

# > HXP HT

AIR - WATER  
HEAT PUMPS

FOR OUTDOOR OR INDOOR INSTALLATION

## Available range

### Unit type

IP Reversible heat pump  
(reversible on the refrigerant side)

### Versions (heat recovery)

VB Base version  
VD Desuperheater 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 both for outdoor or indoor installation. The possibility to produce water at high temperatures makes these units particularly suitable to be applied to **radiators** plants as well as to **fan coil** plants and **radiant** floor plants.

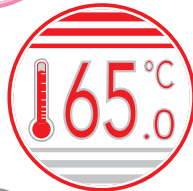
The control system allows to manage not only the refrigerant circuit but the whole plant with the possibility to choose different solutions both for the heating and cooling plant and for the domestic hot water management. The possibility of solar panels or other heating sources integration is also available.

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. During cooling mode operation a part of the heating power in excess can be recovered for the domestic hot water production (VD version).

The **internal programmer clock** allows to define different daily switching pro-



grams 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 scroll compressor mounted on damper supports, brazed plate heat exchangers, electronic expansion valve, reverse cycle valve, centrifugal fan (plug fan), finned coil realized with copper pipes and aluminium fins. The circuit is protected by high and low pressure switches and flow switches on the plate heat exchanger.

The compressor is equipped with vapour and liquid injection and is placed on an economized refrigerant circuit with plate heat exchanger and electronic expansion valve dedicated to the injection.

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

The plug fan with electronic control of the rotational speed guarantees high efficiencies and low noise in all the operating conditions and allows to install the unit both outdoor (with protection caps) or indoor (with ducted air inlet and outlet). It is moreover possible to reduce the noise during the night.

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

### Domestic hot water production

- not present
- 3 way valve

### Integrative electrical heaters

- not present
- standard in the flow

### Soft starter

- not present
- standard

## Accessories

### Rubber vibration dampers

### Adjustable rubber vibration dampers

### Spring vibration dampers

### Protection caps

### 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.

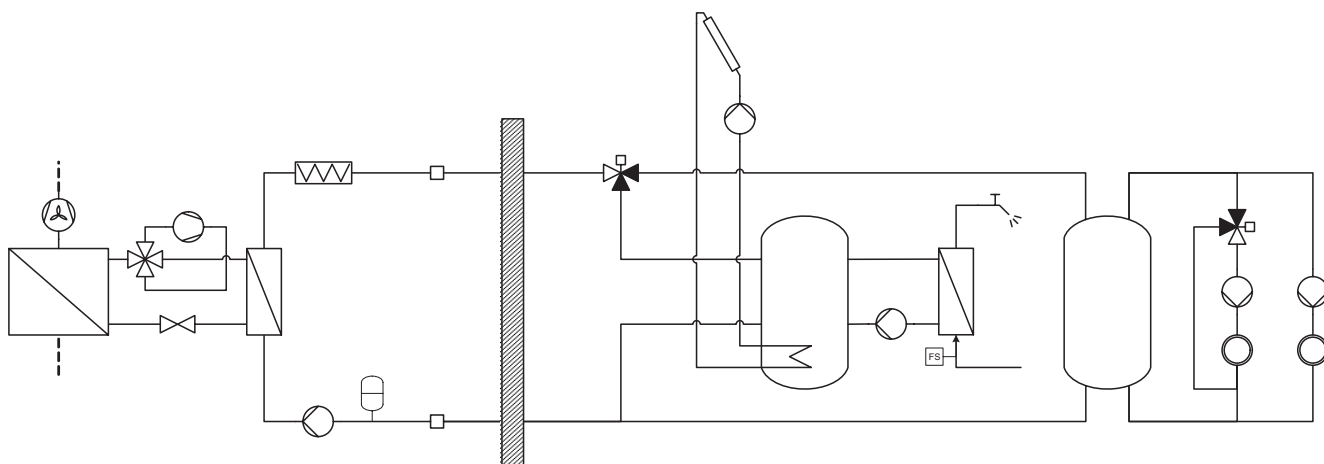
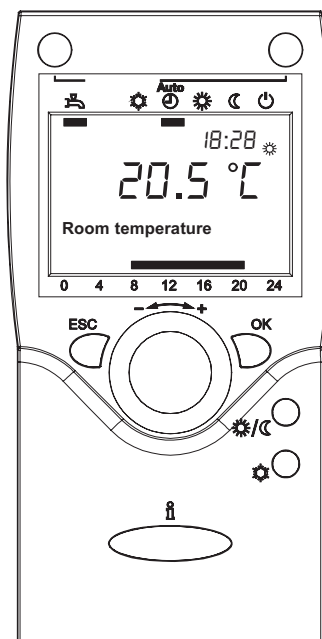
The main **functions** of the control system are :

- 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)

AERAUIC performances	9.1	12.1	15.1	20.1	25.1	
Nominal air flow rate	3650	4150	4150	7150	7150	m <sup>3</sup> /h
Nominal available static head	30	30	30	50	50	Pa

OPERATING LIMITS	Unit type	Cooling		Heating		
		min	max	min	max	
Outdoor air inlet temperature	IP	5	50	-22	42	°C
Water outlet temperature	IP	6	25	30	65 *	°C

\* The maximum water outlet temperature can be increased up to 70°C keeping a ΔT between inlet and outlet equal to 10°C.

**NOMINAL performances - Radiant plants**

IP	Acoustic setting up : AB	9.1	12.1	15.1	20.1	25.1	
<b>A7W35</b>	Heating capacity	8,82	11,8	15,3	19,8	25,0	kW
	Power input	1,92	2,58	3,32	4,33	5,49	kW
	<b>COP</b>	<b>4,59</b>	<b>4,57</b>	<b>4,61</b>	<b>4,57</b>	<b>4,55</b>	-
	Water flow rate plant side	1524	2043	2632	3429	4312	l/h
	Pressure drops plant side	14	16	24	16	24	kPa
<b>A2W35</b>	Heating capacity	7,45	10,0	12,8	16,7	21,1	kW
	Power input	1,92	2,58	3,32	4,33	5,48	kW
	<b>COP</b>	<b>3,88</b>	<b>3,87</b>	<b>3,86</b>	<b>3,86</b>	<b>3,85</b>	-
	Water flow rate plant side	1288	1727	2217	2892	3637	l/h
	Pressure drops plant side	10	12	18	11	17	kPa
<b>A35W18</b>	Cooling capacity	9,03	12,1	15,5	20,2	25,5	kW
	Power input	2,36	3,16	4,07	5,31	6,71	kW
	<b>EER</b>	<b>3,83</b>	<b>3,83</b>	<b>3,81</b>	<b>3,80</b>	<b>3,80</b>	-
	Water flow rate plant side	1560	2086	2690	3500	4414	l/h
	Pressure drops plant side	14	16	25	16	25	kPa

**NOMINAL performances - Standard plants**

IP	Acoustic setting up : AB	9.1	12.1	15.1	20.1	25.1	
<b>A7W45</b>	Heating capacity	8,93	11,9	15,4	20,1	25,3	kW
	Power input	2,45	3,30	4,24	5,53	7,01	kW
	<b>COP</b>	<b>3,64</b>	<b>3,61</b>	<b>3,63</b>	<b>3,63</b>	<b>3,61</b>	-
	Water flow rate plant side	1548	2068	2659	3476	4380	l/h
	Pressure drops plant side	14	16	24	16	25	kPa
<b>A2W45</b>	Heating capacity	7,57	10,1	13,0	17,0	21,5	kW
	Power input	2,45	3,30	4,23	5,54	6,99	kW
	<b>COP</b>	<b>3,09</b>	<b>3,06</b>	<b>3,07</b>	<b>3,07</b>	<b>3,08</b>	-
	Water flow rate plant side	1314	1755	2259	2954	3719	l/h
	Pressure drops plant side	11	12	18	12	18	kPa
<b>A35W7</b>	Cooling capacity	6,86	9,19	11,9	15,4	19,4	kW
	Power input	2,18	2,93	3,76	4,91	6,20	kW
	<b>EER</b>	<b>3,15</b>	<b>3,14</b>	<b>3,16</b>	<b>3,14</b>	<b>3,13</b>	-
	Water flow rate plant side	1179	1581	2042	2643	3329	l/h
	Pressure drops plant side	9	10	16	10	15	kPa

**NOMINAL performances - HIGH temperature and VERY HIGH temperature plants**

IP	Acoustic setting up : AB	9.1	12.1	15.1	20.1	25.1	
<b>A7W65</b>	Heating capacity	9,28	12,4	16,0	20,9	26,3	kW
	Power input	3,76	5,06	6,47	8,49	10,7	kW
	<b>COP</b>	<b>2,47</b>	<b>2,45</b>	<b>2,47</b>	<b>2,46</b>	<b>2,46</b>	-
	Water flow rate plant side	812	1085	1400	1828	2301	l/h
	Pressure drops plant side	5	5	8	5	7	kPa
<b>A2W65</b>	Heating capacity	7,96	10,7	13,7	17,9	22,5	kW
	Power input	3,77	5,06	6,48	8,51	10,7	kW
	<b>COP</b>	<b>2,11</b>	<b>2,11</b>	<b>2,11</b>	<b>2,10</b>	<b>2,10</b>	-
	Water flow rate plant side	696	936	1199	1566	1968	l/h
	Pressure drops plant side	4	4	6	4	5	kPa
<b>A7W55</b>	Heating capacity	9,08	12,2	15,6	20,4	25,7	kW
	Power input	3,02	4,05	5,19	6,80	8,57	kW
	<b>COP</b>	<b>3,01</b>	<b>3,01</b>	<b>3,01</b>	<b>3,00</b>	<b>3,00</b>	-
	Water flow rate plant side	988	1329	1700	2223	2800	l/h
	Pressure drops plant side	7	8	11	7	11	kPa
<b>A2W55</b>	Heating capacity	7,73	10,4	13,3	17,4	21,9	kW
	Power input	3,02	4,07	5,19	6,82	8,59	kW
	<b>COP</b>	<b>2,56</b>	<b>2,56</b>	<b>2,56</b>	<b>2,55</b>	<b>2,55</b>	-
	Water flow rate plant side	842	1133	1449	1896	2386	l/h
	Pressure drops plant side	5	6	9	5	8	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	9.1	12.1	15.1	20.1	25.1	
Power supply	230 - 1 - 50 400 - 3N - 50			400 - 3N - 50		V-ph-Hz
Compressor type	scroll with vapour injection (EVI)					-
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	plug fan					-
N° fans	1					n°
Hydraulic fittings		1" M		1"1/4 M		-
Hydraulic fittings heat recovery (VD)		1" M		1" M		-
Weight *	213	220	225	287	295	kg
Maximum power input *	4,5	5,9	7,1	10,1	12,5	kW

\* base unit without options and accessories

**ACOUSTIC PERFORMANCES**

Unit without accessory "Protection caps"	9.1	12.1	15.1	20.1	25.1	
Sound power level	71	72	72	74	74	dB(A)
Sound pressure level at 1 metre	55	56	57	59	59	dB(A)
Sound pressure level at 5 metres	45	46	46	48	48	dB(A)
Sound pressure level at 10 metres	39	40	41	43	43	dB(A)
Unit with accessory "Protection caps"	9.1	12.1	15.1	20.1	25.1	
Sound power level	67	68	69	71	71	dB(A)
Sound pressure level at 1 metre	52	53	54	55	55	dB(A)
Sound pressure level at 5 metres	41	42	43	45	45	dB(A)
Sound pressure level at 10 metres	36	37	38	40	40	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).

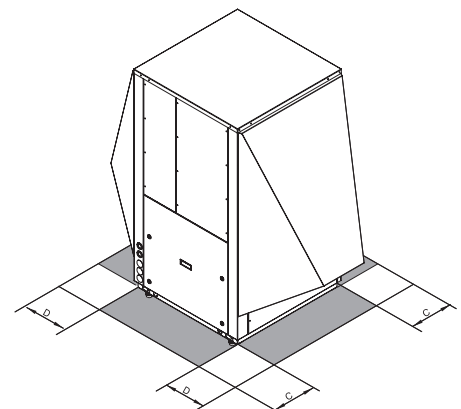
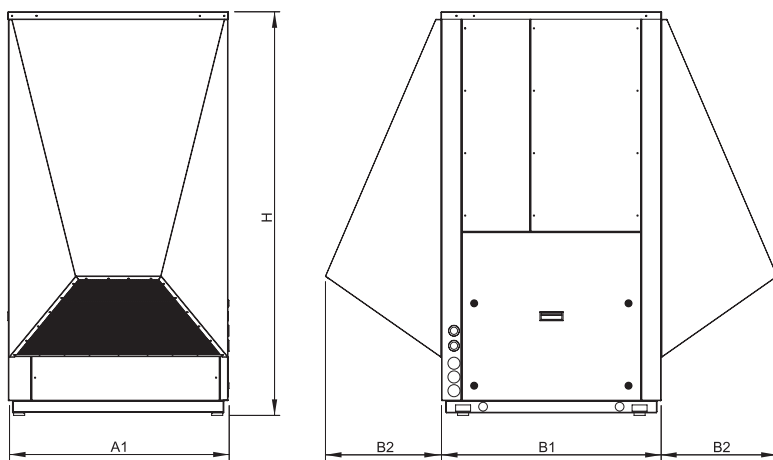
The sound power level is measured according to ISO 3744 standard.

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.

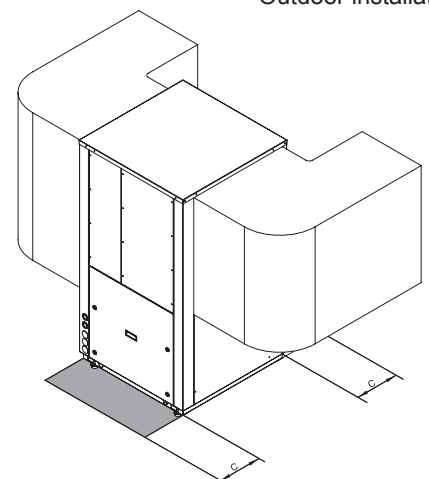
**DIMENSIONS AND MINIMUM OPERATING AREA**

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

<b>C</b>	600 mm
<b>D</b>	600 mm



Outdoor installation



Indoor installation

	9.1 - 12.1 - 15.1	20.1 - 25.1	
A1	730	880	mm
B1	730	880	mm
B2	450	465	mm
H	1470	1620	mm