

HPE 66÷115 INVERTER

Air/water inverter heat pumps with axial fans with double refrigerant circuit



Technical and construction characteristics

The reverse cycle heat pumps of the HPE 66÷115 INVERTER series have been designed for commercial and industrial applications, they are extremely versatile and designed for heat pump operation with the production of hot water for space heating and /o for sanitary use at temperatures up to 58 °C. The use of scroll compressor technology, specially designed for operation with R410A, combined with a compressor with INVERTER brushless motor, the fans always driven by inverter, as well as the integrated variable flow circulators together with the electronic expansion valve, optimize consumption and the operational efficiency of the system as a whole. All units are supplied as standard with the following control and protection devices: return water temperature probe, work and antifreeze probe, high and low pressure transducers, compressor intake and discharge temperature probes, fan thermal protection, side flow switch water, high pressure switch.

HYDRAULIC CIRCUIT

The heat pump chillers of the HPE 66÷115 INVERTER series are supplied with: plate exchanger with double refrigeration circuit and single hydraulic circuit, inlet pressure gauge and outlet connection, exchanger for evaluating pressure drops, service tap, flow switch protection, automatic air vent valve and safety valve (6 bar).

The version with integrated circulator includes a pump with an AC motor driven by an inverter to regulate the water flow rate between 60 and 100%, also suitable for the use of chilled water and directly managed by the on-board machine control.



GAS ECOLOGICAL



COMPRESSOR DC INVERTER



DHW UP TO 65 °C WITH RESISTANCE



EXCHANGER PLATE



CIRCULATOR DC INVERTER



PARTIALIZATION OF LOAD



DOUBLE CIRCUIT REFRIGERATOR



AXIAL FANS DC BRUSHLESS



CHECK V.415

Model	Cooling power kW	Thermal power kW	Code	€
HPE 66 INVERTER	65,59	68,40	37981801	40.200,00
HPE 75 INVERTER	74,60	74,70	37981802	42.700,00
HPE 85 INVERTER	83,90	85,60	37981803	44.820,00
HPE 95 INVERTER	94,70	93,34	37981804	49.350,00
HPE 105 INVERTER	105,60	102,47	37981805	52.230,00
HPE 115 INVERTER	114,30	111,47	37981806	53.420,00

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Accessories HPE 66÷115 INVERTER

	Code	€	
ACF	200	37306120	610,00
ACF	300	37306130	710,00
ACF	500	37306150	1.000,00
ACF	800	37306160	1.480,00
ACF	1000	37306170	1.660,00
ACF	1500	37306180	2.530,00
ACF	2000	37306190	3.180,00
Integrated AC pump	37981001	2.260,00	
Antifreeze kit	37981002	530,00	
GI module for terminal block expansion	37981003	580,00	
Silencing HPE 66÷115 INVERTER	37981007	900,00	
Super silencing HPE 66 - 75 - 85 - 95 INVERTER	37981004	2.710,00	
Super silencing HPE 105 - 115 INVERTER	37981005	4.230,00	
Anti-corrosion treatment	37981006	5.060,00	
Circuit breakers	37981008	740,00	
Touchscreen remote control	37980013	610,00	
Wall remote control	37980017	300,00	
Anti-vibration	37981009	440,00	
Interface activation Modbus RS485	37980011	800,00	
Sequence control device, phase failure + minimum and maximum voltage relay	37980016	360,00	

Carpentry

All the units in the HPE 66÷115 INVERTER series are produced in hot-dip galvanized sheet metal and painted after processing with polyurethane powders in an oven at 180 °C to ensure the best resistance to atmospheric agents.



Fan

The fan is made of fibre-reinforced plastic and is of the axial type with wing profile blades. It is statically and dynamically balanced and supplied complete with protective grille and mouthpiece. The electric motor used is modulated via inverter, directly coupled and equipped with integrated thermal protection.

The motor has an IP 54 protection degree according to CEI EN 60529.

Control V.415

New control logic and display interface installed on all A2B Accorroni E.G. units. of new generation HPE 66÷115 INVERTER.

Allows rapid maintenance with parameter and firmware updates from a USB device. Increase in memory with implementation of new logic.



Refrigeration circuits

The refrigeration circuits are made using components from leading international companies and according to the UNI EN 13134 regulation regarding brazing and welding processes.

The refrigerant gas used is R410A.

Each refrigerant circuit includes in its basic version: 4-way cycle reversal valve, electronic expansion valve, liquid separator, liquid receivers, auxiliary circuit to reduce defrost times, oil recovery circuit, non-return valves, inspection valves for maintenance and control, safety device according to PED regulations (high pressure switch), pressure transducers, precision probes, high capacity filter drier, mechanical filters.



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Compressors

The compressors are Scroll type, mounted on rubber vibration dampers. For each of the 2 circuits there is a DC inverter compressor. In this way it is possible, in each circuit, to continuously modulate between the minimum power of the inverter compressor alone and the sum of the maximum powers of all the compressors in the circuit. On all units it is therefore possible to divide the power output and absorbed power up to 9% of the maximum on models with 4 compressors and up to 6% in models with 6 compressors. Crankcase heater is standard. Inspection of the compressors is possible through the front panel of the unit which allows maintenance even with the unit in operation.



Electrical cabinet

The electrical panel is built in compliance with current European regulations, with IP54 protection rating and contains all the electromechanical and electronic regulation and control components. The electrical panel is equipped with a terminal block with dry contacts for remote ON-OFF, summer/winter switching, the domestic water sensor, and the remote control panel. The addition of the optional GI module allows the management of further system functions.



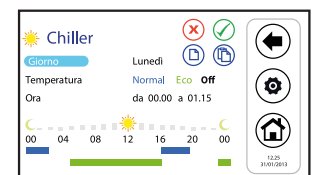
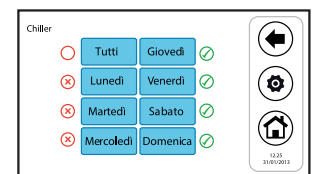
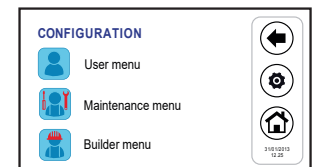
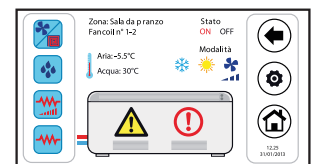
Control system

All HPE 66÷115 INVERTER units are equipped with a control unit equipped with a microprocessor with overheating control logic, an electronic thermostatic valve and solenoid valves, pressure transducers and temperature probes. The CPU also controls the following functions: water temperature regulation, antifreeze protection, timing and sequence activation of the compressors, alarm management and reset, fan and pump modulation. Upon request, the microprocessor can be connected to remote control BMS systems via ModBus protocol. The control system, together with INVERTER technology and on-board sensors, suddenly and continuously monitors and adapts the performance of the inverter compressor, circulator and fan.



Multifunction touch screen remote control

The touch screen remote control is used for the centralized management of a chiller/heat pump network. It can also be used for partial functions (for example as a remote panel for a single chiller/heat pump or as a room thermostat to manage some fan coil areas). It integrates humidity and temperature sensors for thermo-hygrometric analysis of the environment and double set point management for radiant floor systems that use a dehumidification system. The very intuitive interface simplifies the use of the control; all functions are easily set up thanks to the use of immediately understandable synoptics. The remote control periodically monitors and queries the network, there is a cycle time between the signal or command request and the activation of the function, the cycle time depends on the size of the fan coil and/or heat pump network.



Domestic water function

Heat pumps can also produce domestic water by managing an external 3-way valve and an appropriately sized boiler. By connecting multiple heat pumps in cascade, the user can decide whether all or only part of them can participate in the "DHW" function.

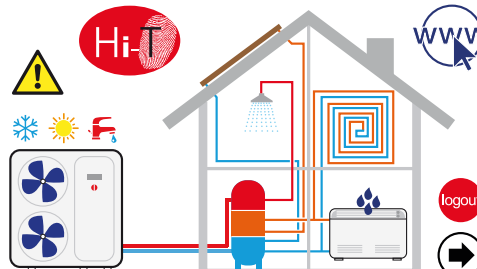
Chronothermostat function

The panel contains within it the weekly chronothermostat function with 2 temperature levels, T and Teco, both for the control of the hydronic terminals and for the control of the heat pumps. The "chronothermostat" is performed separately for hydronic terminals and heat pumps.

STATUS SETTING

System

- Chiller
- Zone 1
- Zone 2
- Zone 3



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Legend multifunction touch screen remote control Hi-T



Room thermostat

The thermostat function allows perfect management of the room temperature in the various declared fan coil zones, regulating the air conditioning according to the temperature detected.



Humidity control

Integrated humidity and temperature sensor for double setpoint management and room thermo-hygrometric regulation.



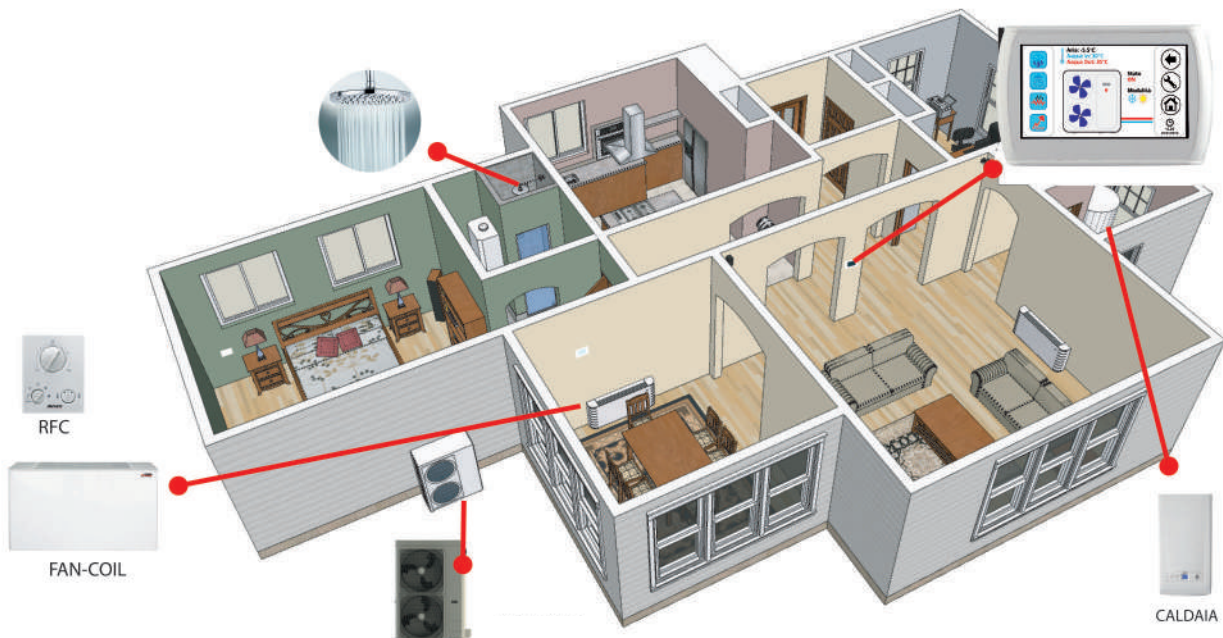
Web server

Supervision, firmware update, system status, alarm history via ethernet port.



Double Set Point

Gestione deumidificatore per impianti a pavimento.



Screed function

Drying of the screed by setting time and temperature parameters.



USB

Software programming, alarm history download, updating parameters of connected units.



Boiler enabling

Advanced management of backup sources, with replacement and/or integration logic based on climatic conditions for different external operating temperature bands.



Instruction

Off-line and online integration of instructions for immediate understanding of how to use the control, equipped with graphic support for intuitive consultation.



Timer

Weekly graphic programming of the operating status of the system and the management of the legionella disinfection cycle.



External serving units in parallel

Management of a circulation pump external to the heat pumps of the HPE 66÷115 INVERTER series. Operation is possible if the units are connected to a Hi-T keyboard, the machines are configured in hydraulic parallel, option CI =2. In this configuration the production of domestic hot water is allowed.



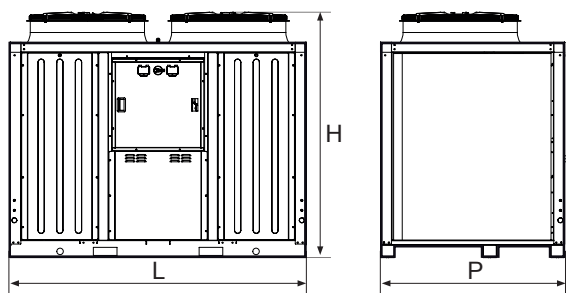
Single network pump

It allows the management of a network of heat pumps, up to 7 HPE INVERTERS.

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Dimensions HPE HPE 66÷115 INVERTER



Modelli	HPE 66	HPE 75	HPE 85	HPE 95	HPE 105	HPE 115
L	2250	2250	2250	2250	2250	2250
P	1170	1170	1170	1170	1170	1170
H	1985	1985	1985	1985	1985	1985

Values in mm

Technical data table HPE 66÷115 INVERTER

DESCRIPTION	U.M.	HPE INV 66	HPE INV 75	HPE INV 85	HPE INV 95	HPE INV 105	HPE INV 115	
Cooling								
Cooling capacity (1)	kW	65,59	74,6	83,9	94,7	105,6	114,3	
Power absorbed (1)	kW	22,62	25,72	28,83	32,66	36,16	39,40	
E.E.R. (1)	W/W	2,90	2,90	2,91	2,90	2,92	2,90	
Cooling capacity (2)	kW	79,60	90,16	102,8	113,3	127,3	139,3	
Power absorbed (2)	kW	21,81	24,64	28,16	31,04	34,88	38,16	
E.E.R. (2)	W/W	3,65	3,66	3,65	3,65	3,65	3,65	
SEER (5)	W/W	3,82	3,85	3,81	3,80	3,83	3,81	
Water flow rate (1)	l/s	3,14	3,57	4,01	4,53	5,05	5,47	
Pressure drops (1)	kPa	32	36	37	34	33	38	
Heating								
Thermal power (3)	kW	68,40	74,70	85,6	93,34	102,47	111,47	
Power absorbed (3)	kW	16,85	18,44	21,14	23,87	25,3	28,58	
C.O.P. (3)	W/W	4,06	4,05	4,05	3,91	4,05	3,90	
Thermal power (4)	kW	65,86	71,0	82,12	88,57	97,13	108,28	
Power absorbed (4)	kW	20,52	22,19	25,66	27,68	30,35	36,09	
C.O.P. (4)	W/W	3,21	3,20	3,20	3,20	3,20	3,00	
SCOP (6)	W/W	3,58	3,55	3,53	3,54	3,57	3,50	
Water flow rate (4)	l/s	3,15	3,40	3,93	4,24	4,65	5,18	
User side exchanger pressure drops (4)	kPa	30	31	31	32	27	27	
Energy efficiency				A+/A+			A+/A++	
Compressor								
Guy				Scroll				
Compressors	n.		4			6		
Refrigerant circuits	n.			2				
Refrigerant quantity (7)	kg	13,4	14,2	14,3	13,4	14,2	14,3	
Fan								
Nominal air flow	m ³ /s	6,5x2	7x2	7,5x2	8x2	8,5x2	9x2	
Hydraulic circuit								
Hydronic kit maximum pressure	bar			6				
Hydraulic connections				2" 1/2				
Minimum water volume (8)	l		200			260		
Acoustic data								
Sound power (9)	Standard	dB(A)	82,5	83	83,5	84	84	84,5
	Silence	dB(A)	81	81,5	82	82,2	82,2	82,7
	Super Silence	dB(A)	80,2	80,7	81,2	81,7	81,7	82,2
Sound pressure (10)	Standard	dB(A)	50,7	51,2	51,7	52,2	52,5	52,7
	Silence	dB(A)	49,2	49,7	50,2	50,4	50,4	50,9
	Super Silence	dB(A)	48,4	48,9	49,4	49,9	49,9	50,4
Electrical data								
Electrical supply Max			400V/3+N/50Hz					
absorbed power Max	kW	39,90	42,3	46,7	52,3	55,8	63,0	
absorbed current	A	60,1	63,5	70,3	78,7	83,9	94,7	
Weight								
Shipping weight	Kg	943	955	1011	1026	1128	1142	
Operating weight	Kg	923	946	996	1011	1105	1120	

Performances referred to the following conditions:

- (1) Cooling: external air temperature 35 °C; inlet/outlet water temperature 12/7 °C.
- (2) Cooling: external air temperature 35 °C; inlet/outlet water temperature 23/18 °C
- (3) Heating: external air temperature 7 °C d.b. 6 °C b.u.; inlet/outlet water temperature 30/35 °C.
- (4) Heating: external air temperature 7 °C d.b. 6 °C b.u.; inlet/outlet water temperature 40/45 °C
- (5) Cooling: inlet/outlet water temperature 12/7 °C.
- (6) Heating: average climate conditions; T_{biv} = -7 °C; inlet/outlet water temperature 30/35 °C.

(7) Indicative data and subject to change. For the correct data, always refer to the technical label on the unit.

(8) Calculated for a decrease in the system water temperature of 10 °C with a defrost cycle lasting 6 minutes.

(9) Sound power: condition (3); value determined on the basis of measurements carried out in accordance with UNI EN ISO 9614-2 regulation, in compliance with what is required by the certificazione Eurovent.

(10) Sound pressure: Value calculated from the sound power level using ISO 3744:2010, referred to 10 m away from the unit.

(*) The useful head data and pump characteristics refer to the EC integrated circulator (as optional)

N.B. The performance data reported are indicative and may be subject to change. Furthermore, the yields declared in points (1), (2), (3) and (4) are to be understood as referring to the instantaneous power according to EN 14511. The data declared in points (5) and (6) are determined according to UNI EN 14825.