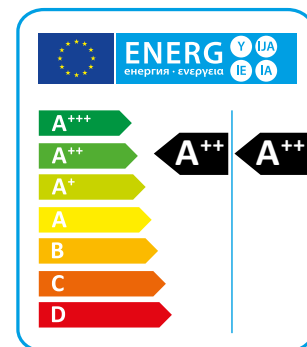


# WZA

## GROUND SOURCE WATER TO WATER HEAT PUMPS EQUIPPED WITH SCROLL COMPRESSOR

Heating capacity from 7 kW to 45 kW

R410A



WZA heat pumps are particularly suitable for applications that utilise well water or ground source probes. These units have been designed for use with radiant floor heating systems or those applications where it is necessary to have maximum efficiency when heating. They have been optimized on heating mode and are able to produce water up to 60°C.

WZA heat pumps are available in several versions. The most simple is a 2 pipe unit that can provide heating only. By fitting an external 3 port valve the unit can provide either heating or domestic hot water. There is also a 4 pipe unit that produces domestic hot water in a separate hydraulic circuit and can generate this irrespective of whether the unit is in heating or cooling mode.

Differing versions and a wide range of accessories, enable the optimal solution to be selected.

### VERSIONS

<b>HH</b>	Standard, heating only.
<b>RV</b>	Reversible heating/cooling.
<b>P2U</b>	2 pipe systems without domestic hot water production.
<b>P4S</b>	2+2 pipe systems with domestic hot water production.
<b>PO</b>	Unit designed for well water.
<b>GE</b>	Unit designed for geothermal probe.

## TECHNICAL DATA

WZA - WZA/RV		06	08	12	16	20	24	33	40
Heating capacity (EN14511) <sup>(1)</sup>	kW	7,7	9,9	13,6	17,2	22,8	26,9	34,0	44,7
Input power (EN14511) <sup>(1)</sup>	kW	1,3	1,6	2,1	2,7	3,8	4,3	5,6	7,7
COP (EN14511) <sup>(1)</sup>	W/W	5,89	6,06	6,26	6,18	6,01	6,13	6,06	5,77
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	5,41	5,68	5,66	5,67	5,69	6,07	6,03	5,79
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	208,4	219,2	218,3	218,8	219,7	234,8	233,0	223,4
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	4,21	4,31	4,38	4,44	4,39	4,80	4,82	4,69
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	160,5	164,4	167,1	169,6	167,6	184,1	184,9	179,4
Cooling capacity (EN14511) <sup>(3)</sup>	kW	5,5	7,1	9,9	12,6	16,7	19,8	25,3	33,4
Input power (EN14511) <sup>(3)</sup>	kW	1,4	1,8	2,4	3,0	4,1	4,8	6,0	8,2
EER (EN14511) <sup>(3)</sup>	W/W	3,78	3,88	4,14	4,16	4,06	4,13	4,16	4,04
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
Peak current	A	60,0	83,0	51,5	62,0	75,0	58,9	71,7	88,0
Maximum input current	A	12,8	17,1	7,4	9,7	13,0	14,8	19,4	26,0
Compressors / Circuits	n°/n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088	2088
Refrigerant charge	kg	2,2	2,2	2,9	2,9	4,6	4,6	5,0	5,5
Equivalent CO <sub>2</sub> charge	t	4,6	4,6	6,0	6,0	9,6	9,6	10,4	11,4
Sound power <sup>(4)</sup>	dB (A)	62	63	65	67	69	71	75	77
Sound pressure <sup>(5)</sup>	dB (A)	48	49	50	52	54	56	60	62

Performances are referred to the following conditions:

(1) Heating: User water temperature 30/35°C; Source water temperature 10/7°C.

(2) Variable - Reg EU 811/2013

(3) Cooling: User water temperature 12/7°C, Source water temperature 30/35°C.

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 1 mt from the unit in free field conditions in accordance with ISO 3744.

## COMPONENTS

### FRAME

All units are made from hot-galvanised sheet steel, painted with polyurethane powder enamel and stoved at 180°C to provide maximum protection against corrosion. The frame is self-supporting with removable panels. All screws and rivets used are made from stainless steel.

### REFRIGERANT CIRCUIT

The refrigerant utilised is R410A. The refrigerant circuit is assembled using internationally recognised brand name components with all brazing and welding being performed in accordance with ISO 97/23. Each refrigerant circuit is totally independent from the other with the result that any fault or alarm condition on one circuit does not influence the other. The refrigerant circuit includes: sight glass, filter drier, electronic expansion valve, Schrader valves for maintenance and control and pressure safety device (for compliance with PED regulations).

### COMPRESSORS

The compressors used are a high performance scroll type that incorporates a special scroll design which enhances the efficiency of the refrigerant cycle when the source temperature is low. The compressors are all supplied with a crankcase heater and thermal overload protection by a klixon embedded in the motor winding. They are mounted in a separate enclosure thus enabling them to be maintained even if the unit is operating. Access

to this enclosure is via the front panel of the unit. The crankcase heater is always powered when the compressor is in stand-by.

### SOURCE SIDE HEAT EXCHANGERS

The source side heat exchanger is a braze welded, plate type heat exchanger, manufactured from AISI 316 stainless steel. It has a single water side circuit. Utilisation of this type of exchanger results in a massive reduction of the refrigerant charge of the unit compared to a traditional shell-in-tube type and increases the efficiency of the refrigerant cycle at part loads. The source heat exchangers are factory insulated with flexible close cell material and are provided with a temperature sensor for antifreeze protection.

### USER SIDE HEAT EXCHANGERS

The user side heat exchanger is a braze welded, plate type heat exchanger, manufactured from AISI 316 stainless steel. It has a single water side circuit. All units are supplied with a sub-cooler to enhance the performance of the refrigerant cycle. The user heat exchangers are factory insulated with flexible close cell material.

### MICROPROCESSORS

All units are supplied as standard with microprocessor controls. The microprocessor controls the following functions: control of the water temperature, antifreeze protection, compressor timing, compressor automatic starting sequence, alarm reset, volt free contact for remote general alarm, alarms and op-

eration LED's. If required (available as an option), the microprocessor can be configured in order for it to connect to a site BMS system thus enabling remote control and management. The Hydros technical department can discuss and evaluate, in conjunction with the customer, solutions using MODBUS protocols.

### ELECTRIC ENCLOSURE

The enclosure is manufactured in order to comply with the requirements of the electromagnetic compatibility standards CEE EN60204. Access to the enclosure is achieved by removing the front panel of the unit. The following components are supplied as standard on all units: main switch, thermal overloads (protection of pumps), compressor fuses, control circuit automatic breakers, compressor contactors, fan contactors and pumps contactors.

The terminal board has volt free contacts for remote ON-OFF, Summer/Winter change over (reversible type only) and general alarm. For all three phase units, a sequence relay that disables the power supply in the event that the phase sequence is incorrect (scroll compressors can be damaged if they rotate in the wrong direction), is fitted as standard.

### CONTROL AND PROTECTION DEVICES

All units are supplied with the following control and protection devices: Return and supply user heat exchanger sensors, return and supply source heat exchanger sensors, high pressure switch with manual reset, low pressure switch with automatic reset, high pressure safety valve, compressor thermal overload protection,

pump thermal overload protection, high and low pressure transducers, differential pressure switch on source and user circuit.

### HYDRAULIC KIT

All units are supplied as standard with built-in hydraulic kit so configured:

User circuit: includes the inverter water pump, expansion vessel, filling connection, water drain and the water flow safety device (differential pressure switch). Source circuit: includes the inverter water pump, the water flow safety device (differential pressure switch), filling connection, water drain and expansion vessel. Domestic hot water circuit: includes the inverter water pump controlled by the microprocessor.

### ELECTRONIC THERMOSTATIC VALVE

All the units are equipped with an electronic thermostatic valve, in order to optimise the functioning of the cooling circuit and to maximise the energy efficiency of the system in all operating conditions that can be implemented on the system.

## VERSIONS

### WZA/HH

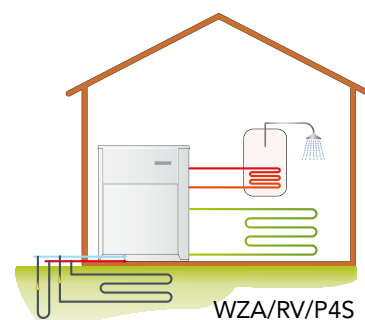
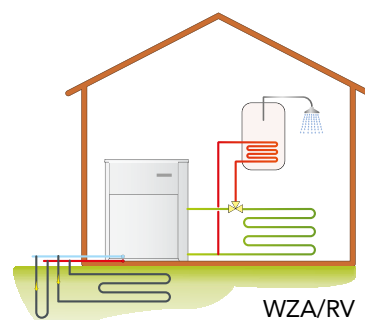
Version for heating only applications.

### WZA/RV 2 pipes version

This version is capable of cooling during summer operation by using a 4 way reversing valve in the refrigerant circuit.

### WZA/RV/P4S 4 pipes version

This version is supplied with 4 pipes on the user side and is able to produce simultaneously, hot and cold water on 2 independent hydraulic circuits. On this version, the domestic hot water.

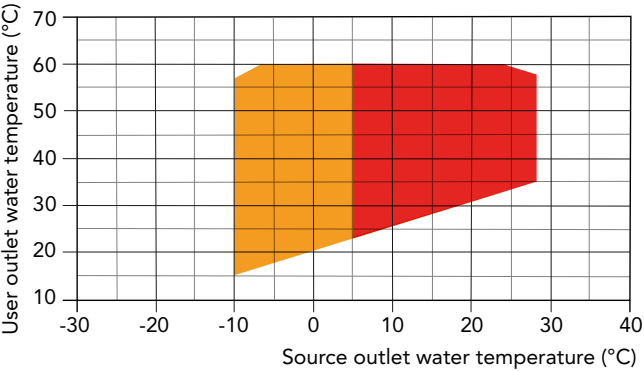


ACCESSORIES

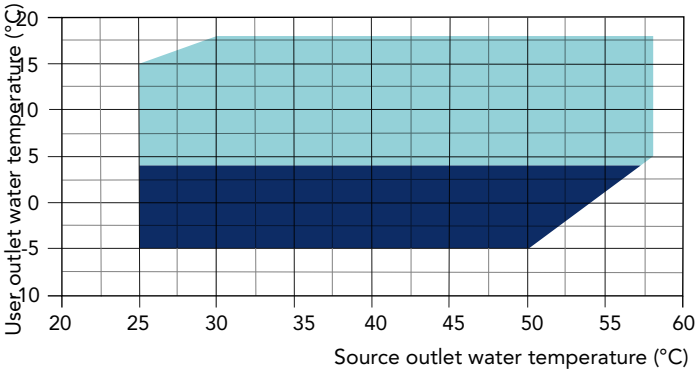
WZA - WZA/RV		06	08	12	16	20	24	33	40
Main switch		●	●	●	●	●	●	●	●
Microprocessor control		●	●	●	●	●	●	●	●
Water pumps ( source, user, domestic hot water pump)		●	●	●	●	●	●	●	●
Low noise version LS [-4dB(A) of STD]	LS00	○	○	○	○	○	○	○	○
Electronic soft starter	DSSE	–	–	–	○	○	○	○	○
Rubber anti-vibration mountings	KAVG	●	●	●	●	●	●	●	●
Remote control panel	PCRL	○	○	○	○	○	○	○	○
Serial interface card RS485	INSE	○	○	○	○	○	○	○	○

● Standard, ○ Optional, – Not available.

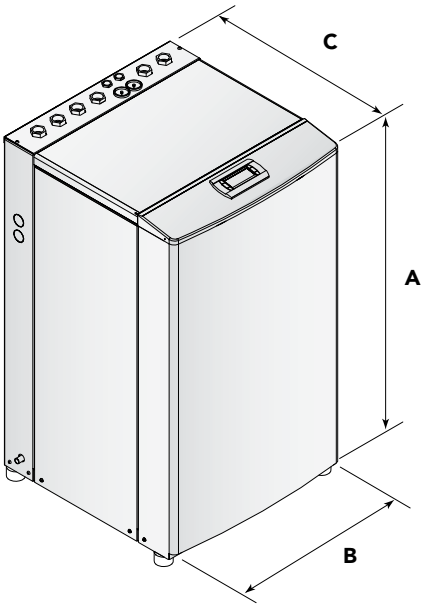
OPERATION LIMITS



- Heating
- Heating with glycol source circuit



- Cooling
- Cooling with glycol user circuit



Mod.	A (mm)	B (mm)	C (mm)	kg
06	970	620	575	146
08	970	620	575	153
12	1050	620	650	169
16	1050	620	650	195
20	1050	620	650	215
24	1040	800	880	262
33	1040	800	880	302
40	1040	800	880	320