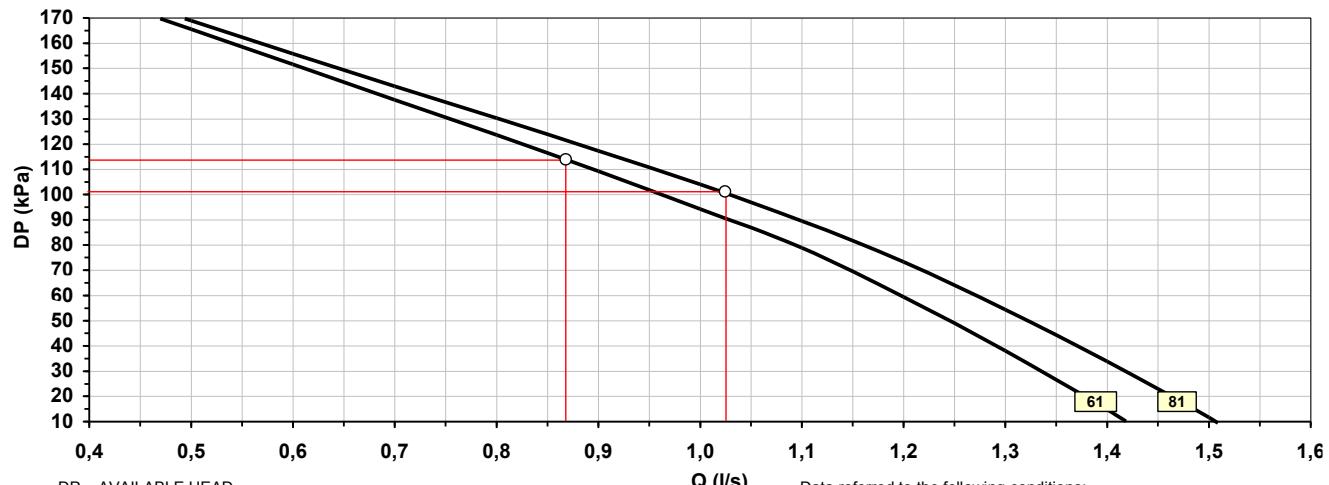
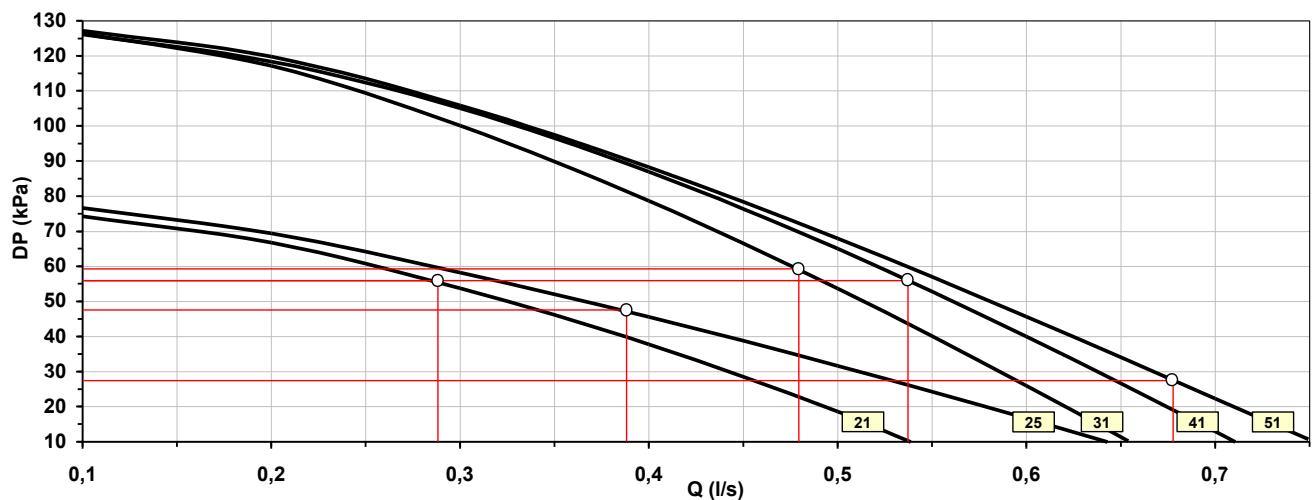
- (A) Lateral input output for hydraulic circuit
- (B) Power supply
- (C) Bottom input output for hydraulic circuit with diameter hole 180 mm
- (D) Condensate discharge output



Hydronic kit:



CURVES FOR USABLE STATIC PRESSURE INCLUDING ALL ELEMENTS OF THE HYDRONIC KIT (plate heat exchanger, additional heating element, 3-way valve, connection fittings)



Data referred to the following conditions:
 - water to internal exchanger 30/35°C
 - outside air temperature: 7°C D.B. / 6°C W.B.

ACCESSORIES

Each accessory is marked by a configuration code, e.g. CMMBX.

If the last letter is X, it means that the accessory is provided separately. If the code does not contain the letter X, the accessory is installed at the factory.

(HEOH) HIGH EFFICIENCY ONLY IN HEATING

Option for energy optimization of the units, including the circulating pump use in direct current.

The achieved efficiency levels, correspond to parameters required by the Italian Financial law 2010.

This option is available only with the full optional version.

HORUS (R-407C)	21	25	31	41	51	61	81
COP 2301/50 EN14511	4,10	4,14	4,11	4,12	-	-	-
COP 400/3/50+N EN14511	4,10	4,12	4,10	4,16	4,11	4,14	4,10

The table summarizes the values of COP calculated in accordance with the law EN 14511:2008

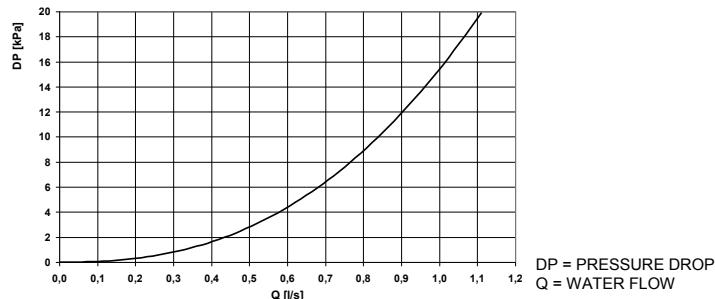


*Due to its efficiency, HORUS, may be eligible for subsidies in Your Country. Please contact Your tax office or utility.

(EH246) MODULAR INTEGRATION ELECTRIC HEATER 2-4 AND 6kW

On request the unit can be provided with integration heating elements. Different powers can be selected based on needs. The electrical heating elements are immersed in a small 1-litre tank equipped with a safety thermostat.

HEATING ELEMENT WATER-SIDE PRESSURE DROP



(CCCA1) COPPER / ALUMINIUM CONDENSER COILS WITH FIN GUARD (SILVER) TREATMENT

The Fin Guard Silver, for finned exchanger, is a polyurethane varnish waterproof (for waterworks, sea and discharge water). It is also resistant to oil products and other different solvents. It hasn't any effects on the air side pressure drops.

(CCCC) COPPER / COPPER CONDENSER COILS

The copper/copper condensing coil allows a better resistance to the natural agent like salt and sulphurous vapours.

(CCCA) COPPER / ALUMINIUM CONDENSER COILS WITH ACRYLIC LINING

The copper/aluminium evaporator coils with acrylic lining can be used in the room where the ambient air contains a concentration of salt and other not very aggressive agents.

(SFTR4N) BREAKAWAY CURRENT REDUCING DEVICE (SOFT STARTER)

The disposal for inrush current reduction allows to graduate current during compressor start, avoiding to reach peaks which can create criticalities to the electrical system.

(SCP3X) SET POINT COMPENSATION ACCORDING TO THE OUTSIDE ENTHALPY

It allows to modulate unit set-point according to the external enthalpy. In this way an higher comfort and continuous energy saving are guaranteed. It optimizes unit energy efficiency, through a set point automatic modulation, according to the external conditions (temperature + humidity). It optimizes also the defrosting time during winter operation.



(VEC) HIGH ENERGY EFFICIENCY FAN

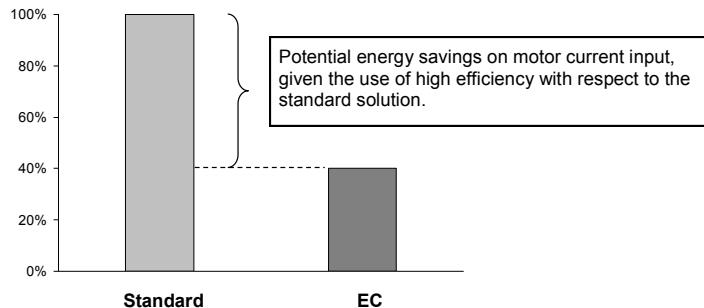
(GCEC) HIGH ENERGY EFFICIENCY CIRCULATING PUMP

The overall performance of the pump/fan is determined by the hydraulic and air flow performance of the motors used. Both components can be installed with EC motor technology, which compared with traditional asynchronous motors offer high performance in terms of absorbed energy. The EC technology sharply reduces yearly electricity consumption, allowing substantial savings compared to conventional motors.

EC motor

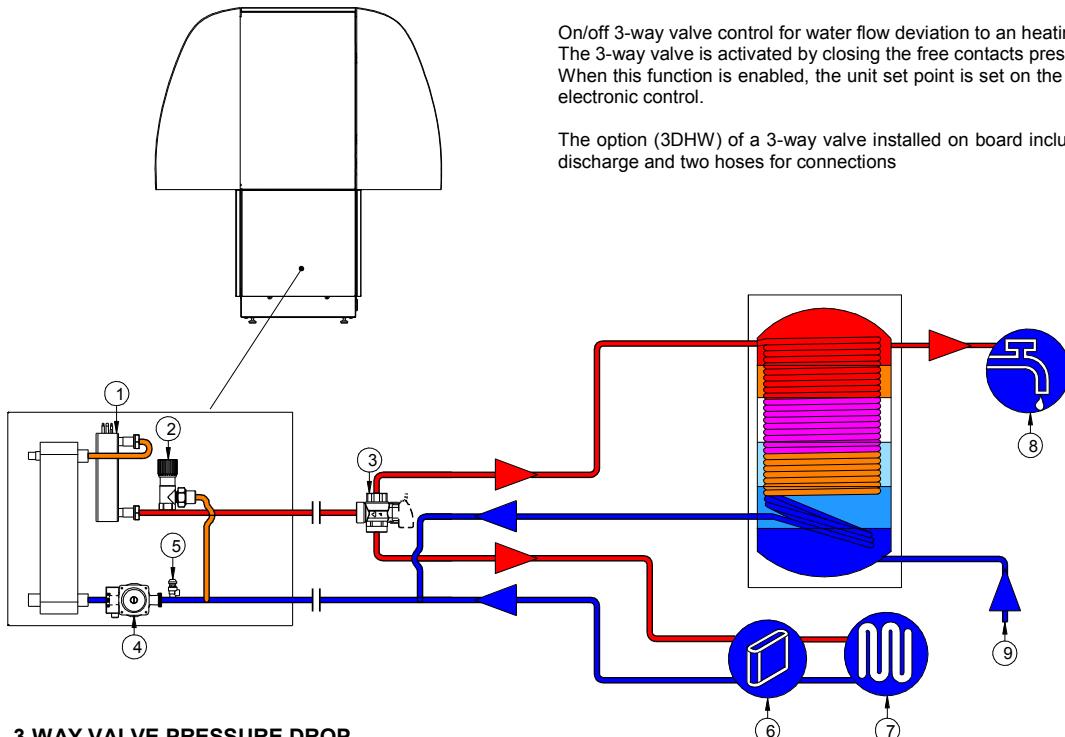
EC indicates the electronically switched motor. This is a synchronous motor, with permanent magnet rotor. The magnetic field in the stator is generated by electronic switching, i.e. the stator bobbins are controlled specifically to obtain alternating action of the electrical and magnetic poles, with the following advantages:

- The magnetic field required by the rotor is generated without causing losses.
- Especially in the range of reduced load (up to 70% of operating time), the difference in efficiency as compared to an asynchronous motor is even greater than that obtained in the range of maximum load.



(3DHW) 3-WAY VALVE FOR DOMESTIC HOT WATER ON-BOARD

(3DHWX) 3-WAY VALVE FOR DOMESTIC HOT WATER

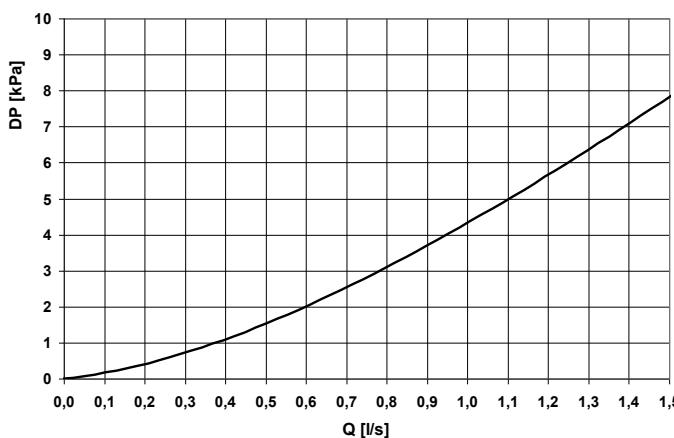


On/off 3-way valve control for water flow deviation to an heating storage tank of sanitary water. The 3-way valve is activated by closing the free contacts present in the unit electrical panel. When this function is enabled, the unit set point is set on the value fixed by the parameter in the electronic control.

The option (3DHW) of a 3-way valve installed on board includes two other cut-off bibcocks with discharge and two hoses for connections

- Installation scheme:
- (1) Additional heating element
 - (2) Over pressure by-pass valve
 - (3) Diverter 3-way valve of installation or domestic hot water
 - (4) Pump/circulating pump
 - (5) Water side safety valve
 - (6) Fan coil units
 - (7) Radiant panel installation
 - (8) Domestic hot water
 - (9) Domestic hot water input

3-WAY VALVE PRESSURE DROP



3 WAY VALVE PRESSURE DROP
DP = PRESSURE DROP
Q = WATER FLOW



SYSTEM ACCESSORIES

(KBQRE3X) 300 LITRES DOMESTIC HOT WATER KIT (KBQRE5X) 500 LITRES DOMESTIC HOT WATER KIT

The kit is composed of:

Fe360/B storage tank and internal vitrification treatment in accordance with DIN 4753.3, external insulation in stiff polyurethane 50mm and exchange coil 2,6 m² (300 litres) or 5,8 m² (500 litres), maximum operating pressure 6 bar.
Electrical heating element 2 kW single-phase for possible integration and anti-legionellosis cycle for boiler of 300 litres.
Electrical heating element 4 kW single-phase for possible integration and anti-legionellosis cycle for boiler of 500 litres.
Electronic module for the management of the production of domestic hot water: ACS temperature setting, setting of time period for production of domestic hot water with priority based on a minimum temperature, management of anti-legionellosis cycle, control for three-way valve, management of the electrical heating element. The electronic module dialogues with the heat pump through the serial communication cable.

Three-way deviator valve 1 1/4" and non-return valve 1 1/4" to be installed in the system.

Serial connection cable twisted and shielded for networks RS485 AGW22/24 with a length of 15 metres.

Serial communication card CMMBX to be connected in the heat pump.

Dimensions of boiler of 300 litres: 600 x 1680mm

Dimensions of boiler of 500 litres: 760 x 1690mm

The 300 litre DHW tank may be used in the systems driven by a heat pump with a capacity up to 10kW.
For bigger capacities, the 500 litres tank may be preferred.

- The system multifunction keypad is needed (HIDH1M)



1



(CACSX) CONTROLLO KIT ACQUA CALDA SANITARIA

Il modulo permette di controllare la temperatura di un accumulo per acqua calda sanitaria non fornito da Clivet.

Il modulo regolatore viene fornito completo 2 sonde di temperatura, 1 termostato di sicurezza, circuito di potenza e comando resistenza completa di protezioni contro i corto circuiti (la resistenza non è fornita da Clivet) e la scatola di installazione.

A differenza della gestione dell'acqua calda sanitaria effettuata direttamente tramite l'elettronica di macchina (3DHGX), il kit permette di impostare fasce orarie di ricarica, cicli antilegionella e gestire una pompa di ricircolo sull'accumulo.

L'accumulo deve essere dimensionato adeguatamente in funzione dell'abbinamento con la pompa di calore selezionata.

- È necessaria la tastiera multifunzione di sistema (HIDH1M)



2

(KGPRX) MIXING GROUP CONTROL MODULE

The mixing module controls the water circulator and the valve of a mixing group from a different manufacturer.

The module is supplied complete with high temperature thermostat and two sensors for the temperature of the water which need to be installed in proper glands.

An input for dew sensor (not supplied) is also available.

The maximum current applicable to the electric contacts of the mixing module is 5A with 230V.



3

(KVICX) BOILER CONTROL KIT

This kit is used to manage the boiler as integration system to the heat pump or as unique system in case of alarm, operation out of the heat pump set operating limits or energy efficiency logics.

The kit is composed of:

- pair of two way motorized valves for boiler cut-off
- pair of two way motorized valves for heat pump cut-off
- water temperature probe

It is advisable to use the buffer tank (KSAX)



5

(KSAX) 100 LITRES HYDRAULIC BREAKER

Fe360/B buffer tank with anti-corrosion treatment and organic enamelling suitable for contact with drinking water, external insulation with polyurethane and polyethylene mat, thickness 50 mm, maximum operation pressure 6 bar.
Diameter 500mm, Height 900mm, 8 connections 1 1/4".

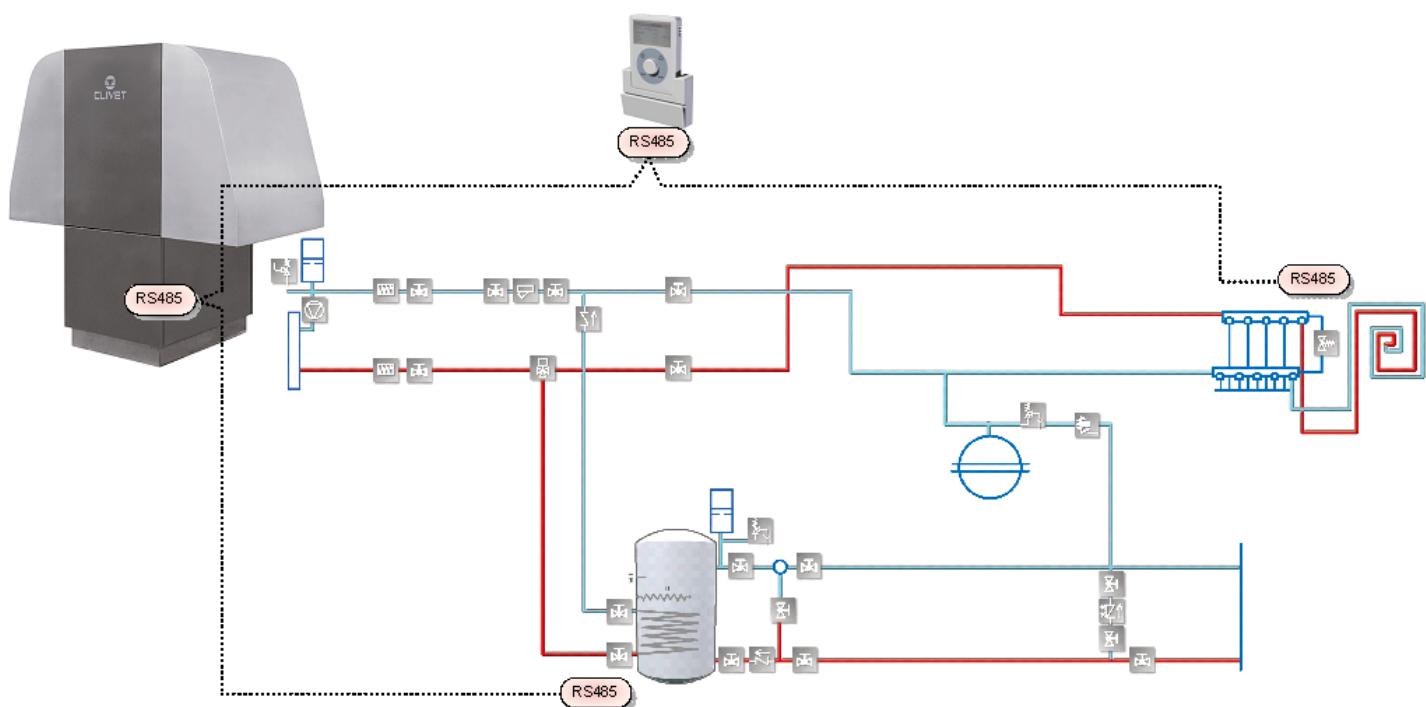


6



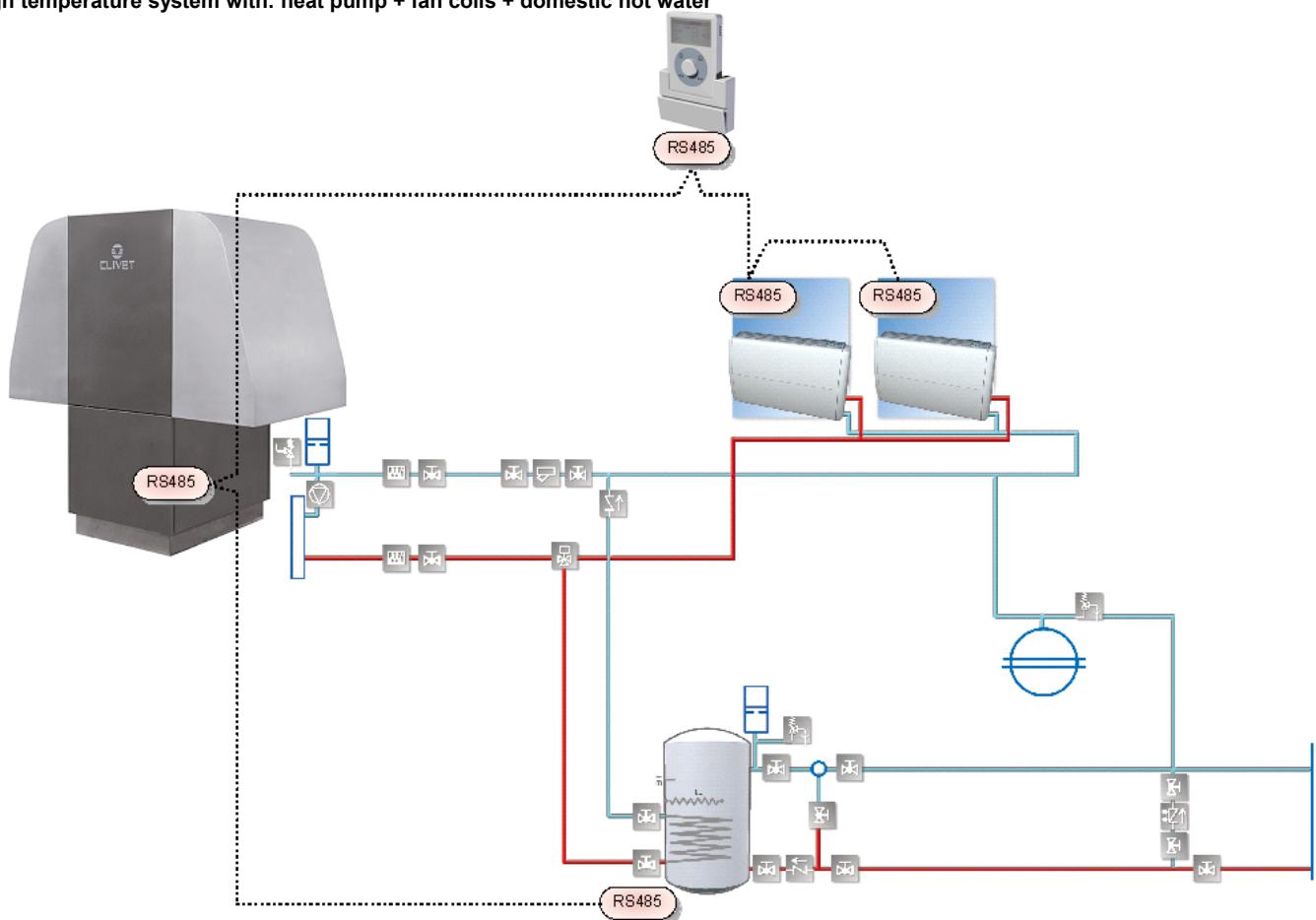
PLUMBING DIAGRAM

Low temperature system with: heat pump + radiant panels + domestic hot water



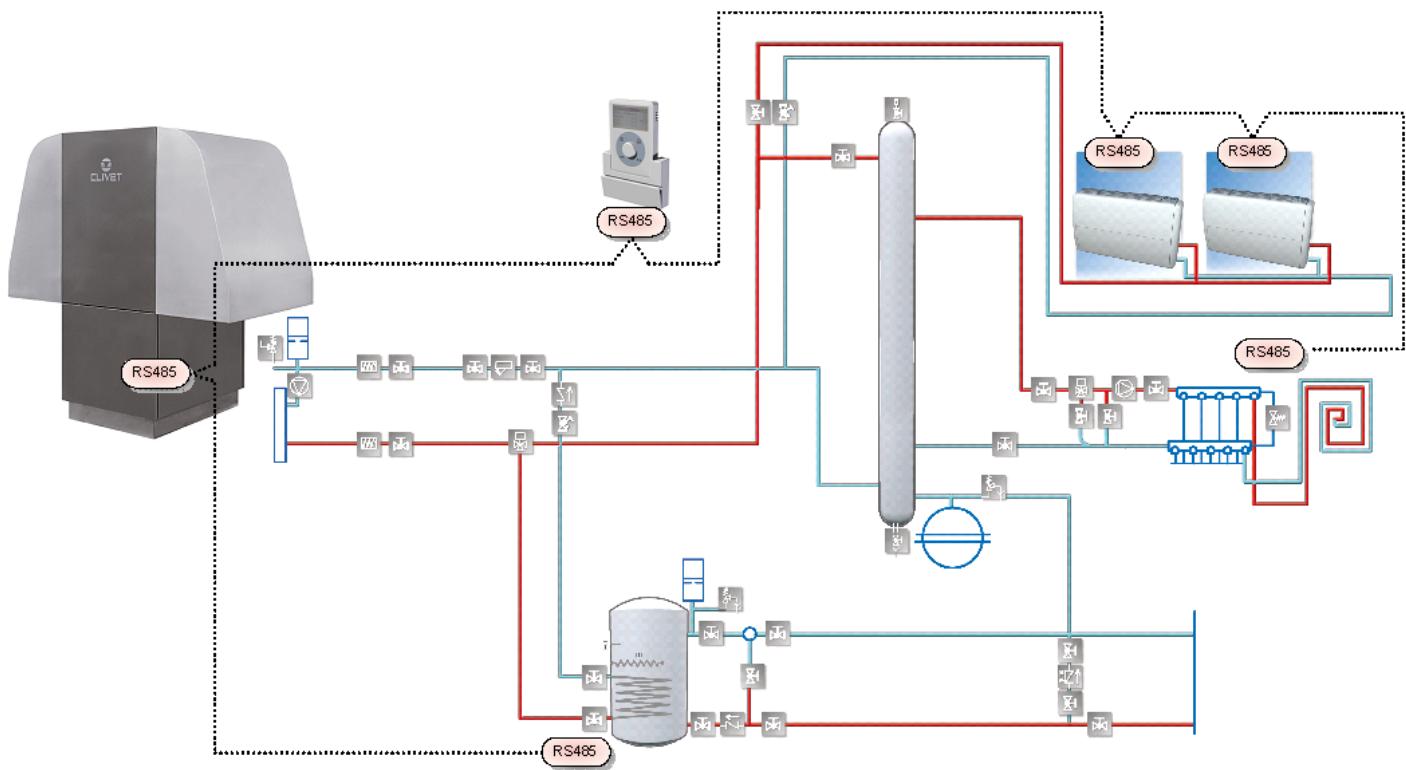
PLUMBING DIAGRAM

High temperature system with: heat pump + fan coils + domestic hot water



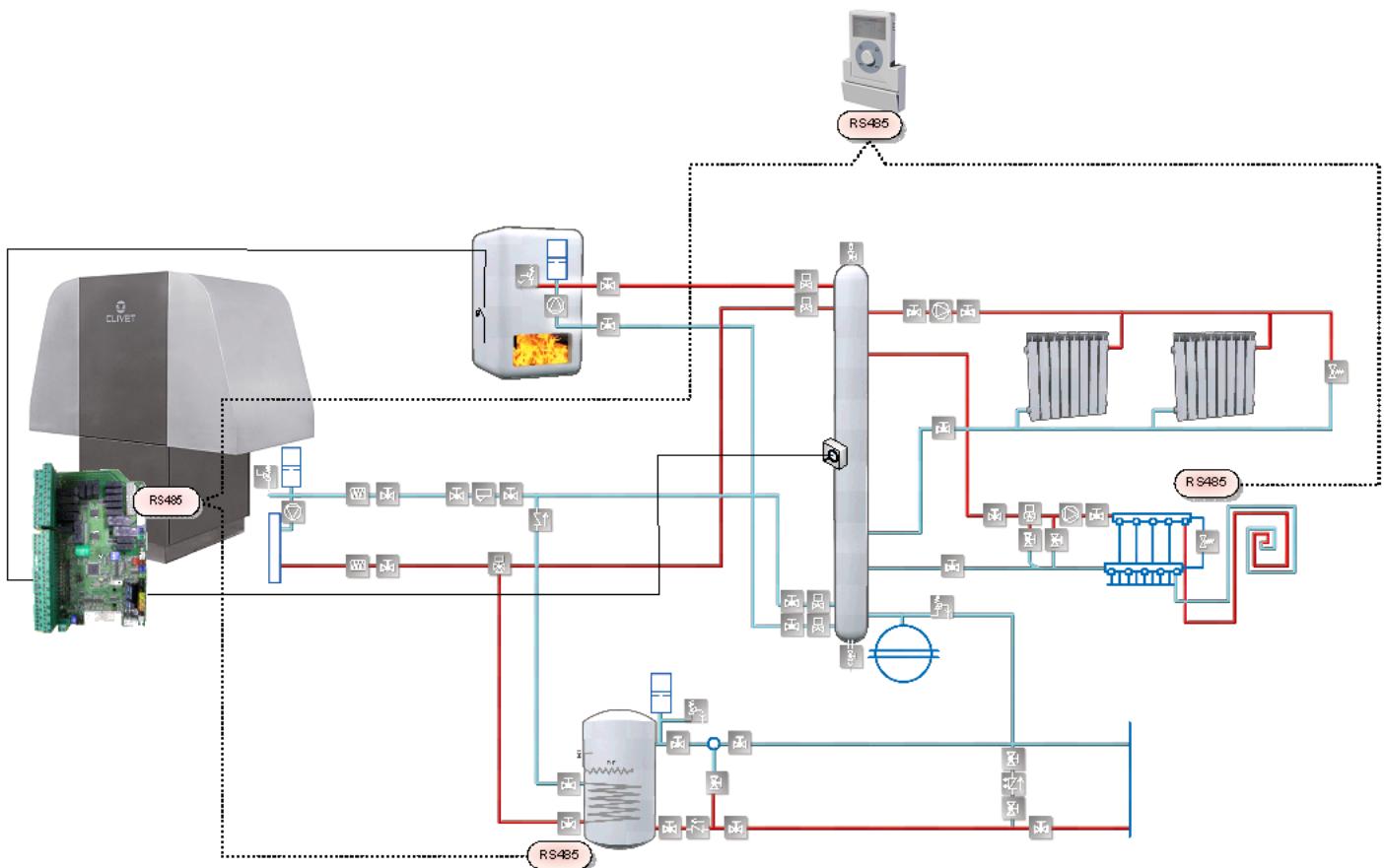
PLUMBING DIAGRAM

Double temperature system with: heat pump + fan coils + radiant panels + domestic hot water



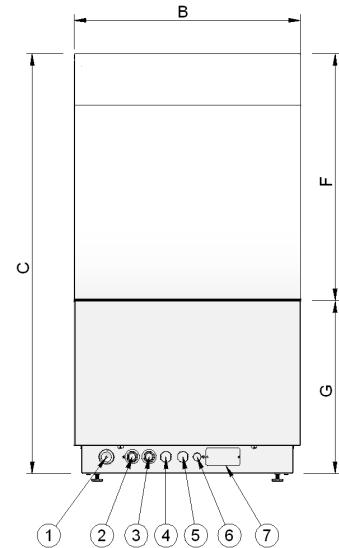
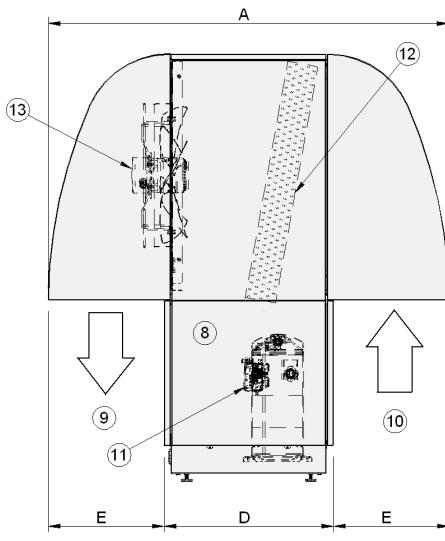
PLUMBING DIAGRAM

Double temperature system with heat pump + radiators + radiant panels + domestic hot water + boiler



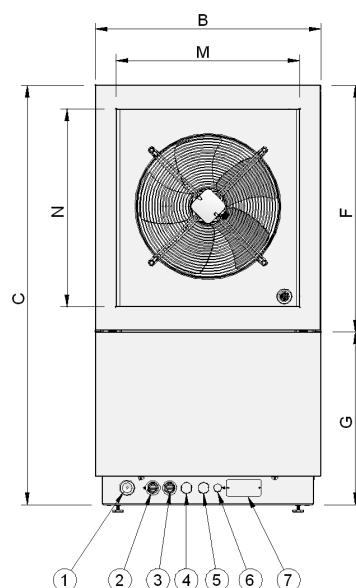
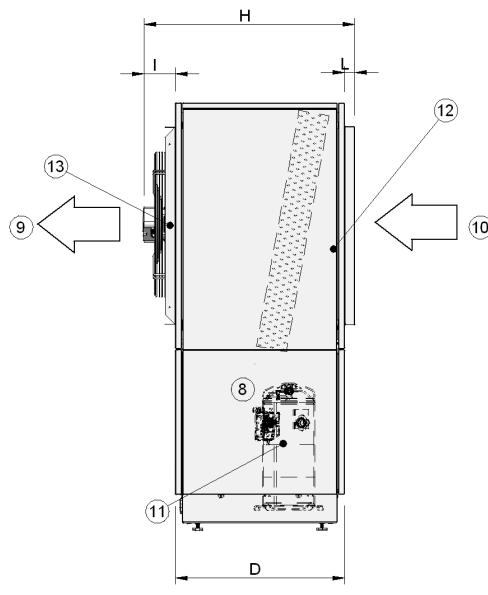
DIMENSIONAL

GRANDEZZE		21	25	31	41	51	61	81
A	mm	1420	1420	1420	1420	1420	1835	1835
B	mm	800	800	800	800	800	1250	1250
C	mm	1485	1485	1485	1485	1485	1770	1770
D	mm	600	600	600	600	600	775	775
E	mm	410	410	410	410	410	530	530
F	mm	870	870	870	870	870	1120	1120
G	mm	615	615	615	615	615	650	650
H	mm	750	750	750	750	750	945	945
I	mm	110	110	110	110	110	130	130
L	mm	40	40	40	40	40	40	40
M	mm	650	650	650	650	650	1000	1000
N	mm	700	700	700	700	700	950	950

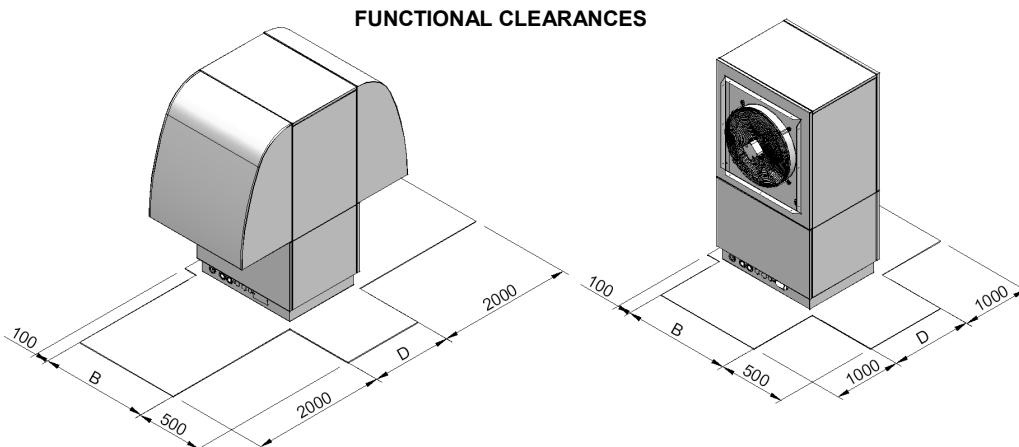


WITH (KCUX) OPTION

- (1) condensate discharge
- (2) installation input
- (3) installation output
- (4) domestic hot water input
- (5) domestic hot water output
- (6) installation charge
- (7) power input
- (8) E.P. and maintenance
- (9) outlet air direction
- (10) inlet air direction
- (11) compressor
- (12) finned exchanger
- (13) fan



WITH (CAN) OPTION



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