

> HXA

AIR - WATER HEAT PUMPS FOR OUTDOOR INSTALLATION

Available range

Unit type

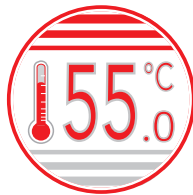
IP Reversible heat pump
(reversible on the refrigerant side)

Versions

VB Base version

Acoustic setting up

AB Base setting up



Unit description

This series of **air-water** heat pumps satisfies the heating, cooling and domestic hot water production requirements of residential plants of small and medium size. All the units are suitable for outdoor installation and can be applied to **fan coil** plants, **radiant** floor plants and high efficiency **radiators** plants.

The control system allows to manage not only the refrigerant circuit but the whole plant with the possibility to choose different solutions both for the heating and cooling plant and for the domestic hot water management. The possibility of solar panels or other heating sources integration is also available.

The **heating** function optimizes the flow water temperature according both to the ambient temperature and to the outdoor temperature through climatic curves adaptable to the building features. It's possible to manage a storage tank and two independent circuits (a direct one and a mixed one).

The **domestic hot water** management allows to control the three way valve, the storage tank and the anti-legionella cycles (if necessary).

The **cooling** function can be realized through "active cooling" (refrigerant circuit inversion). When the unit is used in radiant floor plants, to avoid condensate generation, a room humidity sensor can be installed.

The **internal programmer clock** allows to define different daily switching programs for heating, cooling and domestic hot water production.

The refrigerant circuit, contained in a box repaired from the air flow to simplify the maintenance operations, is equipped with rotary or scroll compressor (according to the model) mounted on damper supports, brazed plate heat exchangers, thermostatic expansion valve, reverse cycle valve, axial fans with safety protection grilles, finned coil realized with copper pipes and aluminium fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and reduce thermal losses.

All three-phase power supply units are provided with a phase sequence and correct sequence controller device.

All the units are supplied with an outdoor temperature sensor in order to realize the climatic control.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Plant side flow rate management

- not present
- standard pump
- high head pump
- high efficiency pump

Integrative electrical heaters

- not present
- standard in the flow

Soft starter

- not present
- standard

Accessories

Rubber vibration dampers

Coil protection grille

Remote thermostat (wired or wireless)

Remote control (wired or wireless)

Wireless transmitter

Wireless repeater

Condensate sensor

Room hygrostat

Room humidity sensor

CONTROL SYSTEM

The microprocessor controller is able to manage not only the unit itself but also all that components of the plant which allow to realize a complete system.

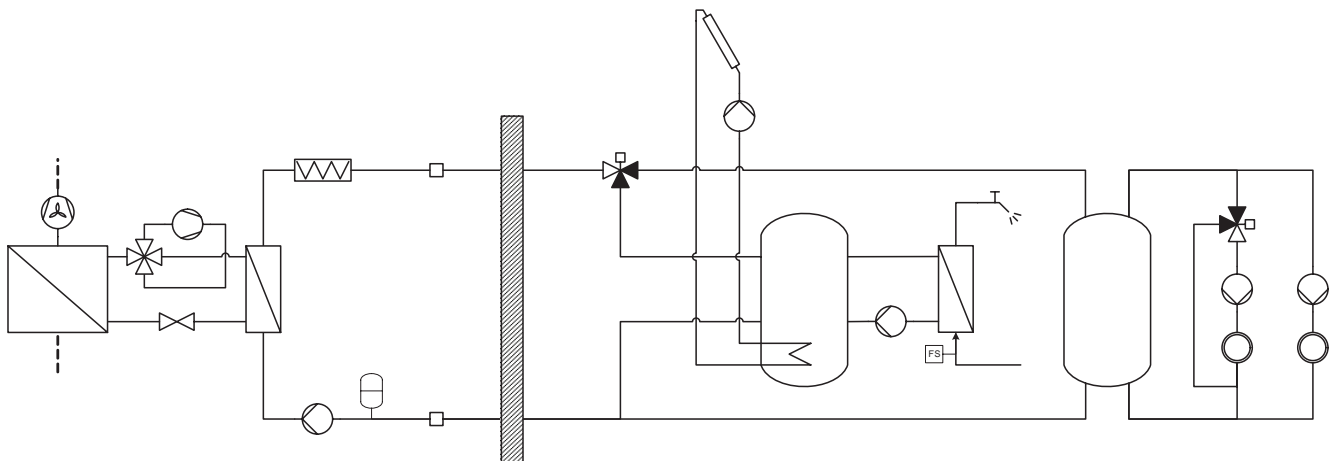
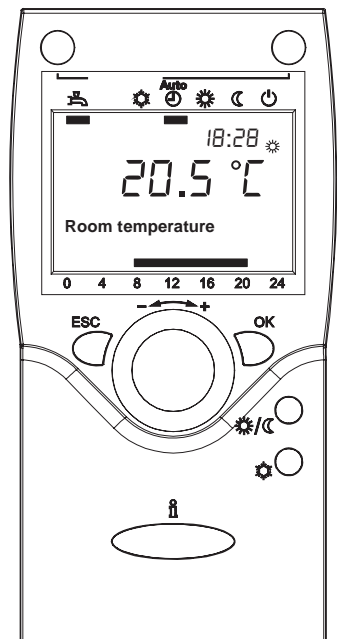
The main **functions** of the control system are :

- room temperature control according to the outdoor temperature (climatic control)
- domestic hot water production (management of 3 way valve, storage tank, anti legionella cycles...)
- management of a heating and/or cooling mixed circuit (pump and 3 way mixing valve)
- management of a heating direct circuit (only pump)
- management of a storage tank for heating and/or cooling
- management of electrical heaters for heating and domestic hot water (3 steps logic)
- solar panels integration
- room humidity control for cooling with radiant systems
- internal programmer clock (for heating, cooling and domestic hot water)
- digital input for electrical energy low tariff
- alarm memory management and diagnostic
- compressor and pump operating hour counter
- possibility to manage more units in cascade (maximum 16)

Besides the standard user interface to be placed indoor, wired or wireless remote thermostats are available which allow to control all the operating parameters of the unit and to acquire the temperature in the different zones in order to realize a more precise and comfortable control.

The unit controller is able to manage a lot of different plant solutions enabling automatically the necessary control algorithms according to the components which have been connected.

The management of such components is possible through additional expansion modules which communicate with the unit by means of an internal bus and provide all the inputs and outputs required to fulfil a complete system.



The controller is able to manage up to **two zones in heating** (one by means of a mixed circuit and the other by means of a direct circuit) and **one zone in cooling** (by means of a mixed circuit).

It's possible to realize more complex plants connecting to the heat pump controller further expansion modules in order to extend without limits the number of zones to be managed.

For each zone the following parameters can be set :

- set point
- daily or weekly operating time table
- climatic control curve
- room control sensor : it can be in common with the other zones or independent (in that case it's necessary to install an additional room thermostat)

OPERATING LIMITS	Unit type	Cooling		Heating		°C
		min	max	min	max	
Outdoor air inlet temperature	IP	5	48	-15	42	°C
Water outlet temperature	IP	6	25	30	55	°C

NOMINAL performances - Radiant plants

IP	Acoustic setting up : AB	5.1	6.1	7.1	8.1	10.1	12.1	15.1	18.1	
A7W35	Heating capacity	4,76	5,83	6,92	8,03	10,2	11,9	15,7	18,6	kW
	Power input	1,21	1,49	1,87	2,28	2,86	3,39	4,28	5,29	kW
	COP	3,93	3,91	3,70	3,52	3,57	3,51	3,67	3,52	-
	Water flow rate plant side	823	1008	1195	1385	1749	2043	2702	3204	l/h
	Pressure drops plant side	10	15	20	25	37	47	51	46	kPa
A2W35	Heating capacity	3,95	4,85	5,75	6,67	8,43	9,85	13,1	15,5	kW
	Power input	1,19	1,47	1,84	2,24	2,81	3,31	4,17	5,16	kW
	COP	3,32	3,30	3,13	2,98	3,00	2,98	3,14	3,00	-
	Water flow rate plant side	684	838	994	1152	1453	1697	2251	2667	l/h
	Pressure drops plant side	7	11	14	18	27	35	38	34	kPa
A35W18	Cooling capacity	5,12	6,27	7,43	8,60	10,8	12,6	16,7	19,8	kW
	Power input	1,54	1,91	2,39	2,91	3,64	4,32	5,44	6,73	kW
	EER	3,32	3,28	3,11	2,96	2,97	2,92	3,07	2,94	-
	Water flow rate plant side	885	1085	1286	1490	1879	2190	2914	3448	l/h
	Pressure drops plant side	12	17	22	28	41	53	58	52	kPa

NOMINAL performances - Standard plants

IP	Acoustic setting up : AB	5.1	6.1	7.1	8.1	10.1	12.1	15.1	18.1	
A7W45	Heating capacity	4,65	5,70	6,76	7,84	9,91	11,6	15,3	18,2	kW
	Power input	1,44	1,78	2,23	2,72	3,40	4,02	5,06	6,27	kW
	COP	3,23	3,20	3,03	2,88	2,91	2,89	3,02	2,90	-
	Water flow rate plant side	806	989	1171	1357	1712	1999	2642	3146	l/h
	Pressure drops plant side	10	14	19	24	35	45	49	45	kPa
A2W45	Heating capacity	3,84	4,72	5,59	6,49	8,19	9,58	12,7	15,1	kW
	Power input	1,42	1,76	2,20	2,68	3,34	3,95	4,96	6,15	kW
	COP	2,70	2,68	2,54	2,42	2,45	2,43	2,56	2,46	-
	Water flow rate plant side	667	819	970	1124	1418	1656	2190	2607	l/h
	Pressure drops plant side	7	10	14	18	26	33	36	33	kPa
A35W7	Cooling capacity	4,24	5,20	6,15	7,14	8,98	10,4	13,9	16,5	kW
	Power input	1,50	1,85	2,31	2,80	3,50	4,14	5,21	6,46	kW
	EER	2,83	2,81	2,66	2,55	2,57	2,51	2,67	2,55	-
	Water flow rate plant side	729	894	1059	1229	1548	1802	2403	2849	l/h
	Pressure drops plant side	8	12	16	21	30	39	42	38	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

A7W65 = source : air in 7°C d.b. 6°C w.b. / plant : water in 55°C out 65°C
 A7W55 = source : air in 7°C d.b. 6°C w.b. / plant : water in 47°C out 55°C
 A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
 A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C
 A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
 A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C

A2W65 = source : air in 2°C d.b. 1°C w.b. / plant : water in 55°C out 65°C
 A2W55 = source : air in 2°C d.b. 1°C w.b. / plant : water in 47°C out 55°C
 A2W45 = source : air in 2°C d.b. 1°C w.b. / plant : water in 40°C out 45°C
 A2W35 = source : air in 2°C d.b. 1°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	5.1	6.1	7.1	8.1	10.1	12.1	15.1	18.1		
Power supply	230 - 1 - 50				230 - 1 - 50 400 - 3N - 50		400 - 3N - 50		V-ph-Hz	
Compressor type	rotary				scroll					-
N° compressors / N° refrigerant circuits					1 / 1					n°
Plant side heat exchanger type					stainless steel brazed plates					-
Source side heat exchanger type					finned coil					-
Fans type					axial					-
N° fans					1		2		n°	
Hydraulic fittings					1" M					-

ACOUSTIC PERFORMANCES

Base acoustic setting up (AB)	5.1	6.1	7.1	8.1	10.1	12.1	15.1	18.1	
Sound power level	68	68	69	69	72	72	74	74	dB(A)
Sound pressure level at 1 metre	54	54	55	55	57	57	59	59	dB(A)
Sound pressure level at 5 metres	43	43	44	44	46	46	48	48	dB(A)
Sound pressure level at 10 metres	37	37	38	38	41	41	43	43	dB(A)

The acoustic performances are referred to units operating in heating mode at nominal conditions A7W35.

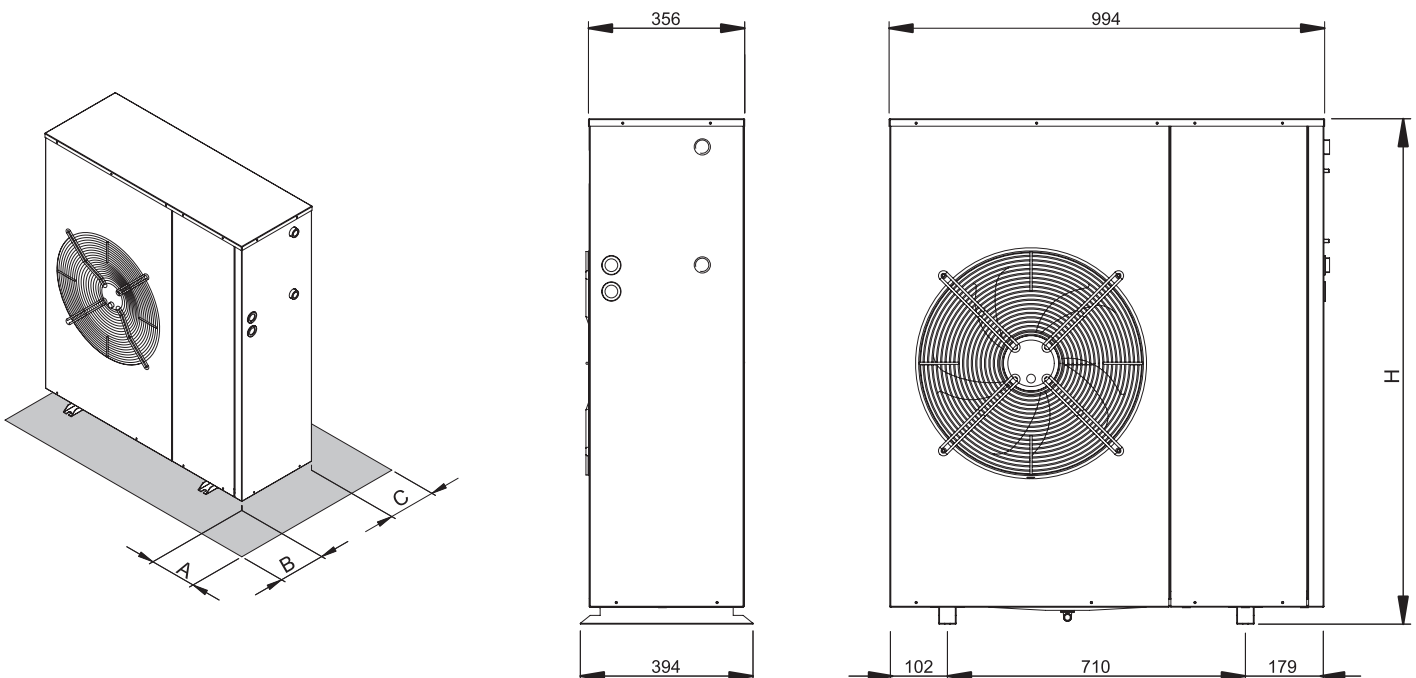
Unit placed in free field on reflecting surface (directional factor equal to 2).

The sound power level is measured according to ISO 3744 standard.

The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

DIMENSIONS AND MINIMUM OPERATING AREA

Respect the free area around the unit as shown in figure in order to guarantee a good accessibility and facilitate maintenance and control operations.



	5.1 - 6.1 - 7.1 - 8.1	10.1 - 12.1	15.1 - 18.1	
A	400			mm
B	600			mm
C	200			mm
H	900	1150	1450	mm