ERP

Aqua[1] Plus

Air-water heat pumps for domestic hot water production

Ferroli

> THE FLEXIBLE EFFICIENCY

AQUA[1] PLUS is a range of heap pumps for domestic hot water production, fit for small residential applications. It is the smart solution for tap water heating, with no use of traditional fuels, but electricity, air and eventually sun (thermal and PV). Efficiency, ecology and flexibility are the keywords which discriminates AQUA[1] PLUS vs a traditional electric water heater.

GENERALITIES

Air-water heat pumps for domestic hot water preparation , storage in enamelled steel and externally wrapped condenser for the highest safety and hygiene. Max setpoint temperature 56°C from renewable energy. Digital programmable electronics, heating settable integration with solar (model LT) or electric heating element (up to 70°C). Power settable integration with solar PV system.

THE RANGE

> LT Version
Air inlet -7°C/+38°C

*Only **FLOOR STANDING** set-up, including auxiliary solar coil*

Models: 200 - 260

> HT Version
Air inlet +4°C/+43°C

***FLOOR STANDING** set-up*

Models: 160 - 200 - 260

> HT Version
Air inlet +4°C/+43°C

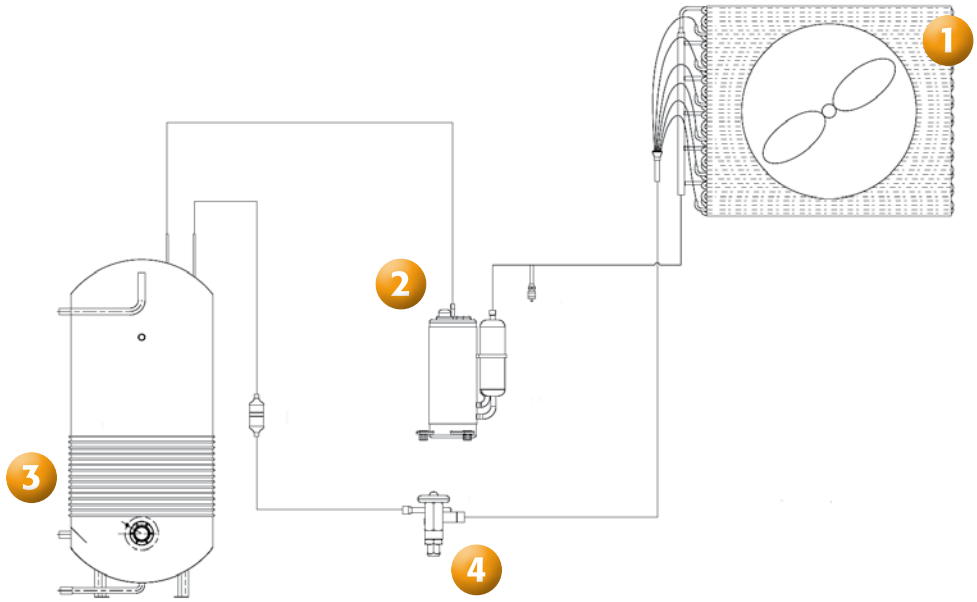
***WALL-HUNG** set-up*

Models: 90

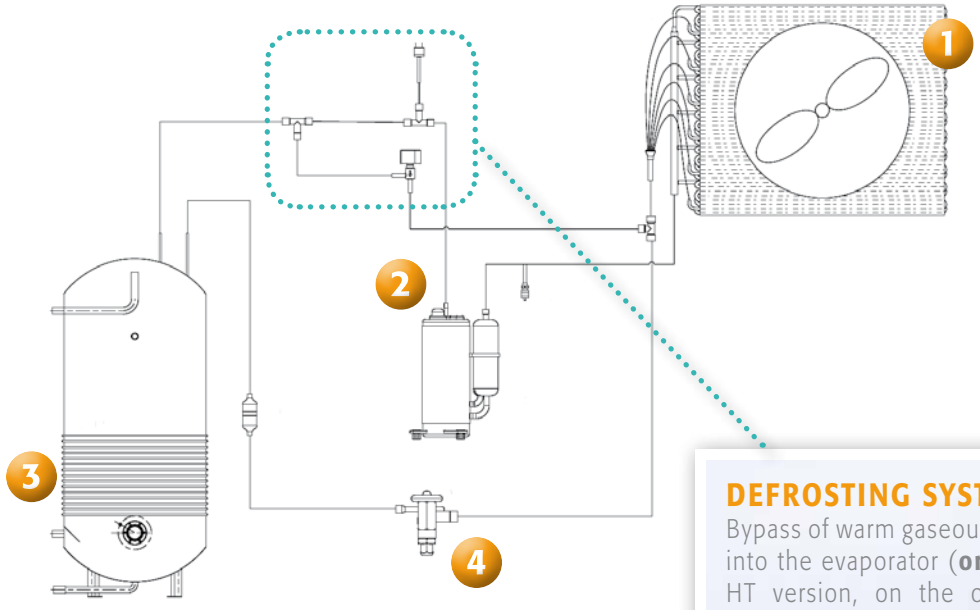
*Both **LT** and **HT** models can work below their operation limits via the heating element only.*

> COOLANT GAS CIRCUIT

1. Heat transfer from external air to the fluid inside the evaporating battery. Changement of fluid's status from liquid to gaseous
2. Compression of the fluid, thus increasing its temperature
3. Fluid condensation in the condensing coil, implying heat transfer to the cylinder/water
4. Expansion of the fluid in the expansion valve, decreasing its pressure

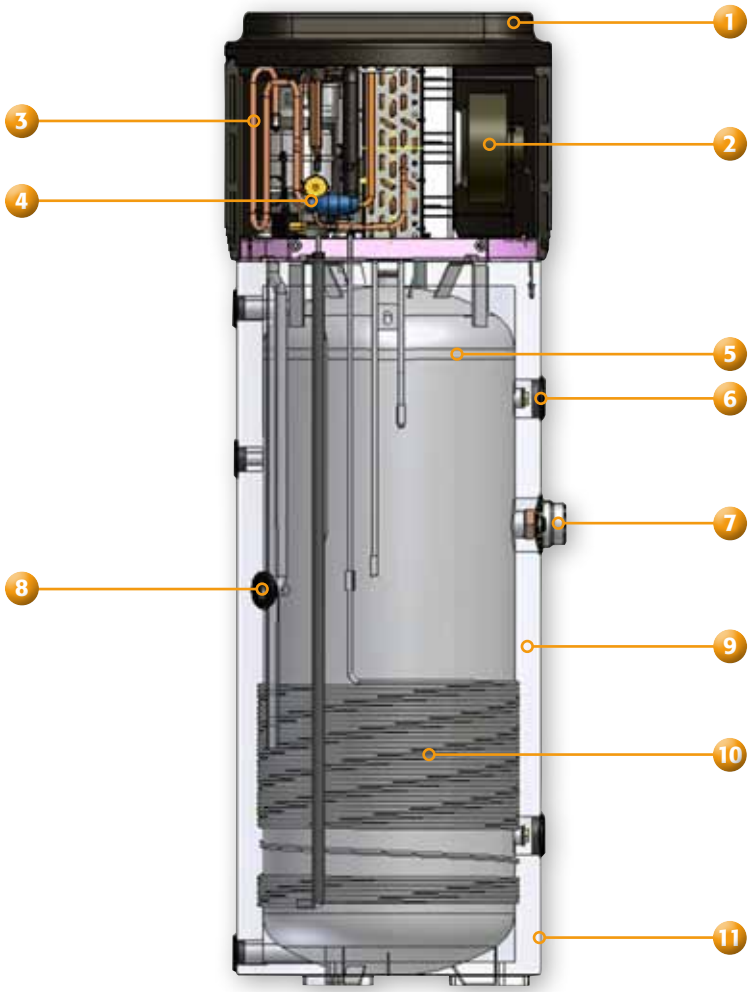


PECULIARITY OF LT VERSION



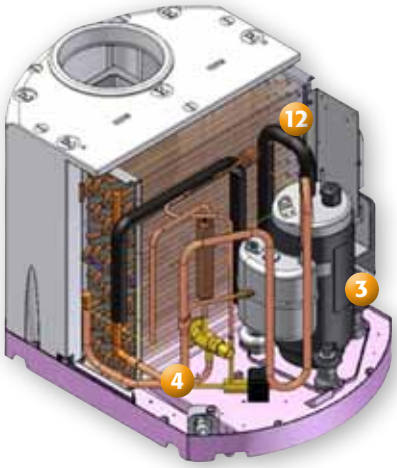
DEFROSTING SYSTEM:
Bypass of warm gaseous fluid, which is injected into the evaporator (**only for LT version**). HT version, on the other hand, features a passive defrosting function.

> COMPONENTS AND DIMENSIONS

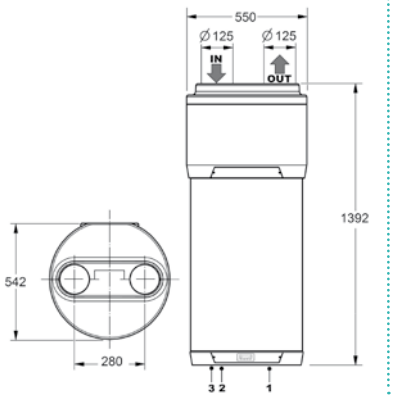


KEY

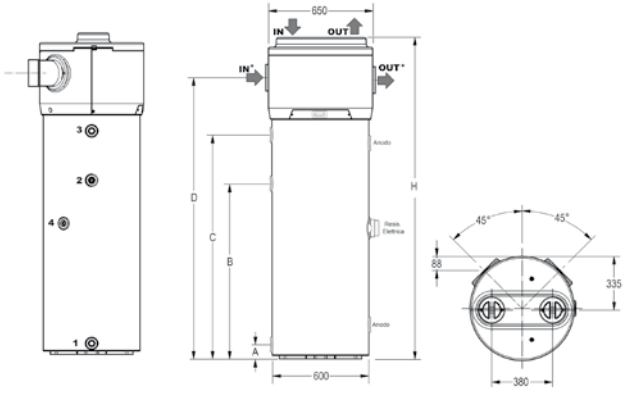
1 Soundproof thermic insulation in PPE
2 Axial-centrifugal fan
3 Rotary compressor, R143a gas
4 Refrigerant circuit including thermostatic valve
5 Storage tank in enamelled steel
6 Magnesium anode
7 Auxiliary heating element
8 Condensate drain connection
9 50 mm PU tank insulation
10 Aluminium condenser, externally wrapped around the tank
11 Embossed ABS external lining
12 Finned evaporator including Al-tube without welding



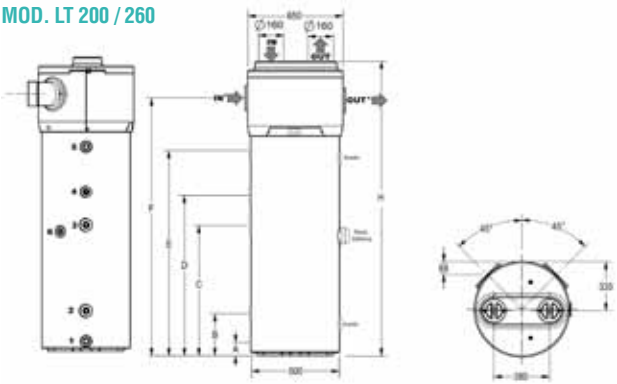
MOD. HT 90



MOD. HT 160 / 200 / 260



MOD. LT 200 / 260



MODEL 90		UM
1 Ingresso acqua fredda	G 1/2	"
2 Uscita acqua calda	G 1/2	"
3 Scarico condensa	G 1/2	"

MODELS 160 / 200 / 260		UM
1 Ingresso acqua fredda	G 1	"
2 Ricircolo	G 3/4	"
3 Uscita acqua calda	G 1	"
4 Scarico condensa	G 1/2	"

	160	200	260	UM
A	68	68	68	mm
B	1085	1085	1085	mm
C	894	1104	1394	mm
D	1254	1464	1754	mm
H	1504	1714	2004	mm

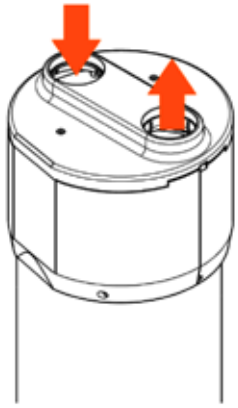
MODELS 200 / 260		UM
1 Ingresso acqua fredda	G 1	"
2 Serpentino solare	G 1" 1/4	"
3 Serpentino solare	G 1" 1/4	"
4 Ricircolo	G 3/4	"
5 Uscita acqua calda	G 1	"
6 Scarico condensa	G 1/2	"

	200	260	UM
A	68	68	mm
B	275	275	mm
C	570	860	mm
D	1085	1085	mm
E	1104	1394	mm
F	1464	1754	mm
H	1714	2004	mm

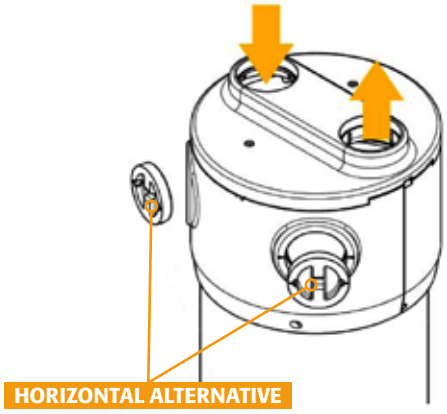
> AIR DUCTING

CONNECTIONS LAYOUT

WALL-HUNG VERSION: air intake and cold air evacuation only vertically

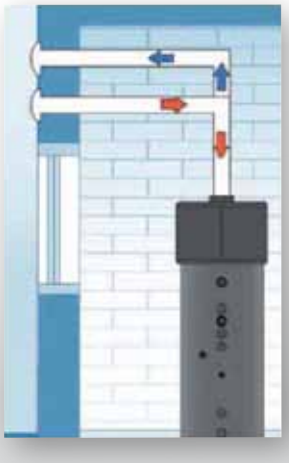


FLOOR STANDING VERSION: besides vertical connection it is possible to use also horizonal ones as an alternative



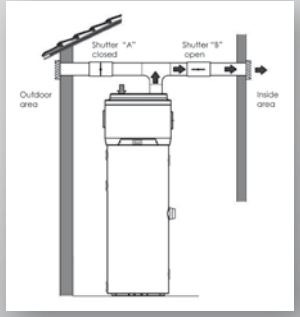
DUCTING POSSIBILITIES

OUTDOOR INTAKE / EVACUATION: application of LT version is safer, owing to the wider operation range at colder temperatures

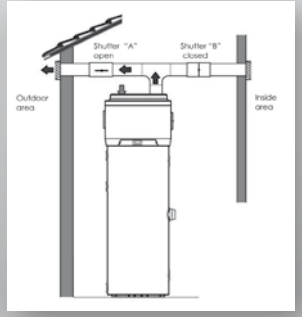


INDOOR INTAKE / OUTDOOR EVACUATION: HT version cannot accept intake temperature below +4°C. Such single-pipe installation is particular fit for HT version, should outdoor project temperature be rigid

SUMMER "FREE-COOLING" DUCTING: Evacuation air, cold and dry, represents a valid and unexpensive opportunity to refresh small rooms in summer or support the existing air conditioning system. A common outlet pipe could be shared for outdoor and indoor evacuation, with intervention of shutter valves to divert the flow outwards in winter or, conversely, to an adjacent room in summer



SUMMER MODE



WINTER MODE

> ELECTRONICS

The microprocessor-based electronics features a diplay and buttons interface. It shows temperatures, operation parameters, alarms and operation status. A weekly timer is included, featuring two ON/OFF events per day. A manual operation is of course possible. In this case manual mode will have priority over the scheduled one. Legionella protection program is also available.

OPERATION MODES

AUTO: This mode mainly exploits renewable energy of the heat pump. The electric heating element may however be enabled, for instance in case water temperature is below a certain level, or a higher setpoint than 56°C would be required.

ECO: Only renewable energy is used. Auxiliary heating element is thus disabled.

OVERBOOST: Implies combined operation of the heat pump and the electric heating element, with the aim of a quick heating of tap water. The function needs to be be manually enabled when the temperature of the water inside the storage tank is below 40°C. At the end of the heating process, the function is automatically disabled and the appliance is restored to the Automatic or Economy mode, depending on which of these functions were previously set by the user

SOLAR INTEGRATION

The floor standing versions feature possibility of an energy supply from a PV system (electric power) or thermal solar system (heating integration). The latter solution is possible only for LT version, as it already includes solar additional coil. Solar energy is enabled through settable imput switches.

POWER: Electronics reserves a dedicated setpoint in case of electric supply from PV. It is possible to exploit free solar energy in order to boost DHW production at higher temperature and then stock hot water for longer time.

HEATING: on LT versions, when solar heating is enabled, heat pump operation will be stopped for a set period, in order to permit an efficient operation of solar.

> TECHNICAL DATA

Standard power supply 230-1-50 V/Hz, limit power supply 207-254 V

Aqua¹ Plus			90 HT	160 HT	200 HT	260 HT	200 LT	260 LT
Heat pump	Heating capacity (ISO)	W	1005	1600	1600	1600	1820	1820
	Total power input in heating (ISO)	W	210	370	370	370	430	430
	COP (ISO)	W/W	4,79	4,32	4,32	4,32	4,23	4,23
	Rated current input in heating (ISO)	A	0,95	1,70	1,70	1,70	2,00	2,00
	Max power input	W	270	500	500	500	530	530
	Max current input	A	1,20	2,30	2,30	2,30	2,43	2,43
	Warming up time (EN) (1)	h:min	5:30	6:41	7:16	9:44	8:17	10:14
	Warming energy (EN) (1)	kWh	1,20	2,68	2,83	3,74	3,25	3,99
	Stand-by input (EN) (1)	W	14	29	27,3	31	29	29
	Class of usage (EN) (1)	Type	M	L	L	XL	L	XL
	Power consumption during cycle of use WEL-TC (EN) (2)	kWh	2,20	4,43	4,18	6,17	3,97	6,19
	COP DHW (EN) (1)	W/W	2,70	2,63	2,80	3,10	2,94	3,08
	Reference temperature (EN) (1)	°C	50,8	55,9	51,4	53,7	53,7	52,7
	Max. quantity of water usable (EN) (2)	m³	0,094	0,233	0,260	0,358	0,275	0,342
	Heating efficiency. Ref St. (EU)	%	104	104	110	121	117	121
	Energy efficiency. Ref St. (EU)	-	A	A	A	A	A	A
	Annual power consumption (EU)	kWh/year	489	986	929	1384	879	1393
Electric heating	Capacity	W	1200	1500	1500	1500	1500	1500
	Input current	A	5,2	6,5	6,5	6,5	6,5	6,5
Heat pump + electric heating	Total power input	W	1410	1870	1870	1870	1960	1960
	Total current	A	6,15	8,20	8,20	8,20	8,5	8,5
	Max total power input	W	1470	2000	2000	2000	2030	2030
	Max current	A	6,40	8,80	8,80	8,80	8,93	8,93
Tank	Volume	l	87	158	199	255	196	248
	Max. operating pressure	MPa	0,7	0,7	0,7	0,7	0,7	0,7
	Material	Type	Enamelled steel					
	Protection	Type	Magnesium anode					
	Isolation type\thickness	Type/mm	Polyurethane / 50					
Air circuit	Fan type	Type	Centrifugal					
	Air flow	m³/h	130	350 - 500	350 - 500	350 - 500	350-500	350-500
	Pipe outlet diameter	mm	125	160	160	160	160	160
	Max available pressure	Pa	120	200	200	200	200	200
Refrigerant circuit	Compressor	Type	Rotary					
	Refrigerant	Type	R134a					
	Evaporator	Type	Finned copper / aluminum battery					
	Condenser	Type	Aluminum tube wrapped externally to the tank					
Solar coil	Material	Type	-	-	-	-	Enamelled steel	
	Total surface (ISO)	m²	-	-	-	-	0,6	1,0
	Max. pressure (ISO)	Mpa	-	-	-	-	0,7	0,7
Sound power level		dB(A)	60	59	59	59	60	60
Weight	Net	kg	48,5	70	80	100	99	115,2

NOTE ***(ISO):*** *data according to the standard ISO 255-3*
(EN): *data according to the standard EN 16147:2011*
*(**EU**): data according to the standard EU 812/2013*

(1): *heating cycle: Ambient temperature = 15 ° C B.S. / 12 ° C B.U. • Initial water temperature = 10 ° C*
(2): *use temperature 40 ° C • inlet water temperature 10 ° C*

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Consequently, ensure that the customer is provided with up-to-date technical and/or sales documents (price lists, catalogues, brochures, etc....).

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