



YOUR AIR, OUR PASSION



PRODUCT OVERVIEW

Heat pump systems and Chillers



**HidROS** was formed in 1993 as a distribution company operating in the humidification and dehumidification sector of the air conditioning market. The expansion was rapid and, as the knowledge of the market sector increased, opportunities for the development of specialist products were identified.

The decision was therefore taken in 2001 to invest in a production facility and to manufacture their own design products. Since then, the company has added chillers, heat pumps and air handling units to its product portfolio.

Today, **HidROS** with its qualified staff, designs, develops and tests heat pumps, water chillers, dehumidifying systems and air handling units all based on the refrigerant cycle. The total range of Hidros products includes standard dehumidifiers with capacities from 25 to 3000 l/24h and heat pumps and water chillers with cooling and heating capacities from 5 to 1200 kW.

In addition to this, **HidROS** can offer a wide range of tailor made machines to meet any customer requirement. Expertise, quality, flexibility and enthusiasm are the other essential elements of the company that ensure we provide a rapid response with appropriately engineered solutions.

## Heat pumps

High efficiency air source and ground source heat pumps using state-of-the-art technology. Ranges from 10 kW to 200 kW (air source) and 7 kW to 660 kW (ground/water source).



## Dehumidifiers

Dehumidifiers for use in swimming pools, cold rooms, industrial applications and passive cooling systems.



## Water Chillers

Air cooled and water cooled packaged chillers to 1 MW capacity for both external and internal installation. Free cooling, split condenser and condensing unit versions also available.



# What is the E.V.I. Technology

## (Enhanced vapour injection)

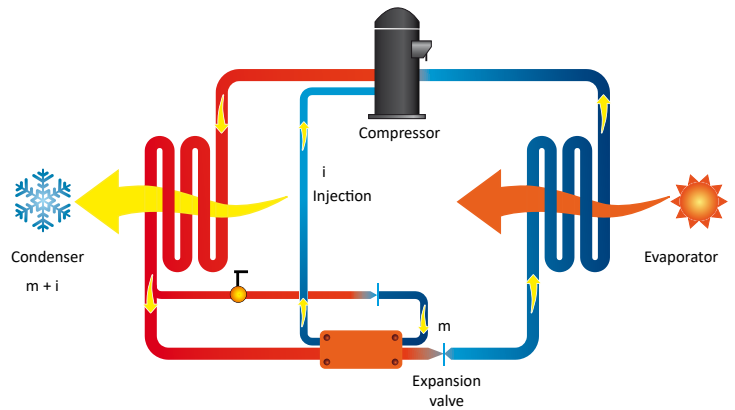
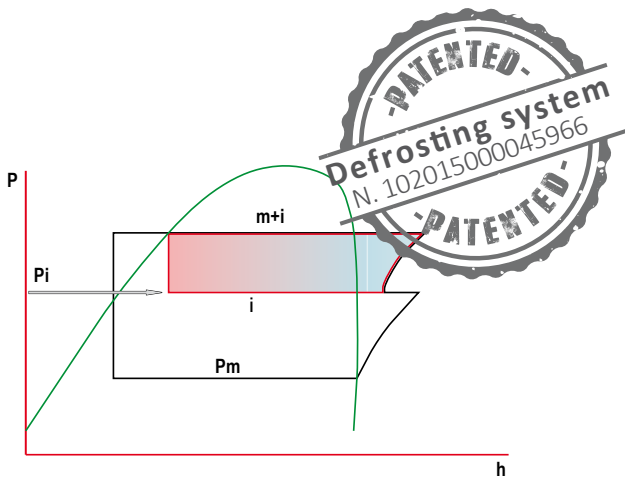
HidROS LZTi, LZT, CZT, WZT, LWZ heat pumps utilise scroll compressors that are equipped with E.V.I. technology, a versatile method of improving system capacity and efficiency. EVI stands for "Economised Vapour Injection."

The technology involves injecting refrigerant vapour into the middle of the compression process, a procedure that significantly boosts capacity and efficiency. Each scroll compressor used in these units is similar to a two-stage compressor with built-in inter-stage cooling. The process begins when a portion of the condenser liquid is extracted and expanded through an expansion valve.

The low temperature liquid/gas mixture produced is injected into a heat exchanger that operates as a sub cooler. Any liquid is evaporated and the vapour produced is superheated.

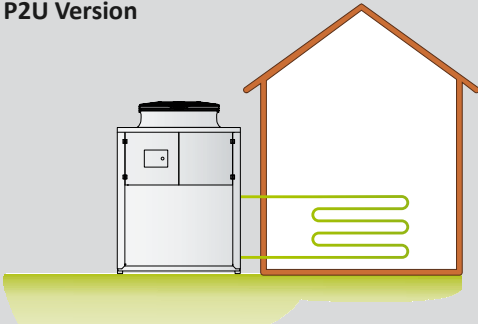
The superheated vapour is then injected into an intermediate port in the scroll compressor. This cold vapour reduces the temperature of the compressed gas thus enabling the compressor to raise the pressure to levels (and temperatures) beyond that possible with a single stage scroll.

The additional sub cooling of the main volume of liquid refrigerant increases the evaporator capacity. This compressor technology generates a larger pressure ratio between condensing and evaporating pressures, with significant performance improvement. Using this technology enables Hidros units to produce hot water up to 65°C and the ability to operate down to -20°C ambient temperature.



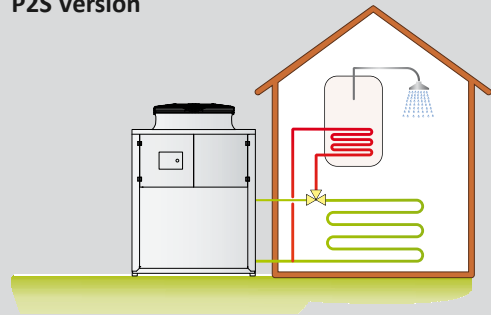
## Versions

### P2U Version



This is a two pipe version that can produce hot water for heating (HH heating only) and hot or cold water in the RV version. The RV is used with two pipe water based change-over systems. It is not able to produce domestic hot water.

### P2S Version



This is a two pipe version that can, in addition to producing hot water for heating (HH version) and hot and cold water in the RV version can also generate domestic hot water. The controller has dual heating set points (heating and DHW) and can also control a three port diverting valve that directs the DHW to the cylinder. DHW production has priority irrespective of the mode of operation of the unit. The unit is normally used with two pipe water based change-over systems.

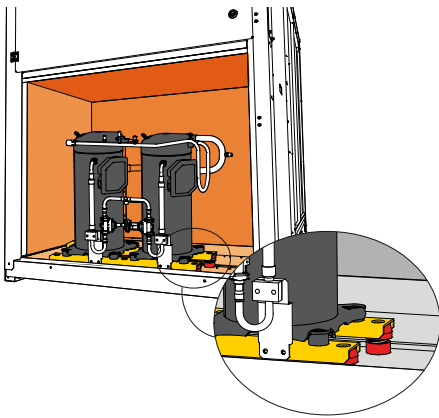


# Noise Reduction

All units in XL version are supplied, as standard, with the latest 'Floating Frame' technology that completely isolates the compressors from the main casing, thereby eliminating vibration and noise from this source.

The 'Floating Frame' is a special vibration and acoustic damping system that consists of a base plate and acoustic enclosure that houses the compressors. The base plate is separated from the supporting frame of the unit by soft steel springs that have a high damping power.

The entire arrangement provides a double damping system and acoustic attenuation. The compressor refrigerant pipes are connected to the 'fridge circuit via "anaconda" flexible connections. Flexible connections are also used on the water pipework within the unit. The combination of these systems results in an overall noise reduction in the region of 10-12 dB(A).



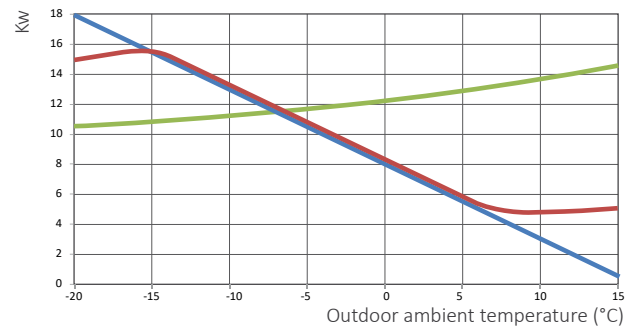
# Inverter Technology

Hidros heat pumps, in addition to being equipped with compressors EVI technology (described above) are equipped with variable capacity compressor DC INVERTER technology, an innovative technology that allows you to modulate the heating and cooling power supplied in accordance with the load changes required by the plant.

This technology uses the latest generation brush less electric motors .

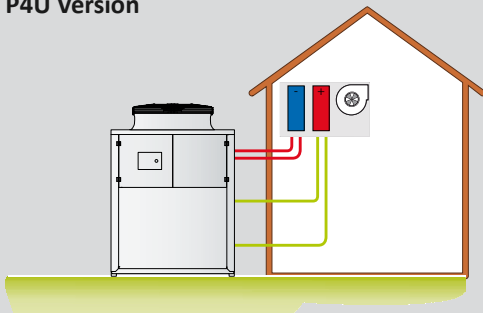
The here below graph illustrates how this new technology of DC INVERTER is able to "follow" the heat load of a building (blue line) unlike what makes an Heat Pump ON/OFF which increases the thermal input delivered with increasing temperature.

The DC Inverter units also have very low inrush currents, which make them ideal for residential applications .



● ON/OFF Unit    ● DC Inverter Unit    ● Building loss

## P4U Version

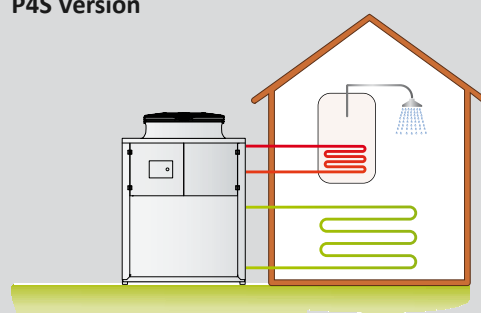


The P4U units use 4 hydraulic connections and are used in modern 4-pipe systems. In these systems, cold and hot water is always available (in every period of the year) and present in the specific hydraulic circuit.

These systems allow the simultaneous production of cold water and hot water using 4 hydraulic connections, 2 connections are related to the hot water circuit, 2 connections are related to the cold water circuit.

The plant thus conceived is able to heat and, at the same time, if required, to cool with very high energy efficiencies.

## P4S Version



The P4S units have been designed to meet the needs of 2 + 2 pipe systems (2 user side pipes, 2 domestic hot water pipes) throughout the year.

The units are supplied with 2 exchangers, one dedicated to the production of the user cold and hot water and one dedicated to the production of domestic hot water only (D.H.W.).

The production of domestic hot water always has priority.

# P4U Version

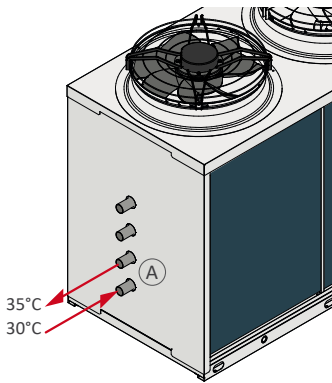
The operating modes are:

**1. User water heating:** The unit behaves like a normal air/water heat pump in heating mode, using the finned heat exchanger as the source and the A plate heat exchanger as user.

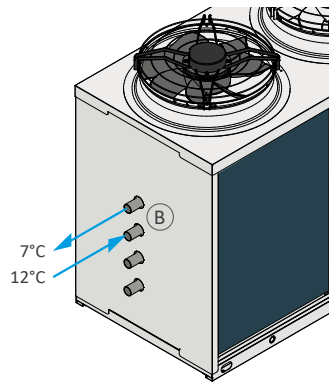
**2. User water cooling:** The unit behaves like a normal air/water chiller in cooling mode, using the finned exchanger as the source and the B plate heat exchanger as user.

**3. Simultaneous user Cooling + heating:** The unit behaves like a water/water heat pump, using the plate heat exchanger B as the cold user and the plate heat exchanger A as hot user. This version is not able to produce domestic hot water.

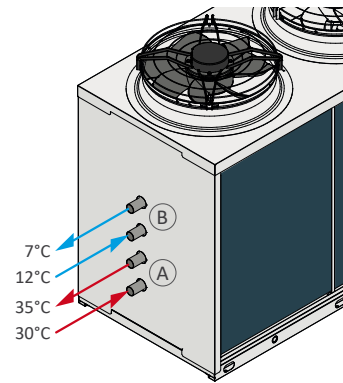
User water heating



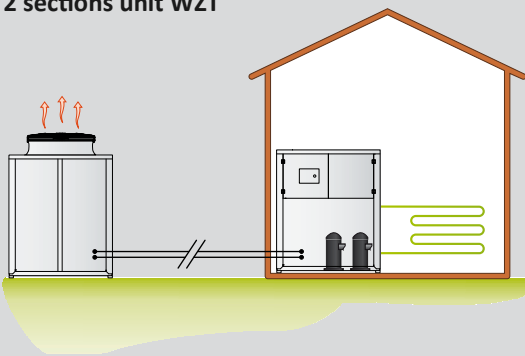
User water cooling



Simultaneous user Cooling + heating

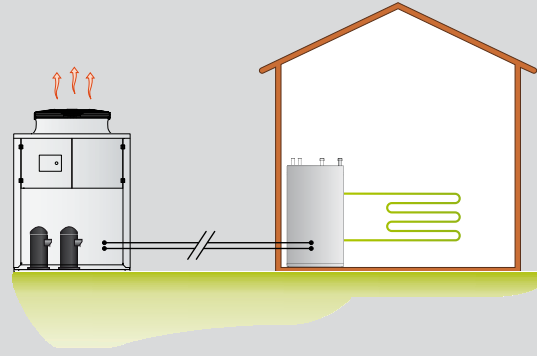


2 sections unit WZT



The air source high efficiency heat pumps WZT series are particularly suitable for those applications where it is necessary to have maximum efficiency in heating mode and a noise level extremely low and, for this purpose, are provided in two sections, linked together by refrigerant lines, installing the compressor in the internal section.

2 sections unit XHA



The air/water heat XHA series pumps are supplied in two sections connected to each other through refrigerant lines, installing the compressor in the outdoor section. The units are designed for installations where it is not possible to use glycol in the hydraulic circuit or there is the real possibility of damage due to frost. All hydraulic components are present in the indoor unit, installed in the technical room.

# P4S Version

The operating modes are:

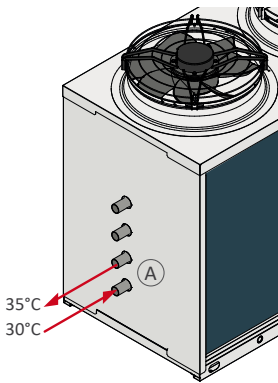
**1. User water heating:** The unit behaves like a normal air/water heat pump in heating mode, using the finned heat exchanger as the source and the A plate heat exchanger as user.

**2. User water cooling:** The unit behaves like a normal air/water chiller in cooling mode, using the finned heat exchanger as the source and the A plate heat exchanger as user.

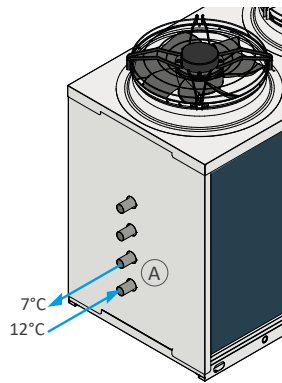
**3. Domestic hot water production (D.H.W.):** The unit behaves like a normal air / water heat pump in heating mode, using the finned heat exchanger as the source and as a user the plate heat exchanger B (a special D.H.W. heat exchanger that works with a higher set point).

**4. User water cooling + D.H.W. production:** The unit behaves like a water / water heat pump, using the plate heat exchanger A as the cold user and the plate heat exchanger B as D.H.W. production).

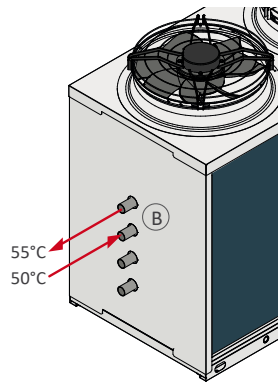
User water heating



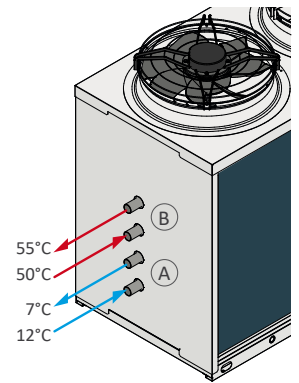
User water cooling



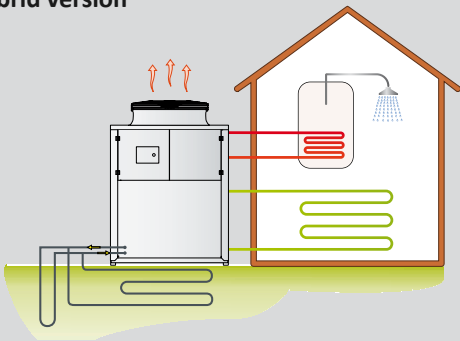
Domestic hot water production (D.H.W.)



User water cooling + D.H.W. production



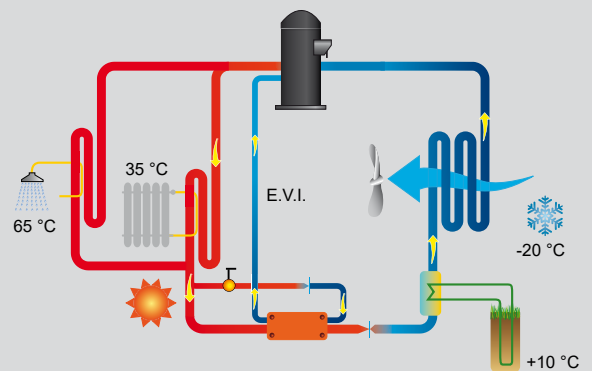
## Hybrid version



The use of the water source heat exchanger only in harsh environmental conditions, allows the unit to operate with the air source for most of the time, integrating the power missing with the water but also ensuring an extreme reduction of water consumption.

The applications of hybrid heat pumps are absolutely interesting in those cases where supplementary sources of different nature are available at lower cost. The integrated power from the water heat exchanger to water is about 30% of the power unit, in this way there are not needed high cost of adduction.

## Hybrid version principle of operation



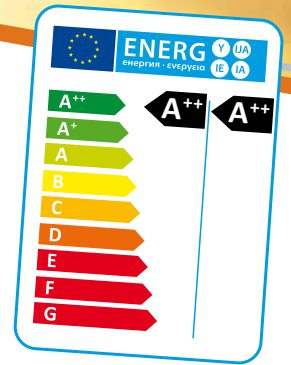
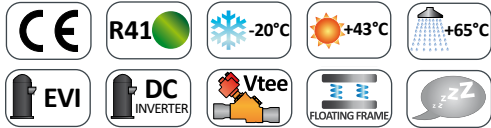
Some water sources used:

- Integrative source through the use of well water
- Integrative source through the use of geothermal
- Integrative source through the use of wastewater
- Integrative source through the use of solar panels.

# LZT i

Heat pumps air to water

DC INVERTER compressor with vapor injection (EVI)

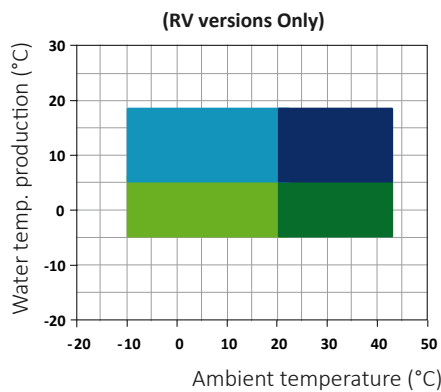
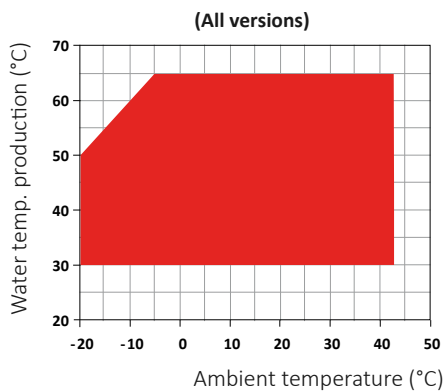


## Available versions

- STD** 2 pipes reversible standard.
- SW6** 4 pipes unit capable of producing hot and cold water at the same time on two independent hydraulic circuits.



## Operation limits



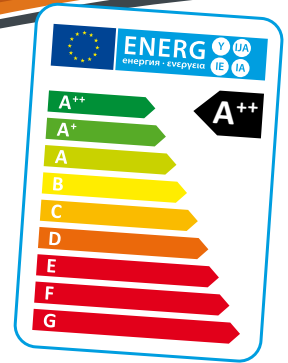
- Heating mode
- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol
- Cooling with head pressure control and glycol

| LZTi - LZTi/SW6 Models   |     | 08  | 10  | 15   | 20   |
|--|-----|-----|-----|------|------|
| Energy Class in low temperature - According to EU reg. 811/2013  |     | A++ | A++ | A++  | A++  |
| Energy Class in high temperature - According to EU reg. 811/2013 |     | A+  | A+  | A++  | A++  |
| Heating capacity (EN14511) <sup>(1)</sup>                        | kW  | 7,7 | 9,6 | 15,0 | 19,0 |
| COP (EN14511) <sup>(1)</sup>                                     | w/w | 4,3 | 4,2 | 4,4  | 4,2  |
| Cooling capacity (EN14511) <sup>(2)</sup>                        | kW  | 7,1 | 8,5 | 13,5 | 16,0 |
| EER (EN14511) <sup>(2)</sup>                                     | w/w | 3,1 | 3,0 | 3,2  | 3,1  |

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

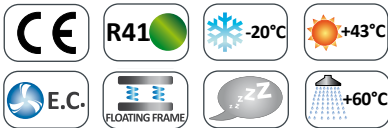
(2) Cooling: ambient temperature 35°C, water temperature 12/7°C.





# LHA

## High efficiency air to water heat pumps

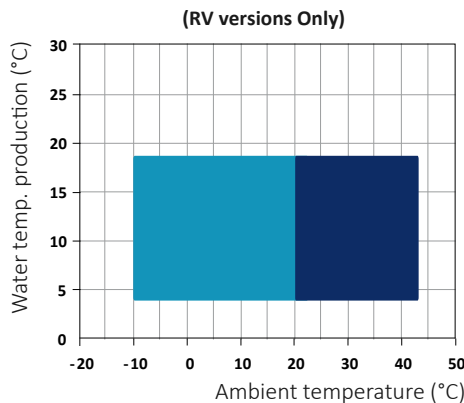
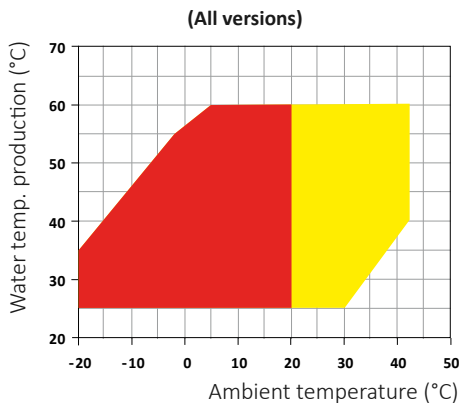


### Available versions

- HH** Heating only.
- RV** Reversible heating/cooling.
- LS** Low noise.
- XL** Super low noise.
- P2U** 2 pipe systems without domestic hot water production.
- P2S** 2 pipe systems with domestic hot water production by external 3 way valve.
- P4U** 4 pipe systems heating/cooling.
- P4S** 2+2 pipe systems with domestic hot water production.



### Operation limits



- Heating mode
- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol

| LHA/LS/RV - Low noise Reversible version                  |     | 252  | 302  | 402  | 452  | 502  | 602  | 702  | 802  | 902  | 1002  | 1202  | 1402  |
|---|-----|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Energy Class in low temp. - According to EU reg. 811/2013 |     | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++   | A++   | A++   |
| Heating capacity (EN14511) <sup>(1)</sup>                 | kW  | 22,2 | 29,6 | 37,6 | 47,7 | 52,2 | 61,2 | 67,3 | 74,9 | 93,2 | 104,9 | 114,9 | 137,1 |
| COP (EN14511) <sup>(1)</sup>                              | w/w | 4,10 | 4,16 | 4,45 | 4,28 | 4,55 | 4,61 | 4,46 | 4,36 | 4,40 | 4,29  | 4,13  | 4,44  |
| Cooling capacity (EN14511) <sup>(2)</sup>                 | kW  | 18,1 | 24,6 | 30,9 | 40,6 | 45,4 | 52,4 | 57,5 | 63,4 | 80,5 | 90,2  | 100,5 | 117,4 |
| EER (EN14511) <sup>(2)</sup>                              | w/w | 2,62 | 2,59 | 2,92 | 2,82 | 2,94 | 2,87 | 2,70 | 2,65 | 3,03 | 2,89  | 2,86  | 3,04  |

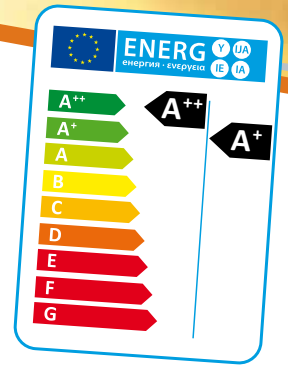
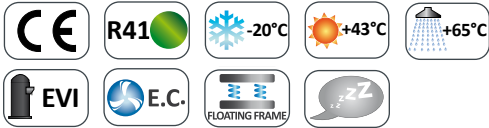
| LHA/LS/RV - Low noise Reversible version                  |     | 1602  | 1802  | 2002  | 2302  | 2502  | 2504  | 3004  | 3204  | 3504  | 4004  | 4504  | 5004  |
|---|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Energy Class in low temp. - According to EU reg. 811/2013 |     | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   |
| Heating capacity (EN14511) <sup>(1)</sup>                 | kW  | 151,0 | 167,9 | 182,8 | 210,6 | 241,3 | 229,4 | 271,4 | 296,7 | 339,0 | 364,9 | 407,0 | 463,7 |
| COP (EN14511) <sup>(1)</sup>                              | w/w | 4,39  | 4,18  | 4,02  | 4,26  | 4,40  | 4,11  | 4,25  | 4,15  | 4,05  | 4,11  | 3,91  | 4,03  |
| Cooling capacity (EN14511) <sup>(2)</sup>                 | kW  | 129,5 | 146,8 | 159,2 | 180,4 | 202,1 | 198,5 | 231,0 | 259,7 | 289,4 | 322,6 | 368,5 | 416,0 |
| EER (EN14511) <sup>(2)</sup>                              | w/w | 2,94  | 2,89  | 2,71  | 2,73  | 2,76  | 2,73  | 2,87  | 2,91  | 2,75  | 2,73  | 2,73  | 2,69  |

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Cooling: ambient temperature 35°C, water temperature 12/7°C.

# LZT

## High efficiency air to water heat pumps with E.V.I. compressors

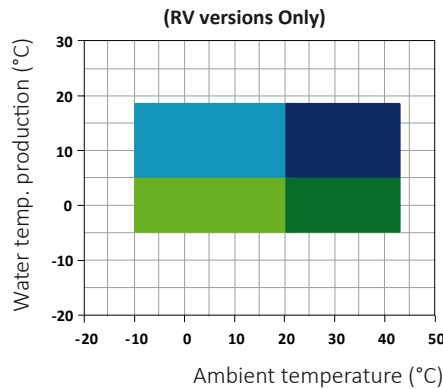
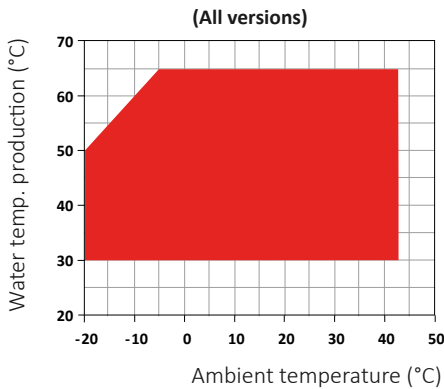


### Available versions

- HH** Heating only.
- RV** Reversible heating/cooling.
- XL** Super low noise.
- NN** Ultra low noise.
- P2U** 2 pipe systems without domestic hot water production.
- P2S** 2 pipe systems with domestic hot water production by external 3 way valve.
- P4U** 4 pipe systems heating/cooling.
- P4S** 2+2 pipe systems with domestic hot water production.



### Operation limits

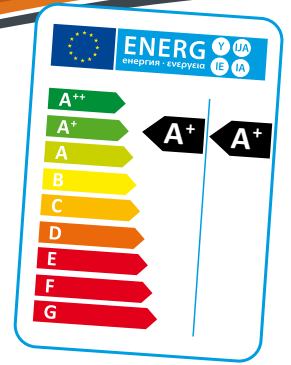


- Heating mode
- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol
- Cooling with head pressure control and glycol

| LZT/RV - Reversible version                                |     | 252  | 302   | 452   | 502   | 602   | 752   | 852  |
|--|-----|------|-------|-------|-------|-------|-------|------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A+   | A+    | A+    | A+    | A+    | A+    | A+   |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A+   | A+    | A+    | A+    | A+    | A+    | A+   |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 25,5 | 32,1  | 41,8  | 52,8  | 63,7  | 72,8  | 83,0 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 4,25 | 4,21  | 4,18  | 4,16  | 4,29  | 4,27  | 4,15 |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 22,4 | 27,7  | 36,7  | 46,2  | 54,7  | 62,8  | 71,0 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 3,06 | 3,05  | 3,07  | 3,05  | 3,07  | 3,05  | 3,05 |
| LZT/RV - Reversible version                                |     | 1002 | 1202  | 1504  | 1704  | 2004  | 2404  |      |
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A+   | A+    | A++   | A++   | A+    | A+    |      |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A+   | A+    | A+    | A+    | A+    | A+    |      |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 93,2 | 110,5 | 149,0 | 161,0 | 183,0 | 210,0 |      |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 4,14 | 4,20  | 4,30  | 4,23  | 4,28  | 4,20  |      |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 79,4 | 90,0  | 126,0 | 140,0 | 165,0 | 186,0 |      |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 2,95 | 2,93  | 3,01  | 2,85  | 3,14  | 2,90  |      |

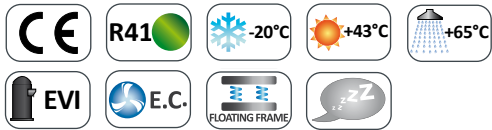
(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Cooling: ambient temperature 35°C, water temperature 12/7°C.



# CZT

High efficiency air to water heat pumps ductables with E.V.I. compressors

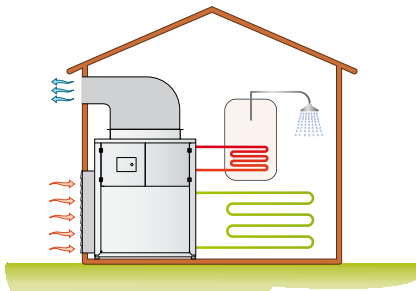


## Available versions

- HH Heating only.
- RV Reversible heating/cooling.
- XL Super low noise.
- P2U 2 pipe systems without domestic hot water production.
- P2S 2 pipe systems with domestic hot water production by external 3 way valve.
- P4U 4 pipe systems heating/cooling.
- P4S 2+2 pipe systems with domestic hot water production.



## Plant scheme



| CZT/RV - Reversible version                                |     | 252  | 302  | 452  | 502  | 602  | 752  |
|--|-----|------|------|------|------|------|------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A+   | A+   | A+   | A+   | A+   | A+   |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A+   | A+   | A+   | A+   | A+   | A+   |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 25,7 | 32,2 | 43,1 | 54,9 | 63,0 | 72,8 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 4,15 | 4,12 | 4,10 | 4,15 | 4,12 | 4,11 |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 22,4 | 27,7 | 36,5 | 46,0 | 54,5 | 62,5 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 2,93 | 2,85 | 2,75 | 2,70 | 2,95 | 2,94 |

Performances are obtained with available static pressure 50 Pa, at the following conditions:

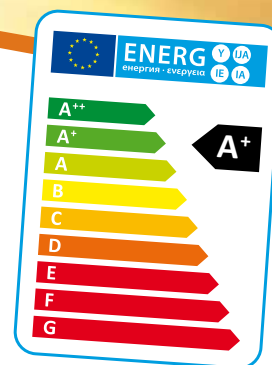
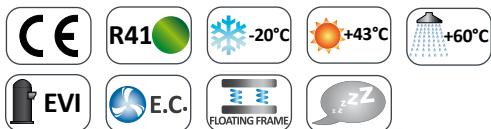
(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Cooling: ambient temperature 35°C, water temperature 12/7°C.



# XHA

## High Efficiency air to water split system heat pumps with E.V.I. Compressors

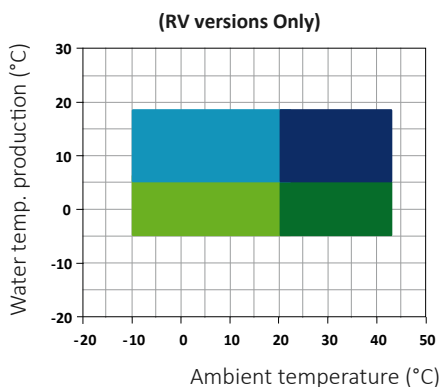
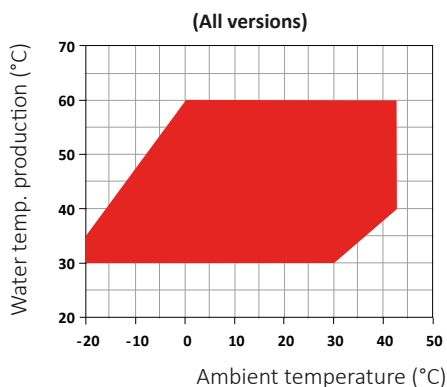


### Available versions

- HH Heating only.
- RV Reversible heating/cooling.
- LS Low noise.
- XL Super low noise.
- P2U 2 pipe systems without domestic hot water production.
- P2S 2 pipe systems with domestic hot water production by external 3 way valve.



### Operation limits



- Heating mode
- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol
- Cooling with head pressure control and glycol

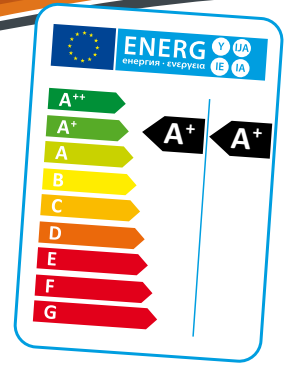
| XHA/LS/RV - Low noise Reversible version                  |     | 252  | 302  | 402  | 452  | 502  | 602  | 702  | 802  |
|---|-----|------|------|------|------|------|------|------|------|
| Energy Class in low temp. - According to EU reg. 811/2013 |     | A+   | A+   | A+   | A+   | A+   | A+   | A+   | A+   |
| Heating capacity (EN14511) <sup>(1)</sup>                 | kW  | 25,4 | 34,2 | 40,2 | 48,1 | 56,6 | 65,1 | 74,7 | 82,0 |
| COP (EN14511) <sup>(1)</sup>                              | w/w | 4,40 | 4,40 | 4,50 | 4,20 | 4,40 | 4,50 | 4,30 | 4,30 |
| Cooling capacity (EN14511) <sup>(2)</sup>                 | kW  | 19,2 | 26,8 | 31,1 | 39,2 | 45,2 | 52,0 | 62,9 | 69,1 |
| EER (EN14511) <sup>(2)</sup>                              | w/w | 2,76 | 2,86 | 2,65 | 2,86 | 2,86 | 2,86 | 3,07 | 3,07 |

| XHA/LS/RV - Low noise Reversible version                  |     | 902  | 1002  | 1202  | 1402  | 1602  | 1802  | 2002  |
|---|-----|------|-------|-------|-------|-------|-------|-------|
| Energy Class in low temp. - According to EU reg. 811/2013 |     | A+   | A+    | A+    | A+    | A+    | A+    | A+    |
| Heating capacity (EN14511) <sup>(1)</sup>                 | kW  | 99,5 | 112,1 | 123,7 | 143,9 | 158,3 | 177,1 | 192,1 |
| COP (EN14511) <sup>(1)</sup>                              | w/w | 4,40 | 4,40  | 4,40  | 4,30  | 4,30  | 4,30  | 4,20  |
| Cooling capacity (EN14511) <sup>(2)</sup>                 | kW  | 79,6 | 89,1  | 97,7  | 113,8 | 128,1 | 141,6 | 153,5 |
| EER (EN14511) <sup>(2)</sup>                              | w/w | 2,97 | 2,86  | 2,76  | 2,97  | 2,97  | 2,86  | 2,65  |

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

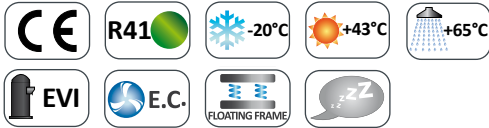
(2) Cooling: ambient temperature 35°C, water temperature 12/7°C.





# WZT

## High Efficiency air to water split system heat pumps with E.V.I. Compressors

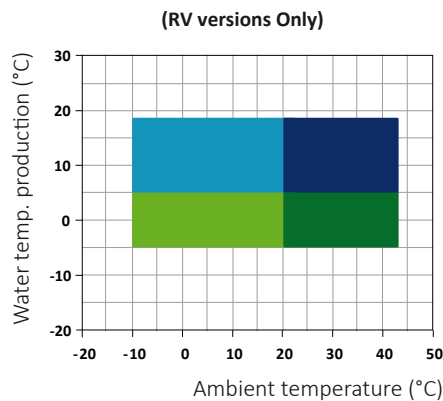
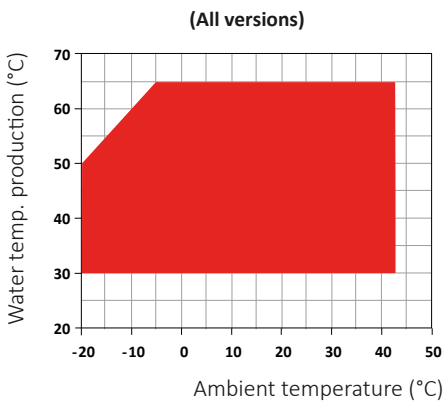


### Available versions

- HH** Heating only.
- RV** Reversible heating/cooling.
- NN** Super low noise.
- P2U** 2 pipe systems without domestic hot water production.
- P2S** 2 pipe systems with domestic hot water production by external 3 way valve.
- P4U** 4 pipe systems heating/cooling.
- P4S** 2+2 pipe systems with domestic hot water production.



### Operation limits



- Heating mode
- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol
- Cooling with head pressure control and glycol

| WZT/RV - Reversible version                                |     | 252  | 302  | 452  | 502  | 602  | 752  | 852  | 1002 |
|--|-----|------|------|------|------|------|------|------|------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A+   | A+   | A+   | A+   | A+   | A+   | A+   | A+   |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A+   | A+   | A+   | A+   | A+   | A+   | A+   | A+   |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 23,6 | 29,7 | 38,5 | 52,6 | 58,3 | 66,8 | 80,4 | 90,9 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 4,15 | 4,12 | 4,13 | 4,25 | 4,28 | 4,20 | 4,27 | 4,30 |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 21,4 | 26,5 | 35,6 | 45,7 | 53,5 | 61,1 | 69,0 | 79,3 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 2,64 | 2,51 | 2,52 | 2,82 | 2,87 | 2,71 | 3,01 | 3,05 |

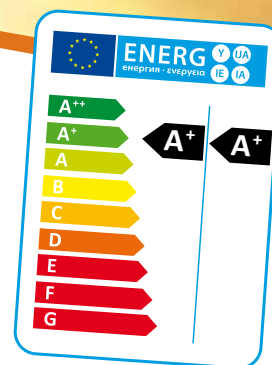
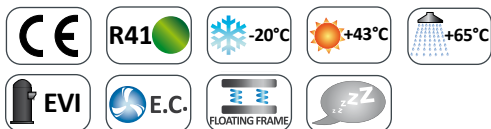
(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Cooling: ambient temperature 35°C, water temperature 12/7°C.



# LWZ

## High efficiency HYBRID heat pumps with E.V.I compressor

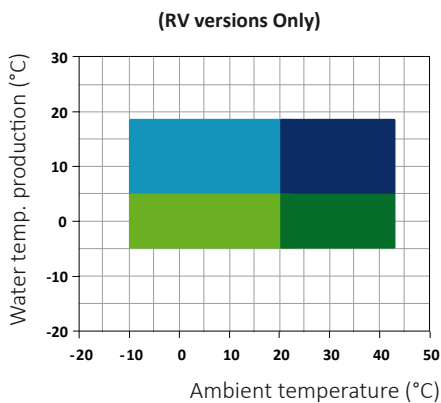
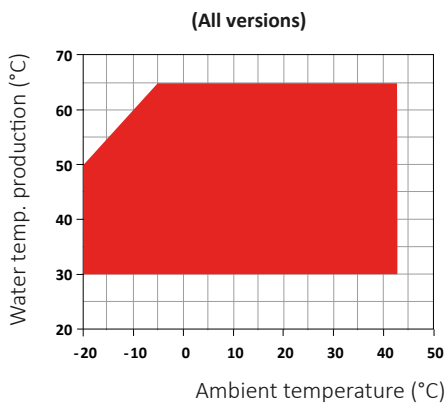


### Available versions

- HH** Heating only.
- RV** Reversible heating/cooling.
- XL** Super low noise.
- NN** Ultra low noise.
- P2U** 2 pipe systems without domestic hot water production.
- P2S** 2 pipe systems with domestic hot water production by external 3 way valve.
- P4U** 4 pipe systems heating/cooling.
- P4S** 2+2 pipe systems with domestic hot water production.



### Operation limits

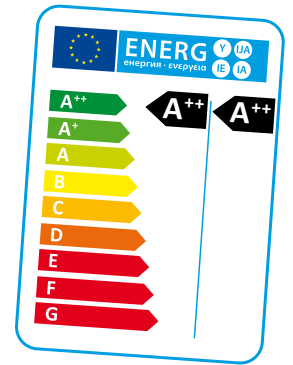


- Heating mode
- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol
- Cooling with head pressure control and glycol

| LWZ/RV - Reversible version                                |     | 252  | 302  | 452   | 502   | 602   | 752   | 852  |
|--|-----|------|------|-------|-------|-------|-------|------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A+   | A+   | A+    | A+    | A+    | A+    | A+   |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A+   | A+   | A+    | A+    | A+    | A+    | A+   |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 16,6 | 21,2 | 27,5  | 34,2  | 41,9  | 48,3  | 53,5 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 2,71 | 2,75 | 2,78  | 2,82  | 2,76  | 2,80  | 2,68 |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 22,4 | 27,7 | 36,7  | 46,2  | 54,7  | 62,8  | 71,0 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 3,06 | 3,05 | 3,07  | 3,05  | 3,07  | 3,05  | 3,05 |
| LWZ/RV - Reversible version                                |     | 1002 | 1202 | 1504  | 1704  | 2004  | 2404  |      |
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A+   | A+   | A++   | A++   | A+    | A+    |      |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A+   | A+   | A+    | A+    | A+    | A+    |      |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 61,0 | 72,3 | 99,2  | 106,3 | 120,9 | 138,5 |      |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 2,65 | 2,73 | 2,84  | 2,79  | 2,84  | 2,76  |      |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 79,4 | 90,0 | 126,0 | 140,0 | 165,0 | 186,0 |      |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 2,95 | 2,93 | 3,01  | 2,85  | 3,14  | 2,90  |      |

(1) Heating: Ambient temperature -7°C DB, -8°C WB, water outlet temperature 35°C. Integrative source heat exchanger not activated.

(2) Cooling: ambient temperature 35°C, water temperature 12/7°C. Integrative source heat exchanger not activated.



# WZA

## Ground source water/water heat pumps

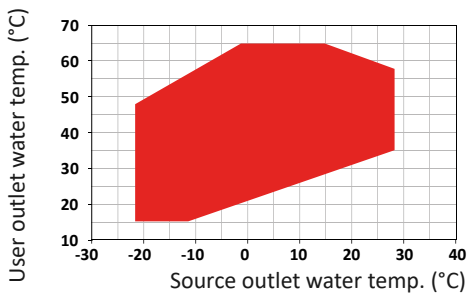


### Available versions

- HH Heating only.
- RV Reversible heating/cooling.
- P4S 2+2 pipe systems with domestic hot water production.



### Operation limits



| WZA  |     | 06   | 08   | 12   | 16   | 20   | 24   | 33   |
|--|-----|------|------|------|------|------|------|------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A++  | A++  | A++  | A++  | A++  | A++  | A++  |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A++  | A++  | A++  | A++  | A++  | A++  | A++  |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 7,6  | 9,8  | 13,3 | 16,9 | 22,4 | 26,4 | 33,5 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 5,04 | 5,13 | 5,21 | 5,30 | 5,18 | 5,28 | 5,28 |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 6,2  | 8,1  | 10,9 | 14,0 | 18,5 | 21,8 | 27,6 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 4,20 | 4,30 | 4,37 | 4,47 | 4,33 | 4,44 | 4,42 |

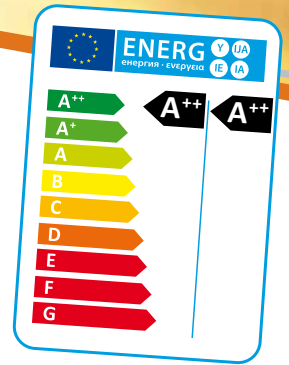
(1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.

(2) Cooling: user water temperature 12/7°C, source water temperature 30/35°C.



# WHA

## Ground source water/water heat pumps

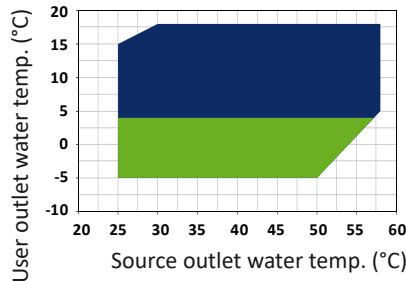
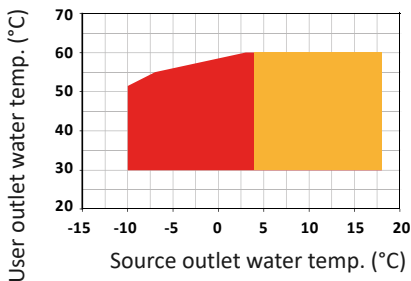


### Available versions

- HH** Standard, heating only.
- RV** Reversible heating/cooling.
- SW5** Heating only + domestic hot water circuit.
- RV/SW6** Reversible version heating/cooling with independent DHW circuit.
- FC** Free cooling (available in all versions).



### Operation limits



- Heating
  - Heating with glycol source circuit
  - Cooling
  - Cooling with glycol user circuit
- Operating limits with 5°C Δt

| WHA/RV - Reversible version                                |     | 039  | 045  | 050  | 060  | 070  | 080   | 090   | 110   | 120   |
|--|-----|------|------|------|------|------|-------|-------|-------|-------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A++  | A++  | A++  | A++  | A++  | A++   | A++   | A++   | A++   |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A++  | A++  | A++  | A++  | A++  | A++   | A++   | A++   | A++   |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 51,7 | 59,0 | 71,2 | 80,0 | 92,5 | 105,9 | 120,8 | 136,1 | 152,0 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 5,3  | 5,4  | 5,7  | 5,6  | 5,5  | 5,5   | 5,4   | 5,5   | 5,4   |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 42,9 | 49,0 | 60,3 | 67,4 | 77,5 | 88,9  | 101,3 | 114,3 | 126,9 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 4,3  | 4,3  | 4,7  | 4,6  | 4,4  | 4,5   | 4,5   | 4,5   | 4,4   |
| Free cooling capacity <sup>(3)</sup>                       | kW  | 22,8 | 22,9 | 36,0 | 36,3 | 36,6 | 49,3  | 71,0  | 72,4  | 73,5  |

| WHA/RV - Reversible version                                |     | 130   | 152   | 162   | 190   | 210   | 240   | 260   | 300   | 320   |
|--|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Energy Class in low temp. - According to EU reg. 811/2013  |     | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   |
| Energy Class in high temp. - According to EU reg. 811/2013 |     | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   |
| Heating capacity (EN14511) <sup>(1)</sup>                  | kW  | 169,2 | 195,0 | 222,1 | 243,8 | 271,3 | 306,9 | 342,2 | 390,9 | 439,4 |
| COP (EN14511) <sup>(1)</sup>                               | w/w | 5,4   | 5,3   | 5,4   | 5,4   | 5,3   | 5,3   | 5,4   | 5,4   | 5,4   |
| Cooling capacity (EN14511) <sup>(2)</sup>                  | kW  | 141,2 | 163,6 | 187,4 | 205,1 | 226,9 | 257,3 | 287,4 | 328,1 | 368,5 |
| EER (EN14511) <sup>(2)</sup>                               | w/w | 4,4   | 4,3   | 4,4   | 4,4   | 4,3   | 4,4   | 4,4   | 4,4   | 4,4   |
| Free cooling capacity <sup>(3)</sup>                       | kW  | 74,1  | 93,1  | 94,0  | 128,2 | 129,6 | 130,9 | 163,0 | 164,4 | 203,0 |

(1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.  
 (2) Cooling: user water temperature 12/7°C, source water temperature 30/35°C.  
 (3) Free Cooling: user water temperature 10°C, source water temperature 20°C, compressors OFF.

# LDA

## Air cooled water chillers with axial fans

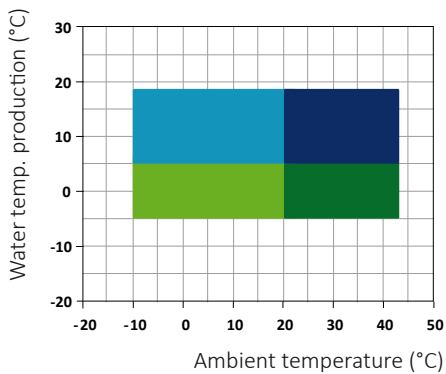


### Available versions

- CO** Cooling only.
- SA** Standard efficiency, AC fans.
- SE** Standard efficiency, EC fans.
- HA** High efficiency, AC fans.
- HE** High efficiency, EC fans.
- LS** Low noise.
- XL** Extra low noise.
- BT** Cooling only for low user water temperature.



### Operation limits



- Cooling with head pressure control
- Cooling with head pressure control
- Cooling with head pressure control and glycol
- Cooling with head pressure control and glycol

| LDA/CO/HE/LS                    |         | 252  | 302  | 402  | 452  | 502  | 602  | 702  | 802  | 902  | 1002 | 1202 | 1402  |
|---------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Cooling capacity (EN14511) (1)  | kW      | 19,7 | 26,7 | 32,3 | 42,8 | 46,9 | 55   | 61,6 | 68,6 | 82,6 | 93,8 | 105  | 121,6 |
| Total input power (EN14511) (1) | kW      | 6,2  | 8,4  | 10,1 | 13,6 | 14,6 | 16,9 | 19,3 | 21,8 | 25,4 | 29,6 | 33,2 | 36,8  |
| EER (EN14511) (1)               | W/W     | 3,16 | 3,18 | 3,20 | 3,15 | 3,21 | 3,25 | 3,19 | 3,15 | 3,25 | 3,17 | 3,16 | 3,30  |
| SEER (2)                        | kWh/kWh | 4,20 | 4,25 | 4,35 | 4,29 | 4,26 | 4,39 | 4,31 | 4,24 | 4,37 | 4,34 | 4,25 | 4,40  |

| LDA/CO/HE/LS                    |         | 1602  | 1802  | 2002  | 2302  | 2502  | 2504  | 3004  | 3204  | 3504  | 4004  | 4504  | 5004  |
|---------------------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling capacity (EN14511) (1)  | kW      | 133,3 | 152,1 | 169,3 | 195,6 | 215,1 | 210,3 | 246,8 | 267,7 | 303,2 | 345,3 | 390   | 435,5 |
| Total input power (EN14511) (1) | kW      | 41,8  | 48,1  | 53,6  | 62,7  | 68,3  | 66,3  | 76,2  | 85,0  | 95,3  | 108,2 | 123,8 | 138,3 |
| EER (EN14511) (1)               | W/W     | 3,19  | 3,16  | 3,16  | 3,12  | 3,15  | 3,17  | 3,24  | 3,15  | 3,18  | 3,19  | 3,15  | 3,15  |
| SEER (2)                        | kWh/kWh | 4,42  | 4,41  | 4,31  | 4,40  | 4,28  | 4,25  | 4,36  | 4,32  | 4,41  | 4,28  | 4,43  | 4,40  |

(1) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C.

(2) In accordance with (EU) 2016/2281 and relative norms part of this.

# WDA

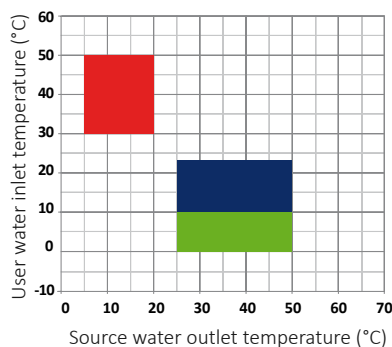
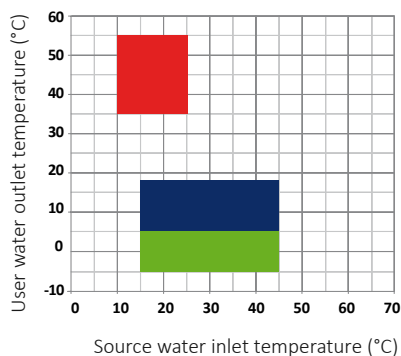
## Water cooled water chillers



### Available versions

- STD** Cooling only.
- HP** Reversible version on the hydraulic circuit.
- EV** Condenserless.
- BT** Cooling only version for low user water temperature.
- RP** Cooling only version with partial heat recovery.

### Operation limits



- Only HP
- All versions
- Only BT versions (working mode with glycol)

| WDA - WDA/HP  |     | 039  | 045  | 050  | 060  | 070  | 080  | 090   | 110   | 120   | 130   |
|---|-----|------|------|------|------|------|------|-------|-------|-------|-------|
| Energy Class in low temp. - Accord. to EU reg. 811/2013 |     | A++  | A++  | A++  | A++  | A++  | A++  | A++   | A++   | A++   | A++   |
| Cooling capacity (EN14511) <sup>(1)</sup>               | kW  | 43,7 | 49,9 | 59,3 | 67,2 | 75,0 | 88,5 | 100,8 | 112,0 | 126,5 | 141,1 |
| EER (EN14511) <sup>(1)</sup>                            | w/w | 4,2  | 4,1  | 3,9  | 4,0  | 4,2  | 4,2  | 4,2   | 4,2   | 4,1   | 4,2   |
| Heating capacity (EN14511) <sup>(2)</sup>               | kW  | 48,8 | 55,9 | 65,8 | 74,0 | 83,8 | 98,5 | 118,3 | 132,8 | 149,8 | 166,6 |
| COP (EN14511) <sup>(2)</sup>                            | w/w | 4,6  | 4,7  | 4,8  | 4,7  | 4,9  | 4,8  | 4,9   | 4,9   | 4,9   | 4,9   |

| WDA - WDA/HP  |     | 152   | 162   | 190   | 210   | 240   | 260   | 300   | 320   | 380   | 430   | 500   |
|---|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Energy Class in low temp. - Accord. to EU reg. 811/2013 |     | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   | A++   |
| Cooling capacity (EN14511) <sup>(1)</sup>               | kW  | 162,4 | 182,5 | 201,6 | 223,9 | 257,6 | 285,7 | 323,5 | 365,2 | 421,1 | 474,2 | 535,1 |
| EER (EN14511) <sup>(1)</sup>                            | w/w | 4,2   | 4,2   | 4,2   | 4,2   | 4,2   | 4,2   | 4,2   | 4,2   | 4,1   | 4,2   | 4,2   |
| Heating capacity (EN14511) <sup>(2)</sup>               | kW  | 190,9 | 216,5 | 237,4 | 266,4 | 301,4 | 325,9 | 367,7 | 422,4 | 501,0 | 567,1 | 637,2 |
| COP (EN14511) <sup>(2)</sup>                            | w/w | 4,9   | 5,0   | 4,9   | 4,9   | 4,9   | 4,8   | 4,8   | 4,9   | 4,9   | 4,9   | 5,0   |

(1)Cooling: Evaporator water temperature in/out 12/7°C condenser water temperature in/out 30/35°C.

(2)Heating: condenser water temperature in/out 30/35°C; evaporator water temperature in/out 10/7°C.



# WTS

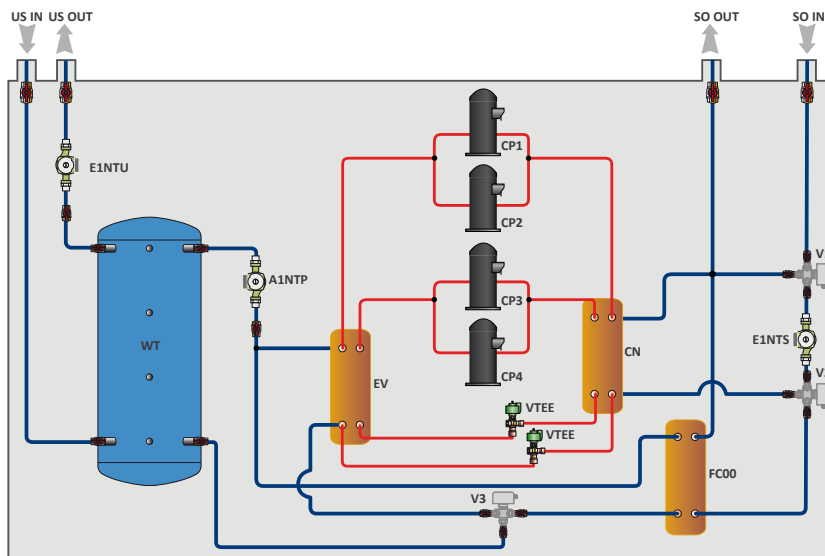
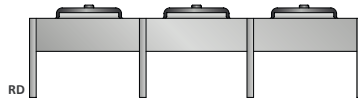
## Water cooled water chillers



### Available versions

**WTS** In this version the units are supplied complete with water tank, primary circuit water pump.

**WTS/FC** In this version the units are supplied complete with water tank, primary circuit water pump, intermediate plate heat exchanger and 3 way valve ( used to modulates the water flow to the user circuit following the required load from the plant). During the free cooling mode the compressors are in off.



|            |                             |
|------------|-----------------------------|
| US IN      | User circuit water inlet    |
| US OUT     | User circuit water outlet   |
| SO IN      | Source circuit water inlet  |
| SO OUT     | Source circuit water outlet |
| V1, V2, V3 | Water valves                |
| VTEE       | Electronic expansion valve  |
| CP 1,2,3,4 | Compressor                  |
| EV         | User heat exchanger         |
| CN         | Source heat exchanger       |
| WT         | Water tank                  |
| FC00       | Free cooling heat exchanger |
| E1NTU      | User circuit water pump     |
| E1NTS      | Source circuit water pump   |
| A1NTP      | Primary circuit water pump  |
| RD         | Remote dry cooler           |

| WTS/FC - Free cooling version             |     | 039   | 045   | 050   | 070   | 080   | 090   | 120    | 130    |
|---|-----|-------|-------|-------|-------|-------|-------|--------|--------|
| Cooling capacity (EN14511) <sup>(1)</sup> | kW  | 39,46 | 44,99 | 55,19 | 70,34 | 80,58 | 92,40 | 116,42 | 129,79 |
| EER (EN14511) <sup>(1)</sup>              | w/w | 3,22  | 3,19  | 3,45  | 3,30  | 3,38  | 3,39  | 3,32   | 3,32   |
| Free cooling capacity <sup>(2)</sup>      | kW  | 28,0  | 34,0  | 43,0  | 54,8  | 62,8  | 72,0  | 87,0   | 101,0  |

| WTS/FC - Free cooling version             |     | 152    | 162    | 190    | 210    | 240    | 260    | 300    | 320    |
|---|-----|--------|--------|--------|--------|--------|--------|--------|--------|
| Cooling capacity (EN14511) <sup>(1)</sup> | kW  | 152,85 | 175,00 | 181,13 | 202,15 | 232,28 | 262,90 | 304,59 | 341,85 |
| EER (EN14511) <sup>(1)</sup>              | w/w | 3,39   | 3,49   | 3,32   | 3,25   | 3,34   | 3,41   | 3,45   | 3,44   |
| Free cooling capacity <sup>(2)</sup>      | kW  | 116,0  | 130,0  | 141,3  | 157,5  | 172,0  | 202,0  | 232,0  | 255,0  |

(1) Cooling: User water temperature in/out 12/7°C, source water temperature in/out 36/42°C. With 35% ethylen glycol.

(2) Free Cooling: Source inlet water temperature +2°C, user water temperature in/out 14/9°C.



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