

# > HXW LT

WATER - WATER AND BRINE - WATER  
HEAT PUMPS  
FOR OUTDOOR OR INDOOR INSTALLATION

## Available range

### Unit type

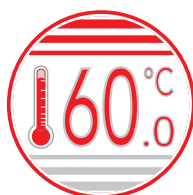
- IH Heat pump
- IP Reversible heat pump  
(reversible on the refrigerant side)

### Versions

- VB Base version

### Acoustic setting up

- AB Base setting up



## Unit description

This series of **water-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 or indoor installation and can be applied to **fan coil** plants, **radiant** floor plants and high efficiency **radiators** plants.

As source both water (from well, river, lake...) or brine solutions (from geothermic probes) can be used.

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 "passive cooling" (free cooling), through "active cooling" (refrigerant circuit inversion) or through both systems actuated in sequence. 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 is equipped with scroll compressor mounted on damper supports, brazed plate heat exchangers, thermostatic expansion valve and reverse cycle valve (for reversible units). The circuit is protected by high and low pressure switches and flow switches on both the exchangers.

The outdoor structure is **thermally and acoustically insulated** in order to reduce sound propagation and to allow the installation in domestic places.

All the hydraulic pipes are thermally insulated to avoid condensate generation.

All the three phase electrical power supply units are supplied with phase sequence and voltage controller 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

### Soft starter

- not present
- standard

## Accessories

- Rubber vibration dampers
- Remote thermostat (wired or wireless)
- Remote control (wired or wireless)
- Wireless transmitter
- Wireless repeater
- Condensate sensor
- Room hygostat
- Room humidity sensor
- Plant tank

## CONTROL SYSTEM

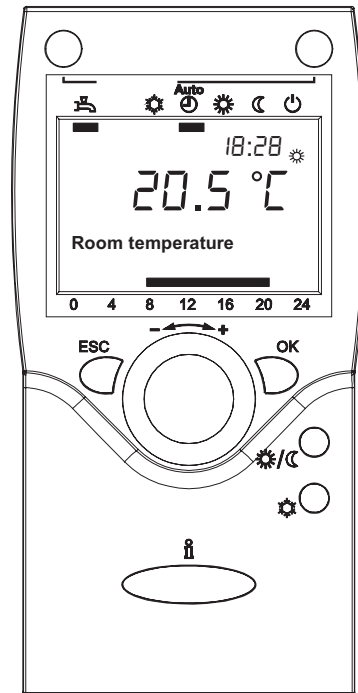
The microprocessor controller is able to manage not only the unit itself but also all that components of the plant which allow to realize a complete system.

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

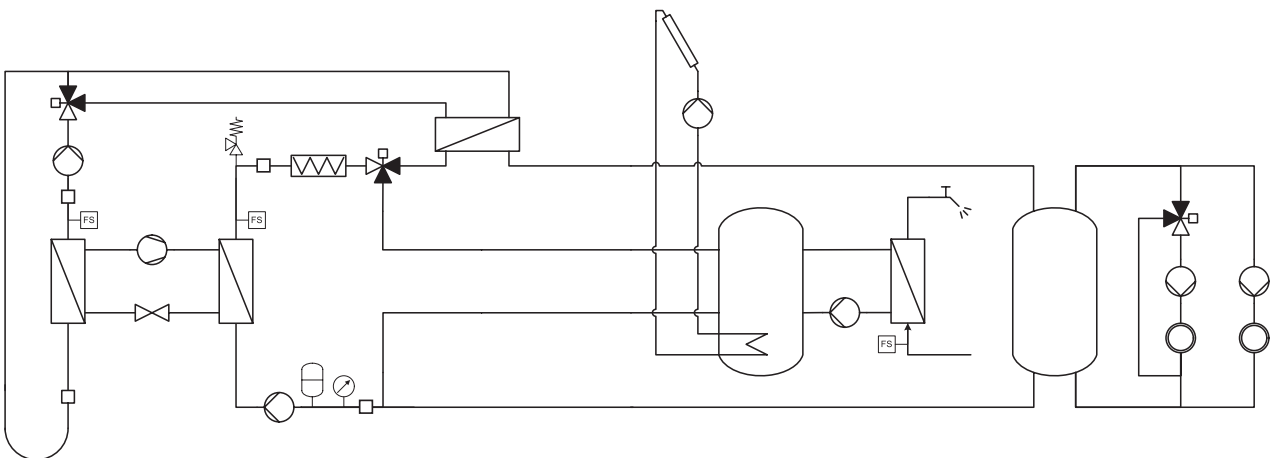
- room temperature control according to the outdoor temperature (climatic control)
- domestic hot water production (management of 3 way valve, storage tank, anti legionella cycles...)
- management of a heating and/or cooling mixed circuit (pump and 3 way mixing valve)
- management of a heating direct 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
- passive cooling
- 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	
Plant flow temperature	-	6	30	15	60	°C
Source return temperature (water)	-	5	45	5	25	°C
Source return temperature (brine)	-	-10	45	-10	25	°C

**NOMINAL performances - Radiant plants**

IP	Acoustic setting up : AB	12.1	14.1	17.1	20.1	23.1	27.1	
<b>W10W35</b>	Heating capacity	11,8	14,3	16,7	20,4	23,6	26,7	kW
	Power input	2,18	2,66	3,10	3,82	4,43	5,02	kW
	<b>COP</b>	<b>5,41</b>	<b>5,38</b>	<b>5,39</b>	<b>5,34</b>	<b>5,33</b>	<b>5,32</b>	-
	Water flow rate plant side	2043	2459	2892	3516	4070	4607	l/h
	Pressure drops plant side	17	24	18	27	22	27	kPa
	Water flow rate source side	2773	3336	3922	4774	5512	6255	l/h
	Pressure drops source side	17	24	20	29	25	32	kPa
<b>B0W35</b>	Heating capacity	8,71	10,6	12,4	15,0	17,4	19,7	kW
	Power input	2,15	2,62	3,07	3,73	4,35	4,90	kW
	<b>COP</b>	<b>4,05</b>	<b>4,05</b>	<b>4,04</b>	<b>4,02</b>	<b>4,00</b>	<b>4,02</b>	-
	Water flow rate plant side	1507	1836	2147	2598	3013	3412	l/h
	Pressure drops plant side	9	14	11	15	12	15	kPa
	Water flow rate source side	2093	2558	2987	3617	4180	4753	l/h
	Pressure drops source side	11	15	13	18	16	20	kPa
<b>W30W18</b>	Cooling capacity	12,8	15,4	18,1	22,0	25,4	28,8	kW
	Power input	2,21	2,70	3,14	3,87	4,50	5,09	kW
	<b>EER</b>	<b>5,79</b>	<b>5,70</b>	<b>5,76</b>	<b>5,68</b>	<b>5,64</b>	<b>5,66</b>	-
	Water flow rate plant side	2207	2673	3138	3811	4397	4983	l/h
	Pressure drops plant side	20	28	22	31	25	32	kPa
	Water flow rate source side	2586	3129	3675	4459	5159	5834	l/h
	Pressure drops source side	15	21	18	26	22	28	kPa
<b>B30W18</b>	Cooling capacity	12,5	15,1	17,7	21,6	24,9	28,3	kW
	Power input	2,25	2,76	3,22	3,96	4,59	5,21	kW
	<b>EER</b>	<b>5,56</b>	<b>5,47</b>	<b>5,50</b>	<b>5,45</b>	<b>5,42</b>	<b>5,43</b>	-
	Water flow rate plant side	2155	2621	3069	3742	4311	4897	l/h
	Pressure drops plant side	19	27	21	30	24	31	kPa
	Water flow rate source side	2759	3351	3926	4780	5521	6258	l/h
	Pressure drops source side	18	25	21	31	26	33	kPa

**NOMINAL performances - Radiant plants**

IH	Acoustic setting up : AB	12.1	14.1	17.1	20.1	23.1	27.1	
<b>W10W35</b>	Heating capacity	12,0	14,6	17,1	20,8	24,1	27,2	kW
	Power input	2,20	2,70	3,14	3,87	4,48	5,09	kW
	<b>COP</b>	<b>5,45</b>	<b>5,41</b>	<b>5,45</b>	<b>5,37</b>	<b>5,38</b>	<b>5,34</b>	-
	Water flow rate plant side	2078	2511	2944	3585	4156	4693	l/h
	Pressure drops plant side	17	25	19	28	22	28	kPa
	Water flow rate source side	2825	3413	3999	4877	5643	6384	l/h
	Pressure drops source side	18	25	21	30	26	33	kPa
<b>B0W35</b>	Heating capacity	8,81	10,8	12,7	15,3	17,7	20,1	kW
	Power input	2,17	2,65	3,10	3,77	4,40	4,95	kW
	<b>COP</b>	<b>4,06</b>	<b>4,08</b>	<b>4,10</b>	<b>4,06</b>	<b>4,02</b>	<b>4,06</b>	-
	Water flow rate plant side	1524	1870	2199	2650	3065	3464	l/h
	Pressure drops plant side	10	14	11	16	13	16	kPa
	Water flow rate source side	2119	2612	3073	3700	4263	4833	l/h
	Pressure drops source side	11	16	13	19	16	20	kPa

Data declared according to **EN 14511**. The values are referred to units without options or accessories. Brine = water with 30% ethylene glycol.

W10W65 = source: water in 10°C out 7°C / plant: water in 55°C out 65°C  
 W10W55 = source: water in 10°C out 7°C / plant: water in 47°C out 55°C  
 W10W45 = source: water in 10°C out 7°C / plant: water in 40°C out 45°C  
 W10W35 = source: water in 10°C out 7°C / plant: water in 30°C out 35°C  
 W30W7 = source: water in 30°C out 35°C / plant: water in 12°C out 7°C  
 W30W18 = source: water in 30°C out 35°C / plant: water in 23°C out 18°C

B0W65 = source: brine in 0°C out -3°C / plant: water in 55°C out 65°C  
 B0W55 = source: brine in 0°C out -3°C / plant: water in 47°C out 55°C  
 B0W45 = source: brine in 0°C out -3°C / plant: water in 40°C out 45°C  
 B0W35 = source: brine in 0°C out -3°C / plant: water in 30°C out 35°C  
 B30W7 = source: brine in 30°C out 35°C / plant: water in 12°C out 7°C  
 B30W18 = source: brine in 30°C out 35°C / plant: water in 23°C out 18°C

## NOMINAL performances - Standard plants

IP	Acoustic setting up : AB	12.1	14.1	17.1	20.1	23.1	27.1	
<b>W10W45</b>	Heating capacity	10,8	13,1	15,4	18,8	21,7	24,6	kW
	Power input	2,63	3,21	3,76	4,58	5,34	6,02	kW
	<b>COP</b>	<b>4,11</b>	<b>4,08</b>	<b>4,10</b>	<b>4,10</b>	<b>4,06</b>	<b>4,09</b>	-
	Water flow rate plant side	1877	2277	2676	3250	3754	4258	l/h
	Pressure drops plant side	14	21	16	23	18	23	kPa
	Water flow rate source side	2350	2853	3353	4080	4688	5343	l/h
	Pressure drops source side	13	18	15	22	18	23	kPa
<b>B0W45</b>	Heating capacity	8,10	9,84	11,5	14,0	16,2	18,3	kW
	Power input	2,57	3,12	3,67	4,45	5,20	5,83	kW
	<b>COP</b>	<b>3,15</b>	<b>3,15</b>	<b>3,13</b>	<b>3,15</b>	<b>3,12</b>	<b>3,14</b>	-
	Water flow rate plant side	1406	1707	1999	2433	2815	3180	l/h
	Pressure drops plant side	8	12	9	13	11	13	kPa
	Water flow rate source side	1763	2144	2504	3061	3519	3996	l/h
	Pressure drops source side	8	11	9	13	11	14	kPa
<b>W30W7</b>	Cooling capacity	9,71	11,8	13,8	16,8	19,4	21,9	kW
	Power input	2,21	2,68	3,14	3,82	4,47	5,02	kW
	<b>EER</b>	<b>4,39</b>	<b>4,40</b>	<b>4,39</b>	<b>4,40</b>	<b>4,34</b>	<b>4,36</b>	-
	Water flow rate plant side	1670	2025	2368	2883	3329	3775	l/h
	Pressure drops plant side	12	17	13	18	15	19	kPa
	Water flow rate source side	2061	2497	2923	3554	4116	4655	l/h
	Pressure drops source side	10	14	12	17	14	18	kPa
<b>B30W7</b>	Cooling capacity	9,50	11,6	13,6	16,5	19,1	21,5	kW
	Power input	2,25	2,74	3,21	3,91	4,56	5,14	kW
	<b>EER</b>	<b>4,22</b>	<b>4,23</b>	<b>4,24</b>	<b>4,22</b>	<b>4,19</b>	<b>4,18</b>	-
	Water flow rate plant side	1634	1991	2334	2832	3278	3707	l/h
	Pressure drops plant side	11	16	12	18	14	18	kPa
	Water flow rate source side	2206	2683	3148	3815	4428	4998	l/h
	Pressure drops source side	12	17	14	20	17	22	kPa

## NOMINAL performances - Standard plants

IH	Acoustic setting up : AB	12.1	14.1	17.1	20.1	23.1	27.1	
<b>W10W45</b>	Heating capacity	11,0	13,4	15,7	19,2	22,2	25,0	kW
	Power input	2,67	3,26	3,80	4,64	5,40	6,09	kW
	<b>COP</b>	<b>4,12</b>	<b>4,11</b>	<b>4,13</b>	<b>4,14</b>	<b>4,11</b>	<b>4,11</b>	-
	Water flow rate plant side	1912	2329	2729	3319	3841	4327	l/h
	Pressure drops plant side	15	22	16	24	19	24	kPa
	Water flow rate source side	2399	2927	3428	4180	4817	5440	l/h
	Pressure drops source side	13	19	16	23	19	24	kPa
<b>B0W45</b>	Heating capacity	8,21	10,0	11,8	14,3	16,5	18,6	kW
	Power input	2,59	3,16	3,70	4,49	5,26	5,90	kW
	<b>COP</b>	<b>3,17</b>	<b>3,16</b>	<b>3,19</b>	<b>3,18</b>	<b>3,14</b>	<b>3,15</b>	-
	Water flow rate plant side	1425	1738	2051	2485	2868	3233	l/h
	Pressure drops plant side	8	12	10	14	11	14	kPa
	Water flow rate source side	1791	2189	2590	3143	3598	4072	l/h
	Pressure drops source side	8	12	10	14	12	15	kPa

Data declared according to **EN 14511**. The values are referred to units without options or accessories. Brine = water with 30% ethylene glycol.

W10W65 = source: water in 10°C out 7°C / plant: water in 55°C out 65°C  
 W10W55 = source: water in 10°C out 7°C / plant: water in 47°C out 55°C  
 W10W45 = source: water in 10°C out 7°C / plant: water in 40°C out 45°C  
 W10W35 = source: water in 10°C out 7°C / plant: water in 30°C out 35°C  
 W30W7 = source: water in 30°C out 35°C / plant: water in 12°C out 7°C  
 W30W18 = source: water in 30°C out 35°C / plant: water in 23°C out 18°C

B0W65 = source: brine in 0°C out -3°C / plant: water in 55°C out 65°C  
 B0W55 = source: brine in 0°C out -3°C / plant: water in 47°C out 55°C  
 B0W45 = source: brine in 0°C out -3°C / plant: water in 40°C out 45°C  
 B0W35 = source: brine in 0°C out -3°C / plant: water in 30°C out 35°C  
 B30W7 = source: brine in 30°C out 35°C / plant: water in 12°C out 7°C  
 B30W18 = source: brine in 30°C out 35°C / plant: water in 23°C out 18°C

**NOMINAL performances - HIGH temperature and plants**

IP	Acoustic setting up : AB	12.1	14.1	17.1	20.1	23.1	27.1	
<b>W10W55</b>	Heating capacity	9,84	11,9	14,0	17,0	19,7	22,3	kW
	Power input	3,07	3,72	4,36	5,28	6,19	6,94	kW
	<b>COP</b>	<b>3,21</b>	<b>3,20</b>	<b>3,21</b>	<b>3,22</b>	<b>3,18</b>	<b>3,21</b>	-
	Water flow rate plant side	1072	1297	1525	1852	2147	2430	l/h
	Pressure drops plant side	5	7	5	8	6	8	kPa
	Water flow rate source side	1941	2350	2764	3368	3879	4417	l/h
	Pressure drops source side	9	13	10	15	13	16	kPa
<b>B0W55</b>	Heating capacity	7,50	9,10	10,6	13,0	15,0	17,0	kW
	Power input	2,95	3,57	4,20	5,08	5,95	6,66	kW
	<b>COP</b>	<b>2,54</b>	<b>2,55</b>	<b>2,52</b>	<b>2,56</b>	<b>2,52</b>	<b>2,55</b>	-
	Water flow rate plant side	817	992	1155	1417	1634	1852	l/h
	Pressure drops plant side	3	4	3	5	4	5	kPa
	Water flow rate source side	1451	1766	2042	2529	2889	3302	l/h
	Pressure drops source side	5	8	6	9	8	10	kPa

**NOMINAL performances - HIGH temperature plants**

IH	Acoustic setting up : AB	12.1	14.1	17.1	20.1	23.1	27.1	
<b>W10W55</b>	Heating capacity	10,0	12,2	14,3	17,3	20,1	22,7	kW
	Power input	3,09	3,76	4,41	5,34	6,25	7,01	kW
	<b>COP</b>	<b>3,24</b>	<b>3,24</b>	<b>3,24</b>	<b>3,24</b>	<b>3,22</b>	<b>3,24</b>	-
	Water flow rate plant side	1090	1329	1558	1885	2190	2473	l/h
	Pressure drops plant side	5	7	6	8	7	8	kPa
	Water flow rate source side	1981	2424	2839	3436	3977	4511	l/h
	Pressure drops source side	9	13	11	16	13	17	kPa
<b>B0W55</b>	Heating capacity	7,60	9,30	10,9	13,2	15,3	17,3	kW
	Power input	2,98	3,62	4,24	5,13	6,01	6,73	kW
	<b>COP</b>	<b>2,55</b>	<b>2,57</b>	<b>2,57</b>	<b>2,57</b>	<b>2,55</b>	<b>2,57</b>	-
	Water flow rate plant side	828	1013	1188	1438	1667	1885	l/h
	Pressure drops plant side	3	4	3	5	4	5	kPa
	Water flow rate source side	1473	1813	2125	2577	2965	3375	l/h
	Pressure drops source side	5	8	7	10	8	10	kPa

TECHNICAL DATA	12.1	14.1	17.1	20.1	23.1	27.1	
Power supply		230-1-50 400-3N-50			400-3N-50		V-ph-Hz
Compressor type				scroll			-
N° compressors / N° refrigerant circuits			1 / 1				n°
Plant side heat exchanger type			stainless steel brazed plates				-
Source side heat exchanger type			stainless steel brazed plates				-
Hydraulic fittings			1" M				-

## ACOUSTIC PERFORMANCES

Base acoustic setting up (AB)	12.1	14.1	17.1	20.1	23.1	27.1	
Sound power level	63	63	64	64	65	65	dB(A)
Sound pressure level at 1 metre	50	50	51	51	52	52	dB(A)
Sound pressure level at 5 metres	38	38	39	39	40	40	dB(A)
Sound pressure level at 10 metres	32	32	33	33	34	34	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions W10W35.

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.

