



# Heat pump systems

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# Heat pumps, why?

## Why choose geothermal heating for our home? ...for five excellent reasons

- ✓ energy saving
- ✓ user-friendly
- ✓ eco-friendly
- ✓ independence from fossil fuels
- ✓ system flexibility

## Innovation, safety, user-friendly, eco-friendly: 4 key words

For over forty years, Fiorini has been operating in the plumbing and heating sector, giving a strong impetus to innovation, which in Italy makes it a pioneer in an advanced sector such as heat pumps. Building on this, Fiorini not only offers heat pumps, but also "systems". The goal is to provide a complete device in which each element is carefully selected and the components are perfectly integrated to provide a quick and flexible response ensuring the highest level of comfort and efficiency. The applications are varied: winter heating, summer cooling, efficient production of domestic hot water, from a single residence up to an industrial complex. Our strength is a comprehensive knowledge of renewable energy technologies, which makes it possible to design and build integrated systems aimed at exploiting and integrating various energy sources such as geothermal, aerothermal, solar thermal, photovoltaic sources, etc..

## The heart of the system: the heat pump

The heart of the system is the heat pump, which is designed and manufactured in-house from scratch: the wide range of powers makes it possible to satisfy every need. Our highly technical expertise ensures excellent support at all stages, from project assessment and investment analysis with targeted amor-

tization schemes to system design, commissioning and after-sales service. Despite being standardized, the system can be customized. Every customer is our partner. The technical information on the device is conserved in order to be able to add further components, at any time, based on changing needs.

## The brain of the system: continuous monitoring and easy management

The brain of the system is the control and adjustment software, stemming from the experience of our in-house technicians. The control system makes it possible to manage and to monitor the correct operation of all hydraulic and mechanical components. The GEO HFE-HFS and ADV plus series heat pumps are operated by micro-processors equipped with our flagship software Galileus. That software has been conceived by Fiorini not only to supervise all operational modes of the device, but also to monitor the whole air conditioning and DHW production system. It is an integrated system capable of independently managing the terminals of a radiant system, ambient dehumidification and the integration of a solar thermal system. It also makes it possible to control free cooling during intermediate seasons. All Galileus functions can be managed through the LCD panel supplied with it, which indicates the set operation mode and any system malfunctioning. Adjustment and control can also be remotely managed through a special kit that enables you to conveniently check and change any operation parameter from your own computer or from the service centre.



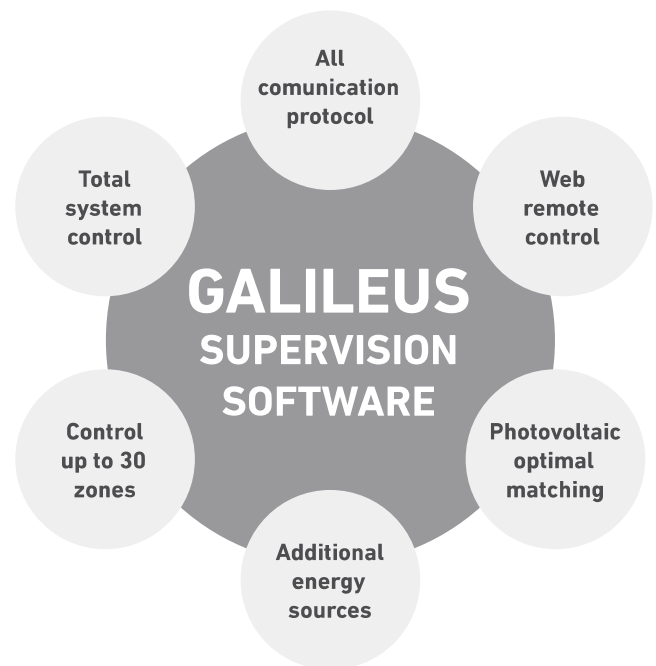


# Galileus System

## What is the Galileus system?

The Galileus software is installed in the GEO HF and IDEA FLEX GALILEUS heat pumps. The software is developed by the research office and is meant to completely and meticulously manage the mechanisms present in a modern conditioning system.

Therefore, the Galileus system coordinates all the energy sources (heat pump, solar thermal, integrated water heater, etc) and it manages all mechanisms of the installation (floor heating, high temperature installation, DHW production, mechanical ventilation system, etc).



### Legend

1. GEO heat pump
2. Probe or well
3. Thermal storage tank
4. SET fresh water station
5. Fan
6. Environment Zone Kit (inside the heat pump)

7. Room thermostat
8. Remote keypad
9. Deviation valve kit
10. Mixing valve kit
11. Device pump
12. Solar panel (Additional source)
13. Solar kit (inside the heat pump)
14. Storage tank

15. Web module (inside the machine control unit)
16. Freecooling
17. Towel warmer
18. Outdoor air probe



## Basic functions

**1. Facilitated start-up:** Galileus has a guided configuration, which invites you to respond to a number of questions. In this way, the world around the Galileus and the installation it manages is construed systematically.

**2. Integrated sources:** Galileus has a complete and rational management of the integrated sources, from solar thermal to stove, from water heater to electrical resistor. Its use is based on the operation costs and the most convenient energy source is always used in order to satisfy the demand of the installation.

**3. Sanitary production:** Galileus meticulously manages the production of domestic water since it is one of the biggest costs on the overall heat production. Thanks to the heat exchanger that is installed on the flow of the compressor (for GEO HFE/R), Galileus uses this device and recuperates surplus heat from the compressor while the heat pump works for the installation in either summer or winter mode. For large withdrawals of sanitary water Galileus has the priority on the production of domestic water by giving all power generated by the compressor.

**4. Freecooling:** Galileus intelligently manages the cooling by transporting heat from the environment directly to the thermal source (ex. Geothermal probe). This can be done in two ways: manually or automatically. In the automatic mode, Galileus checks whether the heat taken from the environment is sufficient for the user's requirements. If not, it activates the compressor of the heat pump.

**5. outside air temperature probe:** GThrough the outside air temperature probe, the Galileus manages the compensation of the setpoint of the heat pump or the setpoint of the mixing valves (installation). Moreover, it makes the automatic seasonal change between "Summer – Domestic – Winter" possible.

**6. Visualisation:** Galileus is easy to use. It gives a series of clear information about the central installation, the integrated sources and the zones it manages.

## Ambient regulation

**7. Ambient zones:** Galileus can coordinate 30 different climate zones by controlling the temperature and the humidity (control of the dew point in summer mode) and by activating the dehumidifiers (also with integration in summer). Galileus also completely manages the bathrooms. It manages the radiant installation and the towel heaters either in integration or as an independent system in the transitional seasons (fall and spring). There is also a chronothermostat (daily or weekly) with 6 temperature levels.

**8. Mixing valves:** Galileus can manage up to 16 mixing valves, their flow probe and their set point (fixed, compensated or controlled from the dew point).

**9. Modulating zone valve:** Galileus can also manage up to 16 modulating zone valves which are regulated on the basis of the ambient temperature and have the capacity of change the flow to the radiant system when the set point is almost reached in order to maintain a constant comfort.

**10. Management fan coil:** Galileus can completely manage up to 15 fan coil; 3 more automatic velocity, fan coil valve, minimum temperature valve, either in winter or summer mode. The control can also be mixed: up to 30 radiant zones in winter and 15 fan coil in summer.

**11. Relaunch pump or zone valve:** Galileus can operate up to 30 relaunch pumps on the tank/installation side or 30 zone valves, depending on the demands of the various zones or the domestic precedence.

**12. Heat recuperation:** Galileus has an integrated function: heat recuperation from the sources (solar thermal or other systems) and is able to transfer and distribute heat to the installation and the domestic side in an intelligent way.

**13. Heat pumps in series:** Galileus manages up to 5 heat pumps in series with the Master-Slave function.

**14. BMS system:** Galileus is easily combined with supervision system with various types of protocols (modbus – Lon – Bacnet etc). Through the web ports, the system can go on the internet and send alarm mails. Moreover, it can be interrogated by whichever pc or smartphone without installing any software.

**15. Managing the recirculation:** Galileus can manage the recirculation of the domestic water, not only through time slots, but also through the temperature of the loop.

## Special functions

**16. Optimization of the photovoltaic source:** Galileus is easily combined with photovoltaic installations. It monitors the production of electric energy and transforms it in thermal energy. The consumption of the other generators is always controlled by Galileus in order to be able to make a perfect balance of produced, consumed and transformed (in thermal) energy.

**17. Load control:** Next to the optimization of the photovoltaic source the Galileus can also manage the electrical loads. Because Galileus knows the production of the photovoltaic system, the limit of the contactor and the electric loads in the residence, the system can shut off when the requested power in the residence will reach the limit of the contactor.

**18. Touchscreen:** Galileus also has a touchscreen. You can easily reach every detail of the installation and manage it.

## Self-diagnosis and safety

**1. Loss of refrigerant:** Upon the first start-up, Galileus knows whether the heat pump has lost refrigerant between the trip from the manufacturing plant and the installation.

**2. Sequence of phases:** When the compressor is started up, Galileus knows whether the rotation sense of the motor is correct.

**3. Compression alarm:** Galileus detects when the compressor is not able to compress the refrigerant gas because of 'a broken by-pass valve' or seizure.

**4. Alarm installation:** Galileus helps the user by explicitly stating the type of alarm. In this way, it is easier to make a diagnosis, without using installation codes.

**5. Alarm history:** A part of the physic memory of the Galileus is dedicated to the registration of date and hour of the alarms and its reset.

**6. Assistance:** Galileus helps those that have to carry out assistance thanks to the temperature and pressure sensors in the frigorific circuit. In this way, it gives a complete vision of that frigorific circuit. The technician does not have to connect the manometers to the frigorific circuit, which guarantees the integrity and the efficiency of that system.





# Recuperating heat for DHW production

All GEO HFE/R Fiorini heat pumps have a circuit for DHW production. This circuit consists of a heat exchanger (refrigerant/water) with high efficiency circulator and at the refrigerant side it is directly connected to the outlet of the compressor.

In this position the refrigerant gas is at its max temperature (70-80°C) and makes it therefore possible to quickly produce domestic water at a temperature which is higher than the temperature in traditional heat pumps.

The power the heat exchanger can exchange is equal to the total power of the compressor. This means that during the DHW production phase all the power of the heat pump can be used.

Another specific feature of this heat pump is that, thanks to the Galileus software, it can recuperate 20% of the total power. This recuperation can take place at any time during the heating or cooling in order to produce domestic hot water by using the high temperature gas that comes out of the compressor. Briefly, the production of domestic hot water is guaranteed in every operation phase of the heat pump with a quota between 20% and 100% of its power. Normally the major part of the functioning hours of heat pumps is dedicated to DHW production. Therefore, improving the efficiency of this function means sensibly improving the efficiency of the heat pump in se and the installation in which it is assembled.

## Main features

1. -20% of the total power is recuperated and used for DHW production at high temperatures.
2. Simultaneously producing DHW and heating
3. Possibility to modulate the power meant for DHW production from 20% up to 100% of the available thermal power.
4. In summer mode, DHW is produced free of charge thanks to the condensation heat which is dispersed in the thermal source.
5. Possibility to simultaneously produce hot water for heating and cold water for cooling installations.



# Geothermal systems

## Earth heat

- Earth is a renewable heat source. The energy it contains comes from the sun and the natural heat of the earth crust. This energy is free of charge and available in large amounts; it must only be transferred from the soil to the homes. Geothermal and clean energy represents an essential source not only for the end user but also for the entire ecosystem.

## How to exchange heat between the soil and the house

- Geothermal energy is available at a constant temperature (approximately 14°C at a depth of 20 to 100 m) throughout the year, but it is not enough to supply the entire heating system.
- GEO heat pumps transfer the heat from the soil and increase the temperature of the thermovector fluid by means of the compressor powered solely by electricity.
- This process is particularly efficient; in fact, 1 kW of electricity can produce up to 5 kW of thermal energy. Efficiency is ensured throughout the year, unlike with air heat exchangers.

- By reversing the cycle during summer, GEO heat pumps can cool your home by releasing the heat captured inside to the outdoors, thereby settling the energy balance.

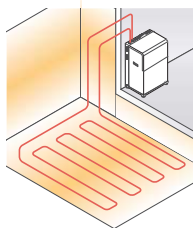
## How does a geothermal system work?

- The soil on which the house is built can be a sufficient energy source to heat and cool your home.
- There are several solutions to exchange heat between an underground source and the thermovector fluid:
  - horizontal heat exchanger probes buried 2 metres deep;
  - vertical probes (buried 80 - 120 m deep);
  - Stratum, river or lake water.
- A thermovector fluid, usually water or a glycol-water mixture, flows inside the probes, transferring the heat to the GEO heat pump, thereby making it available for heating, cooling and sanitary production.

## Probes

### Horizontal heat exchanger probes

- This type of probes must be buried 1 - 1.5 m deep (always 20 cm below the freezing limit) in the soil, which must be left unsown.
- PE probes (DN 25 o DN 32) require an average lawn surface equal to 2,5 - 3 times the area to be heated.

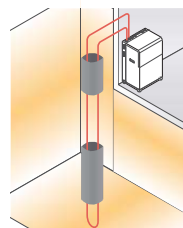


#### Indications:

- moist and clay soils.
- Do not divert rainwater through drains to optimise soil regeneration.
- Do not pave over the surface of the manifold
- Avoid trees and bushes with deep roots.
- The circuit piping must be provided with a water vapour barrier to prevent condensation and ice dams from forming.

### Closed circuit vertical probes (water-glycol)

- Vertical probes require a perforation of approximately 150 mm diameter where a PE pipe circuit is placed (geothermal probe) sealed with a bentonite mixture.
- PE probes (DN 32 for double-U pipes or DN 40 for U-pipes)
- According to the soil quality, for every thermal kW yielded by the heat pump an average between 15 and 20 m probe is required.



#### Indications:

- Drilling depth ranges between 80 and 120 m. For larger demands, several parallel probes must be used.
- In the event of multiple drilling, keep the probes at a distance of at least 8 - 10 m (grid) to prevent thermal interference.
- When drilling vertical probes, always provide an adequate distance from the building foundations in order to prevent soil subsidence and thermal strain. It is advisable to consult a geologist.

Performance	
Subsoil	Performance [W/m2]
Dry sandy soil	10-15
Moist sandy soil	15-20
Dry cohesive soil	20-25
Moist cohesive soil	25-30
Saturated sand/gravel	30-40

Performance	
Subsoil	Performance [W/m2]
Bad subsoil (dry soil)	20
Rock or moist soil	50
High conductivity rock	70
Dry gravel/sand	<20
Saturated gravel/sand	55-65
Moist clay, silt	30-40
Limestone rock	45-60
Sandstone	55-65
Granite	55-70
Gneiss	60-70

# Geothermal systems

## Stratum-water wells

Placement close to a water source or an underground stratum makes a direct heat exchange possible. The water which is collected is reintroduced by a second well after the heat exchange with the heat pump.

The geothermal system flow rate is 4 l/min/kW (heating).

Indications:

- The use of groundwater strata requires authorisation by the Province of competence.
- The minimum water temperature must not drop below 7°C, whereas the maximum water temperature must not exceed 20°C.
- The quality of the water must comply with the indications in the "chemical-physical properties" table at the end of the paragraph; otherwise, an external inspectable plate heat exchanger must be placed between the heat pump and the well water circuit.
- The level of the detected stratum must be measured by having it pour continuously for 24 – 48 hours, making sure that after this period the level of the stratum has not decreased (if so, a deeper or larger stratum must be found).
- It is important to ensure a distance of at least 10-15 m between the suction well and the drainage well to prevent underground hydraulic short-circuits (unless water is reintroduced in a stratum at a different level from the suction well).

## Heating systems

Geothermal heat pumps are advanced energy systems that are integrated in systems with certain basic features e.g., good thermal insulation class, especially for cooling applications during summer. It is important to consider the operating temperatures: The economic convenience of using a geothermal heat pump is set to a 50°C flow temperature in domestic hot water production and at lower temperatures (35-40 °C) for the flow to the heating system.

This is why a typical system which is to be installed downstream a geothermal system (except for heated towel rails and radiators for bathrooms) can be:

- a low temperature floor radiant heating system
- a low temperature radiant wall heating system
- a low temperature ceiling radiant heating system
- a low temperature radiant plate heating system (e.g. as a replacement for old radiators)
- a medium temperature convection heating system (e.g. as a replacement for old radiators)
- a medium temperature fan coil heating system (e.g. as a replacement for old radiators)
- an oversized heated towel rail with auxiliary heating element or pouring of the primary boiler circuit.

Should there be several areas designed on the (floor or wall) radiant system i.e., in the event the heating system does not have enough water content/thermal inertia, the installation has to be adapted with a hydraulic breaker or a heat storage device to ensure adequate water circulation in the geothermal pump for regular operation.





# Water-water geothermal heat pumps

## GEO HFE 6-42

Reversible geothermal heat pump with highly efficient domestic hot water production unit

**Power from 6 to 33 kW**

### Functions

- ✓ Production of hot water for installation
- ✓ Production of chilled water for installation
- ✓ Production of high temperature domestic water
- ✓ Production in priority of DHW simultaneous with the production for the installation

### Main features

- ✓ high efficiency scroll-compressor
- ✓ inverter circulators on the three circuits (device, domestic, geothermal)
- ✓ total DHW recovery
- ✓ DHW production up to 65°C
- ✓ Galileus regulation for the whole system
- ✓ up to 5 heat pumps in series

### Applications

- ✓ Exchange on probe (standard)
- ✓ Exchange on well (upon request)



		Probe			
		GEO HFE Without recovery		With recovery GEO HFE/R	
Gas	Model	Code	Price	Code	Price
R410a	6 M	444090045		444090001	
	6 T	444090047		444090003	
	8 M	444090049		444090005	
	8 T	444090051		444090007	
	12 M	444090053		444090009	
	12 T	444090055		444090011	
	16 T	444090059		444090015	
	20 T	444090061		444090017	
	24 T	444090063		444090019	
	33 T	444090065		444090021	
	42 T	444090120		444090124	

Models	
GEO	Heating-cooling for device with geothermal probe
GEO/R	Heating-cooling for device and DHW production with geothermal probe
GEO/P	Heating-cooling for device with well (upon request)
GEO/R/P	Heating-cooling for device and DHW production with well (upon request)

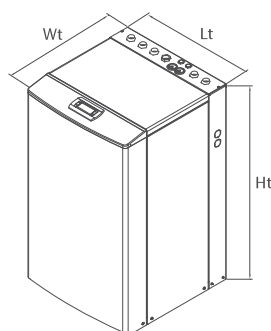
# Technical data

## GEO HFE 6-42

Sizes		6	8	12	16	20	24	33	42
<b>Winter functioning B0/W35</b>									
Energy label		A++	A++	A++	A++	A++	A++	A++	A++
Thermal power	kW	5,8	7,5	10,2	13,2	17,1	21,0	25,4	33,8
Compressor absorbed power	kW	1,30	1,7	2,2	2,9	3,7	4,4	5,5	7,8
COP		4,43	4,57	4,68	4,60	4,60	4,82	4,60	4,4
<b>Device</b>									
Device's water flow rate	m3/h	0,99	1,30	1,75	2,26	2,93	3,61	4,37	5,8
Head pressure	mca	6,5	6,2	5,8	5,0	6,7	6,0	11,1	80,0
Pump's absorbed power	kW	0,07	0,07	0,07	0,07	0,14	0,14	0,31	0,31
<b>Geothermal</b>									
Cooling power to exchange in probe	kW	4,5	6,0	8,1	10,5	13,5	16,0	20,2	26,0
Probe liquid flow rate	m3/h	1,30	1,71	2,32	3,00	3,87	4,58	5,79	8,1
Head pressure	mca	5,9	5,5	8,9	6,1	5,1	4,1	8,7	48,0
Pump's absorbed power	kW	0,07	0,07	0,14	0,14	0,14	0,14	0,31	0,31
<b>Domestic</b>									
Thermal power	kW	5,3	7,0	9,4	11,9	15,7	18,6	23,7	31,5
Domestic water flow	m3/h	0,91	1,21	1,62	2,05	2,70	3,20	4,08	5,5
Head pressure	mca	6,6	6,2	5,7	5,5	4,1	5,2	5,3	90,0
Pump's absorbed power	kW	0,07	0,07	0,07	0,07	0,07	0,14	0,14	0,31
<b>Winter functioning</b>									
Thermal power	kW	7,5	9,9	13,3	16,7	22,2	26,1	33,5	42,3
Compressor absorbed power	kW	1,3	1,6	2,2	2,8	3,8	4,4	5,6	7,8
COP		5,85	6,10	6,14	6,04	5,88	5,99	6,02	5,5
<b>Device</b>									
Device's water flow rate	m3/h	1,27	1,67	2,24	2,82	3,75	4,40	5,64	7,4
Head pressure	mca	5,94	5,59	4,93	3,70	5,40	4,61	8,82	65,0
<b>Well</b>									
Cooling power to exchange in well	kW	6,2	8,2	11,1	13,9	18,4	21,6	27,8	34,5
Well liquid flow rate	m3/h	1,06	1,40	1,88	2,37	3,14	3,68	4,73	6,1
Exchanger pressure loss	mca	0,3	0,4	0,6	0,7	0,7	0,9	0,9	14,4
<b>Summer functioning</b>									
Cooling power	kW	9,5	12,5	16,6	20,9	27,5	32,7	41,6	47,6
Compressor's absorbed power	kW	1,3	1,5	2,1	2,8	3,8	4,3	5,7	8,6
EER		7,39	8,19	7,84	7,44	7,33	7,68	7,35	5,6
<b>Device</b>									
Device's water flow rate	m3/h	1,63	2,14	2,85	3,59	4,55	5,62	7,16	8,2
Device's head pressure	mca	5,8	5,0	3,7	3,0	3,3	3,3	6,6	45,0
<b>Geothermal</b>									
Thermal power to exchange in probe	kW	10,7	13,9	18,6	23,6	31,0	36,8	47,0	56,2
Probe liquid flow rate	m3/h	1,91	2,39	3,20	4,06	5,33	6,33	8,08	10,2
Head pressure	mca	5,1	4,5	5,4	3,1	3,4	4,2	4,1	25,0
<b>Features</b>									
Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors		1	1	1	1	1	2	2	2
Refrigerant		R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a
Power supply	V/Ph/Hz	230/1/50	230/1/50 400/3/50	230/1/50 400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Diametric hydraulic fittings		1"	1"	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"
Expansion vessels (device and geothermal)	litres	2	2	4	4	8	8	8	8
Water circuit's max content	litres	29	29	57	57	114	114	114	114
Sound pressure at 1m	dB(A)	48	49	50	52	54	56	60	66
Weight (unpacked)	Kg	146	153	169	195	215	262	302	320
Weight (packed)	Kg	151	158	175	200	220	270	310	345

All indicated operating conditions comply with the regulation EN14511

Utility circuit				
B0/W35	radiant plant	°C	30/35	In-Out
W5/W35	radiant plant	°C	30/35	In-Out
B30/W18	radiant plant	°C	23/18	In-Out
Domestic circuit				
B0/W50	DHW	°C	45/50	In-Out
External circuit				
B0/W35	glycol water	°C	0/-3	In-Out
	geothermal probe 20%			
W5/W35	well water	°C	10/5	In-Out
B30/W18	glycol water	°C	30/35	In-Out
	geothermal probe 20%			
B0/W50	glycol water	°C	0/-3	In-Out
	geothermal probe 20%			



Dimensions	Sizes			
	6-8	12	16-20	24-42
Lt	620	620	620	800
Wt	575	650	650	880
Ht	1000	1080	1080	1070

# Accessories

## GEO HFE 6-42

Control/regulation accessories			
code	description	price	function
452010006	Web Kit (remote control)		Makes it possible to control and supervise the installation via internet
452010010	Serial port kit RS485 Modbus		Makes it possible to communicate with the supervision systems through the Modbus protocol
452010074	Serial port kit Konnex		Makes it possible to communicate with the supervision systems through the Konnex protocol
452010075	Serial port kit RS485 BACnet		Makes it possible to communicate with the supervision systems through the BACnet protocol
452010050	My-zone kit with T/U thermostat		Thermostat for temperature and humidity. Max 30
452010051	My-board kit expansion kit for My-zone		Expansion kit to control the dehumidifier, the circulation pump, zone valve and mixing valve
452010053	Field-bus for zone RS485 kit		Necessary for connection of Galileus5 with Myzone and Myboard
452010061	My-power kit		Records and optimizes the auto-consumption of the energy produced by the photovoltaic installation.
452020123	Soundproofing Kit GEO HFE/EASY 6-8		The soundproofing kit must be installed on the compressor to attenuate the noise of the heat pump (the sound insulating panels are installed as standard). If purchased together with the heat pump, the soundproofing kit comes already installed.
452020124	Soundproofing Kit GEO HFE/EASY 12		
452020125	Soundproofing Kit GEO HFE/EASY 16		
452020126	Soundproofing Kit GEO HFE/EASY 20		
452020127	Soundproofing Kit GEO HFE 24		
452020128	Soundproofing Kit GEO HFE 33		
452020129	Soundproofing Kit GEO HFE 42		
452020134	Soft starter kit GEO HFE/EASY 6-8-12 M		Electromechanical device installed at the factory instead of the compressor contactor on single-phase units. It reduces the maximum value of the compressor starting current by varying the supply voltage of the motor through the management of a specific starting capacitor.
452020135	Soft starter kit GEO HFE/EASY 6-8-12-16-20 T		Electronic device installed at the factory on a three-phase unit.
452020136	Soft starter kit GEO HFE 24-33 T		Reduces the maximum value of the compressor starting current by using an inverter which powers the motor by varying the frequency so as to limit the inrush current
452020137	Soft starter kit GEO HFE 42 T		

Accessories for the device			
code	description	price	function
421120013	MFREE SMALL		Module for passive cooling – application size 6-8-12
421120014	MFREE MEDIUM		Module for passive cooling – application size 16-20-24
421120015	MFREE LARGE		Module for passive cooling – application size 33-42
452010003	Mixing kit		Makes it possible to regulate the supply temperature of the cooling device

Accessories for IANUS System with GEO (up to GEO 33)			
code	description	price	function
452010042	IANUS SOL KIT		Makes it possible to regulate thermal solar system for hybrid photovoltaic panels. Solar circulator not included
452010037	IANUS deviation kit		Optimized the use of thermal sources (PVT and probes) base on the environmental conditions. Obligated with mixed system (PVT + probe)

\*the selection of the DRY COOLER model and quantity depends on the power of the IANUS system



# Water-water geothermal heat pumps

## GEO HFS 60-100

Reversible geothermal heat pump with highly efficient domestic hot water production unit. The circulation pumps on the three circuits not supplied as standard, but available as an accessory.

**Power from 60 to 100 kW**

### Functions

- ✓ Production of hot water for installation
- ✓ Production of cold water for installation
- ✓ Production of high temperature domestic water
- ✓ Production in priority of DHW simultaneous with the production for the installation

### Main features

- ✓ high efficiency scroll-compressor
- ✓ total DHW recovery
- ✓ DHW production up to 65°C
- ✓ Galileus regulation for the whole system
- ✓ up to 5 heat pumps in series

### Applications

- ✓ Exchange on probe (standard)
- ✓ Exchange on well (upon request)



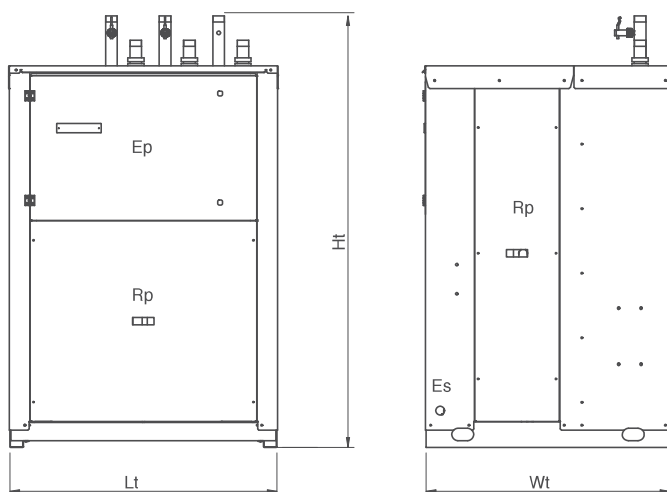
Models	
GEO/R	Heating, cooling for device and DHW production with geothermal probe
GEO/R/P	Heating, cooling for device and DHW production with well (upon request)
GEO	Heating, cooling for device with geothermal probe
GEO/P	Heating, cooling for device with well (upon request)

Gas	Model	without recovery GEO HFE		with recovery GEO HFE/R	
		Code	Price	Code	Price
R410a	60 T	444090121		444090125	
	80 T	444090122		444090126	
	100 T	444090123		444090127	

# Technical data

## GEO HFS 60-100

Sizes		60	80	100
<b>Winter functioning B0/W35</b>				
Energy label		A++	A++	A++
Thermal power	kW	48,8	64,6	85,4
Compressor absorbed power	kW	11,7	15,8	20
COP		4,2	4,1	4,3
<b>Device</b>				
Device's water flow rate	m3/h	8,2	10,8	14,4
Pump's absorbed power	kW	18,0	29,3	17,5
<b>Geothermal</b>				
Cooling power to exchange in probe	kW	37,2	48,8	65,4
Probe liquid flow rate	m3/h	11,3	14,8	19,8
Exchanger load loss	kPa	41,9	56,3	40,6
<b>DHW side B0/W50</b>				
Thermal power	kW	44,9	58,5	78,6
Domestic water flow	m3/h	7,8	10,2	13,7
Exchanger load loss	kPa	15,2	20,2	14,8
<b>Winter functioning W5/W35</b>				
Thermal power	kW	60,1	79,3	105,0
Compressor absorbed power	kW	11,8	16,0	20,5
COP		5,2	5,0	5,2
<b>Device</b>				
Device's water flow rate	m3/h	10,5	13,8	18,3
Exchanger load loss	kPa	27,5	44,6	26,6
<b>Well</b>				
Cooling power to exchange in well	kW	48,3	63,3	84,6
Well liquid flow rate	m3/h	8,5	11,1	14,8
Exchanger pressure loss	kPa	20,1	32,2	19,2
<b>Summer functioning B30/W18</b>				
Cooling power	kW	65,3	86,9	117,7
Compressor's absorbed power	kW	13,0	16,8	22,0
EER		5,1	5,2	5,4
<b>Device</b>				
Device's water flow rate	m3/h	11,7	15,7	20,7
Device's exchanger load loss	mca	50,9	21,0	33,1
<b>Geothermal</b>				
Thermal power to exchange in probe	kW	78,2	103,6	139,7
Probe liquid flow rate	m3/h	14,6	19,5	25,7
Exchanger load loss	kPa	55,8	77,3	54,8
<b>Features</b>				
Compressor type		scroll	scroll	scroll
Number of compressors		2	2	2
Refrigerant		R410a	R410a	R410a
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50
Diametric hydraulic fittings		1"1/2	1"1/2	1"1/2
Sound pressure at 1m	dB(A)	71	73	74
Weight (unpacked)	Kg	425	465	505
Weight (packed)	Kg	450	490	530



Model	
60-80-100	
Ht	1770
Lt	1100
Wt	1000

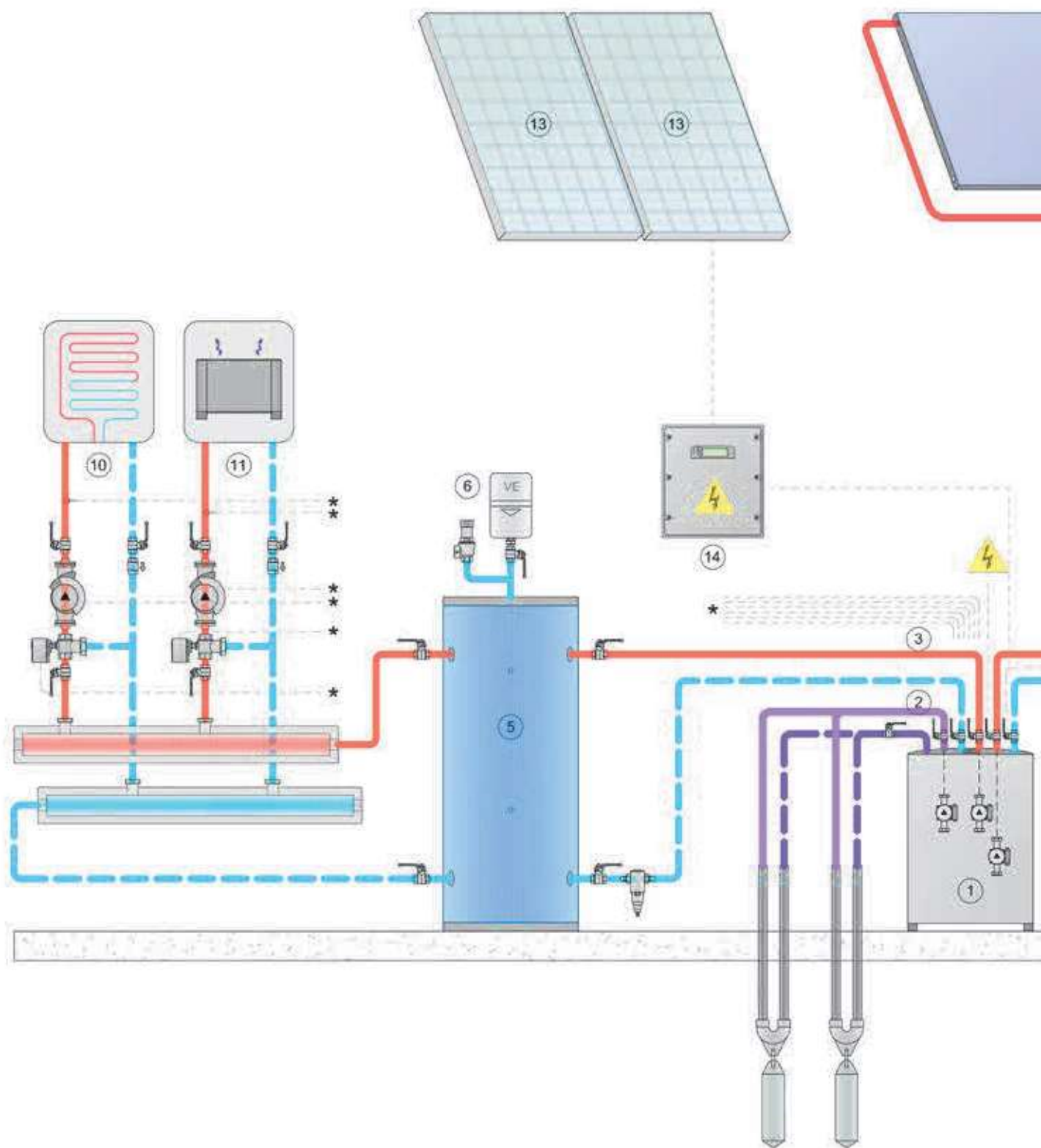
# Accessories

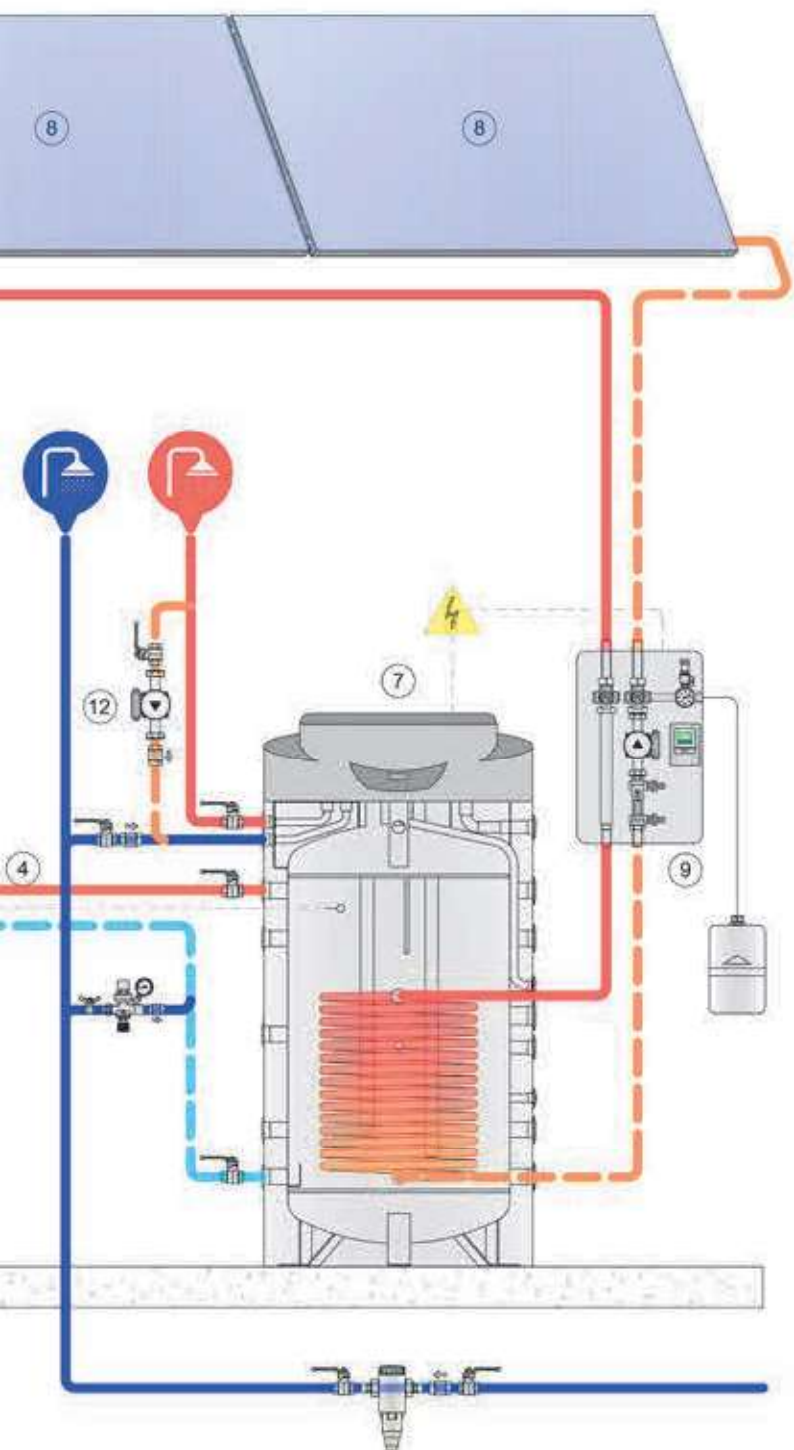
## GEO HFS 60-100

code	description	price	function
452010006	Web Kit (remote control)		Makes it possible to control and supervise the installation via internet
452010010	Serial port kit RS485 Modbus		Makes it possible to communicate with the supervision systems through the Modbus protocol
452010074	Serial port kit Konnex		Makes it possible to communicate with the supervision systems through the Konnex protocol
452010075	Serial port kit RS485 BACnet		Makes it possible to communicate with the supervision systems through the BACnet protocol
452010050	My-zone kit with T/U thermostat		Thermostat for temperature and humidity. Max 30
452010051	My-board kit expansion kit for My-zone		Expansion kit to control the dehumidifier, the circulation pump, zone valve and mixing valve
452010053	Field-bus for zone RS485 kit		Necessary for connection of Galileus5 with Myzone and Myboard
452010061	My-power kit		Records and optimizes the auto-consumption of the energy produced by the photovoltaic installation.
452020122	Anti-vibration kit GEO HFS 60-80-100		Anti-vibration feet and hardware for fixing to the unit to be installed on site during the heat pump positioning. It allows to damp the vibrations transmitted by the heat pump to the structure on which it rests. For the smaller units, the anti-vibration feet are included in the supply of the unit.
452020130	Soundproofing Kit GEO HFS 60-80		The soundproofing kit must be installed on the compressor to attenuate the noise of the heat pump (the sound insulating panels are installed as standard). If purchased together with the heat pump, the soundproofing kit comes already installed.
452020131	Soundproofing Kit GEO HFS 100		
452020138	Soft starter kit GEO HFS 60 T		Electronic device installed at the factory on a three-phase unit. Reduces the maximum value of the compressor starting current by using an inverter which powers the motor by varying the frequency so as to limit the inrush current
452020139	Soft starter kit GEO HFS 80 T		
452020140	Soft starter kit GEO HFS 100 T		
452010003	Mixing kit		Makes it possible to regulate the supply temperature of the cooling device
452020142	Pumps kit GEO HFS 60		Module that includes the pumps of the geothermal, the plant and the sanitary. The electric power circuit of the pumps must be prepared by the customer. Through a command provided by special outputs set up in the electrical panel of the unit, the pumps for the circulation of hydraulic fluids between the machine and the geothermal probes, the system storage and the sanitary puffer are controlled.
452020143	Pumps kit GEO HFS 80		
452020144	Pumps kit GEO HFS 100		
452020145	Pumps kit GEO/R HFS 60		
452020146	Pumps kit GEO/R HFS 80		
452020147	Pumps kit GEO/R HFS 100		



# Installation chart GEO HFE - HFS





- |    |  |
|----|--|
| 1  | GEO heat pump  |
| 2  | Geothermal or well circuit with inverter pump              |
| 3  | System circuit with inverter pump                          |
| 4  | DHW circuit with inverter pump                             |
| 5  | Accumulator tank, VKG-HC model                             |
| 6  | Safety kit   |
| 7  | AQUAMATIC Accumulator tank with integrated DHW preparatero |
| 8  | Thermal solar collector                                    |
| 9  | Solar pump kit   |
| 10 | Heating system 1   |
| 11 | Heating system 2   |
| 12 | DHW recirculation sytem                                    |
| 13 | PV system  |
| 14 | PV inverter  |

# Water-water geothermal heat pumps

## GEO EASY-E HT/HTR

High temperature geothermal heat pump

**Power from 6 to 33kW**

### Functions

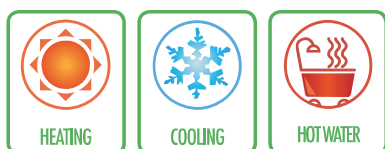
- ✓ Production of very hot water for the installation
- ✓ Production of cold water for the installation (HTR version)
- ✓ Production of DHW (with accessory)

### Main features

- ✓ High efficiency scroll-compressor
- ✓ On-off circulators on the three circuits as accessory to install on the outside of the device
- ✓ DHW production up to 65°C with kit to assembly on the outside of the device
- ✓ Tolomeus regulation for the whole system

### Applications

- ✓ Exchange on probe (standard)
- ✓ Exchange on well (upon request)



### Models

GEO EASY-E HT

Heating and DHW production (accessory)

GEO EASY-E HTR

Heating-cooling and DHW production (accessory)

### Compatibility

	Domestic diverter control kit	Easy diverter kit	MFREE	Control kit MFREE	Plant circulator kit	Geotherm circulator kit	Pressure switch kit	Solenoid kit	External air probe kit	Guard resistance kit	Exchangers resistance kit	Phase cut kit (1)	Compressor insulation kit
EASY-E HT geothermal probe	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	-	✓
EASY-E HT well water	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	-	✓
EASY-E HTR geothermal probe	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓
EASY-E HTR well water	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	-	✓

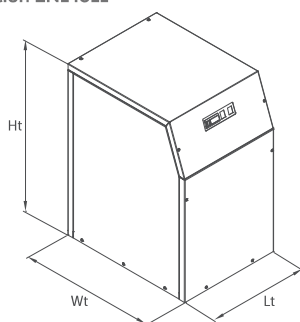
# Technical data

## GEO EASY-E HT/HTR

Sizes		6	8	12	16	20	24	33
<b>Winter functioning BO/W35</b>								
Energy label		A++	A++	A++	A++	A++	A++	A++
Thermal power	kW	5.8	7.5	10.2	13.2	17.1	21.1	28.3
Compressor's absorbed power	kW	1.3	1.7	2.2	2.9	3.7	4.6	6.1
COP		4.43	4.57	4.68	4.60	4.60	4.64	4.62
<b>Device</b>								
Device's water flow rate	m³/h	0.99	1.30	1.75	2.26	2.93	3.63	4.87
Exchanger pressure loss	mca	0.3	0.3	0.5	0.7	0.7	0.8	1.0
<b>Geothermal</b>								
Cooling power to exchange in probe	kW	4.5	6.0	8.1	10.5	13.5	16.8	22.5
Probe liquid flow rate	m³/h	1.30	1.71	2.32	3.00	3.87	4.82	6.45
Exchanger pressure loss	mca	0.7	0.7	1.1	1.4	1.4	1.4	1.7
<b>Domestic W5/W35</b>								
Thermal power	kW	7.5	9.9	13.3	16.7	22.2	27.5	37.2
Compressor's absorbed power	kW	1.3	1.6	2.2	2.8	3.8	4.7	6.3
COP		5.85	6.10	6.14	6.04	5.88	5.86	5.95
<b>Device</b>								
Domestic water flow	m³/h	1.27	1.67	2.24	2.82	3.75	4.64	6.28
Exchanger pressure loss	mca	0.46	0.51	0.78	1.00	1.10	1.19	1.62
<b>Well</b>								
Cooling power to exchange in well	kW	6.2	8.2	11.1	13.9	18.4	22.7	30.9
Well liquid flow rate	m³/h	1.06	1.40	1.88	2.37	3.14	3.87	5.26
Exchanger's pressure loss	mca	0.3	0.4	0.6	0.7	0.7	0.9	0.9
<b>Summer functioning B30/W18</b>								
Cooling power	kW	9.5	12.5	16.6	20.9	27.5	34.3	43.8
Compressor's absorbed power	kW	1.3	1.5	2.1	2.8	3.8	4.9	6.7
COP		7.39	8.19	7.84	7.44	7.33	6.97	6.55
<b>Device</b>								
Device's water flow rate	m³/h	1.63	2.14	2.85	3.59	4.55	5.90	7.53
Device's head pressure	mca	0.7	0.8	1.2	1.5	3.3	1.6	1.9
<b>Geothermal</b>								
Thermal power to exchange in probe	kW	10.7	13.9	18.6	23.6	31.0	39.0	50.5
Probe's liquid flow rate	m³/h	3.07	2.39	3.20	4.06	5.33	6.71	8.69
Exchanger pressure loss	mca	0.9	1.0	1.5	2.0	3.4	2.4	3.0
<b>Features</b>								
Refrigerant		R410a	R410a	R410a	R410a	R410a	R410a	R410a
Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors		1	1	1	1	1	1	1
Power supply	V/Ph/Hz	230/1/50 400/3/50	230/1/50 400/3/50	230/1/50 400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Hydraulic coupling		1"	1"	1"	1"	1"	1"1/4	1"1/4
Sound pressure at 1m	dB(A)	48	49	50	52	54	59	61
Weight (unpacked)	kg	112	117	127	139	172	197	215
Weight (packed)	kg	130	135	145	157	192	217	235

All indicated working conditions comply with the regulation EN14511

Utility circuit				
BO/W35	radiant plant	°C	30/35	In-Out
W5/W35	radiant plant	°C	30/35	In-Out
B30/W18	radiant plant	°C	23/18	In-Out
External circuit				
BO/W35	glycol water geothermal probe 20%	°C	0/-3	In-Out
W5/W35	glycol water geothermal probe 20%	°C	10/5	In-Out
B30/W18	glycol water geothermal probe 20%	°C	30/35	In-Out



Dim.	Sizes	
	6-16	20-33
Lt	500	670
Wt	660	855
Ht	885	965



# Code

## GEO EASY-E HT/HTR



EASY geothermal systems					
gas	model	Only hot GEO EASY-E HT		Hot/cold GEO EASY-E HTR*	
		code	price	code	price
R410a	6 M	444100001		444100012	
	6 T	444100003		444100014	
	8 M	444100004		444100015	
	8 T	444100006		444100017	
	12 M	444100009		444100018	
	12 T	444100008		444100020	
	16 T	444100010		444100021	
	20 T	444100011		444100022	
	24 T	444100023		444100025	
	33T	444100024		444100026	

\*R indicated that the heat pump is reversible

# Accessories

## GEO EASY-E HT/HTR

Device accessories			
code	description	price	function
452020028	KIT DEVIATRICE SANITARIO EASY-E		Valvola deviatrice per la produzione di ACS.
452020123	Soundproofing Kit GEO HFE/EASY 6-8		The soundproofing kit must be installed on the compressor to attenuate the noise of the heat pump (the sound insulating panels are installed as standard). If purchased together with the heat pump, the soundproofing kit comes already installed.
452020124	Soundproofing Kit GEO HFE/EASY 12		
452020125	Soundproofing Kit GEO HFE/EASY 16		
452020126	Soundproofing Kit GEO HFE/EASY 20		
452020132	Soundproofing Kit GEO EASY 24		
452020133	Soundproofing Kit GEO EASY 33		Electromechanical device installed at the factory instead of the compressor contactor on single-phase units. It reduces the maximum value of the compressor starting current by varying the supply voltage of the motor through the management of a specific starting capacitor.
452020134	Soft starter kit GEO HFE/EASY 6-8-12 M		
452020135	Soft starter kit GEO HFE/EASY 6-8-12-16-20 T		
452020141	Soft starter kit GEO EASY 24-33 T		Electronic device installed at the factory on a three-phase unit. Reduces the maximum value of the compressor starting current by using an inverter which powers the motor by varying the frequency so as to limit the inrush current

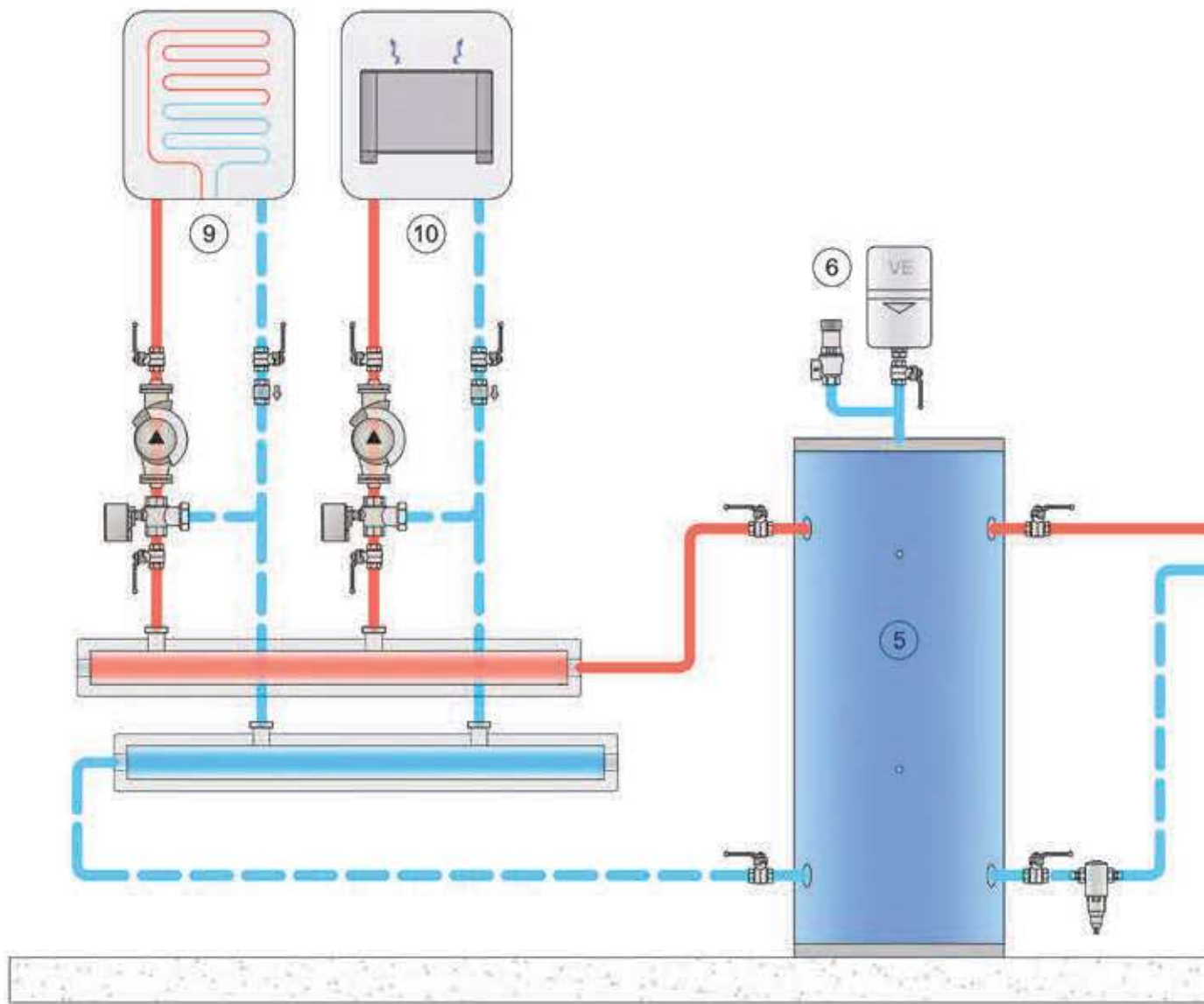
Accessories for control and regulation			
code	description	price	function
452010008	External air probe kit		Makes it possible to check the outside air temperature for the EASY series with box, external assembly

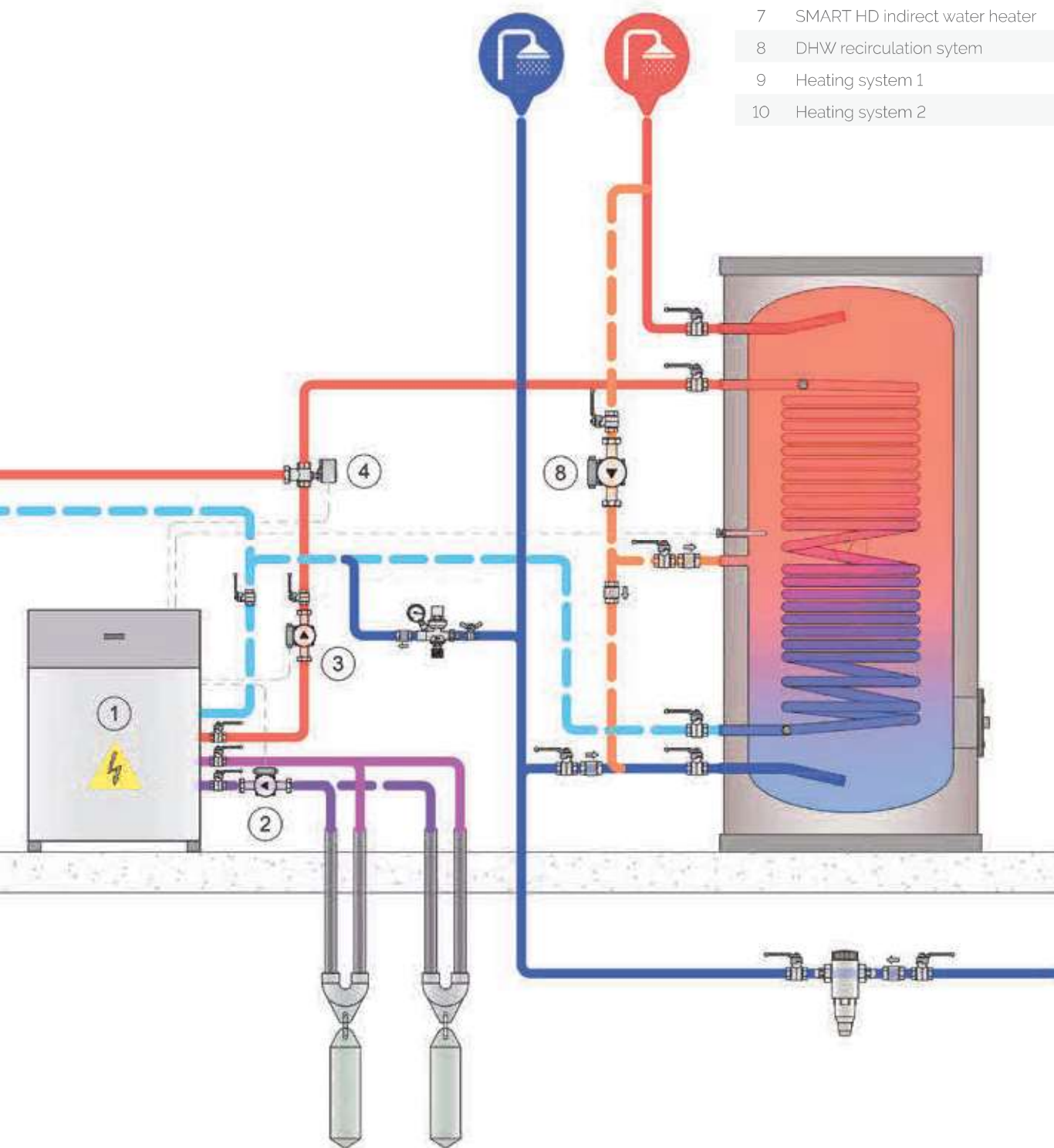
Accessori Macchina			
codice	descrizione	prezzo	funzione
452020097	Circ with inverter kit EASY-E 6-8-12-16 for device		Circulator with inverter for the installation (external assembly) sizes 6 to 16 kW
452020098	Circ with inverter kit EASY-E 20 for device		Circulator with inverter for the installation (external assembly) size 20 kW
452020099	Circ with inverter kit EASY-E 24 for device		Circulator with inverter for the installation (external assembly) size 24 kW
452020100	Circ with inverter kit EASY-E 33 for device		Circulator with inverter for the installation (external assembly) size 33 kW
452020101	Circ with inverter kit EASY-E 6-8 for geothermal		Circulator with inverter for the installation (external assembly) sizes 6 to 8 kW
452020102	Circ with inverter kit EASY-E 12-16 for geothermal		Circulator with inverter for the installation (external assembly) sizes 12 to 16 kW
452020103	Circ with inverter kit EASY-E 20 for device		Circulator with inverter for the installation (external assembly) size 20 kW
452020104	Circ with inverter kit EASY-E 24 for device		Circulator with inverter for the installation (external assembly) size 24 kW
452020105	Circ with inverter kit EASY-E 33 for device		Circulator with inverter for the installation (external assembly) size 33 kW

# Layout

## GEO EASY-E HT / HTR

Installation diagram with SMART HP water heater for DHW production.  
It is also possible to make the plant with AQUAMATIC storage unit..





- |    |                                     |
|----|-------------------------------------|
| 1  | GEO EASY-E HT/HTR heat pump         |
| 2  | Geothermal pump kit                 |
| 3  | System pump kit                     |
| 4  | 3 way diverting valve for DHW sytem |
| 5  | Accumulator tank, VKG-HC model      |
| 6  | Safety kit                          |
| 7  | SMART HD indirect water heater      |
| 8  | DHW recirculation sytem             |
| 9  | Heating system 1                    |
| 10 | Heating system 2                    |

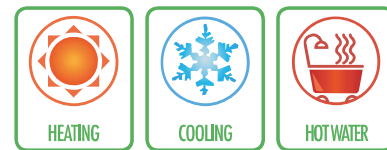


# Hybrid systems

## IANUS system

### Ianus: The latest green technology generation

IANUS is an autonomous system combining a geothermal heat pump with hybrid photovoltaic thermal panels. It provides residential heating, cooling and domestic hot water production by using the generated electrical power. The IANUS system transforms free and renewable air and solar energy into the thermal and electric power needed by the housing unit. IANUS makes the most out of available renewable energy with no need for any fossil fuels, and without contributing to greenhouse gas emissions.



### Benefits of the IANUS system

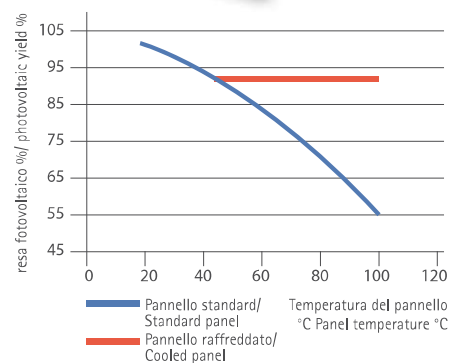
- Thermal and electrical energy form the same solar panel
- Improved use of panel absorbing surface area
- Increase photovoltaic performance through cell cooling
- Reduced material and installation costs
- Autonomous electrical power generation
- Use of state incentives feed -in tariff + tax relief
- Use of reduced rate meter for the heat pump, resulting in improved energy consumption balance

### What does "hybrid system" mean?

Hybrid photovoltaic collectors transform part of the absorbed solar radiation into electric power and transfer the thermal energy generated by radiation and by the electric power to the heat pump.

Two important benefits are therefore obtained:

- the conditions for the efficient operation of the heat pump are created (high COP), as the pump receives the necessary electric and thermal energy from photovoltaic collectors;
- photovoltaic cell operating temperature is reduced, thus increasing kWh production by up to 30%.



# Hybrid systems

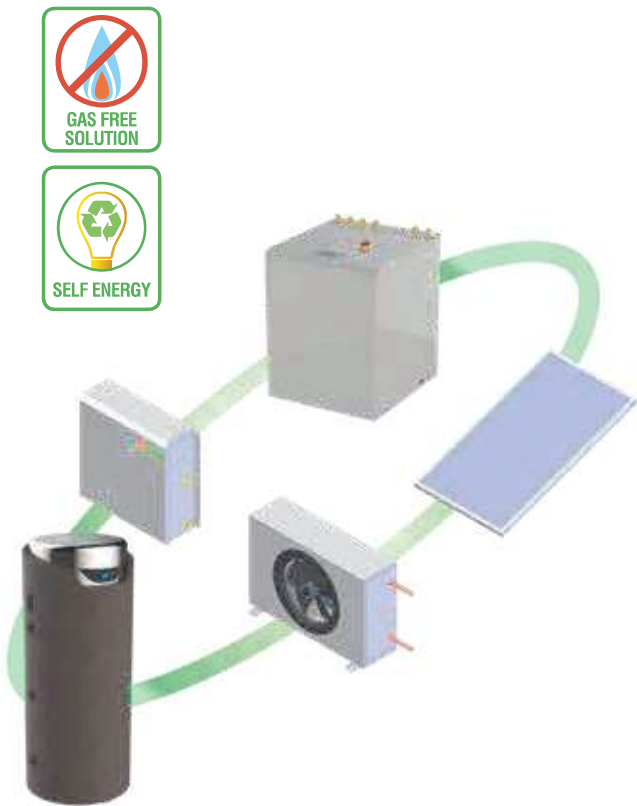
## IANUS system

The system components' operation is coordinated and improved by the Galileus software, which creates the right conditions for high comfort and user-friendly technology. In case of frost or ice formation on the front side of the photovoltaic panel that would cause an interruption in electricity production, the system automatically removes the ice by shortly reversing the refrigeration cycle and heating the glass surface.

The system ensures the same level of comfort with high performance even in case of snow, ice or frost. It improves power production efficiency by heating the panel surface in the most cost-effective way and making it run in the shortest time possible.



Main components of the IANUS system are:

- Heat pump for heating, cooling and DHW productions
- Hybrid photovoltaic panels
- Device's storage tank
- FREE HEATING kit which contains a plate heat exchanger, a 3-way deviation valve and a circulation pump; it heats DHW under sufficient solar radiation conditions without activating the heat pump compressor.



### Typical combinations for housing units from 6 to 10 kW

(Some components are available only on request)

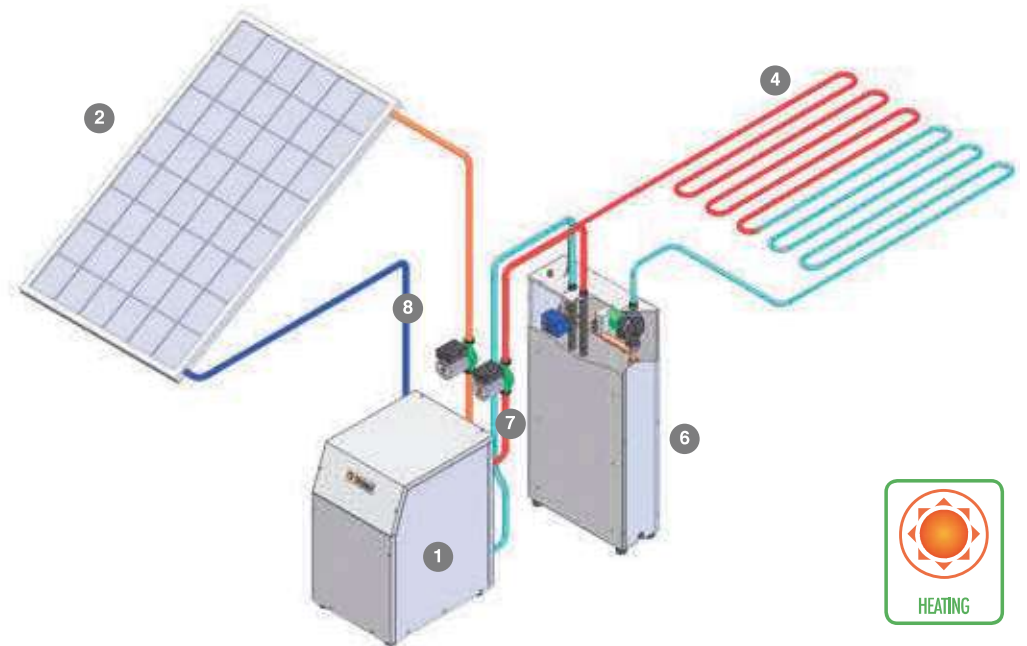
GEO HFE	Thermal photovoltaic panel		Kit Freeheating	Kit Drycooler	Diverter kit
					
Size	n°	kWp	n°	Size	n°
6	19	4,5	1	Dry 6-8	1
8	26	6	1	Dry 6-8	1
10	34	8	1	Dry 10-12	1

# IANUS hybrid system solutions

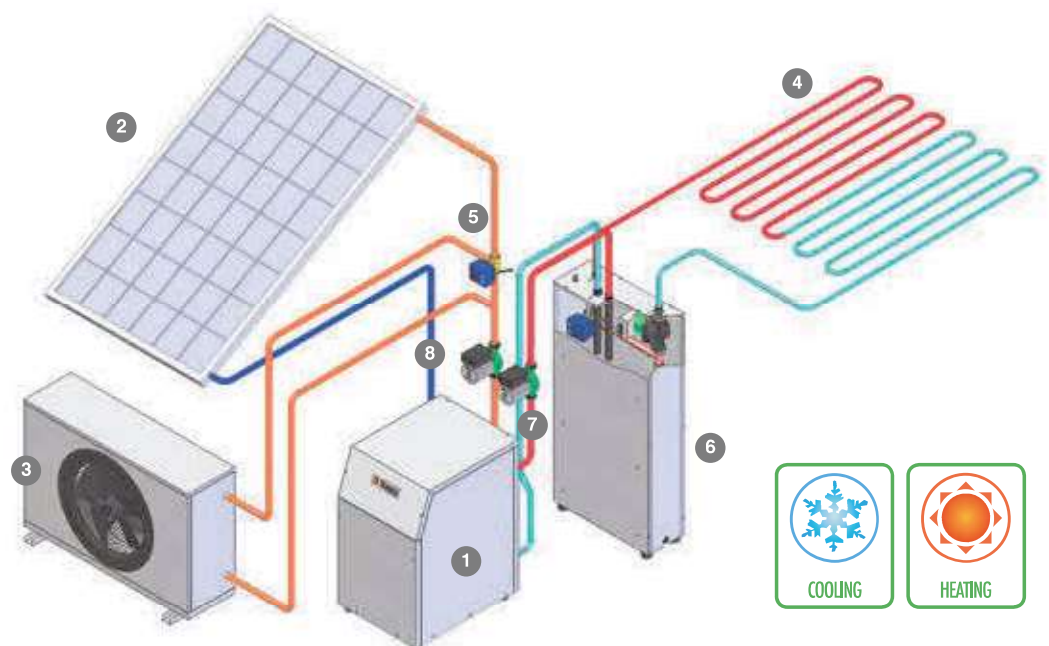
- 1 GEO EASY-E HT heat pump
- 2 thermal photovoltaic panel
- 3 dry cooler
- 4 floor heating
- 5 IANUS deviation valve kit
- 6 compact storage tank for the installation
- 7 device's circulation kit
- 8 geothermal circulation kit

Device's solutions with Ianus system are proposed below according to the energy demand of the housing unit.

Heating with EASY-E HT

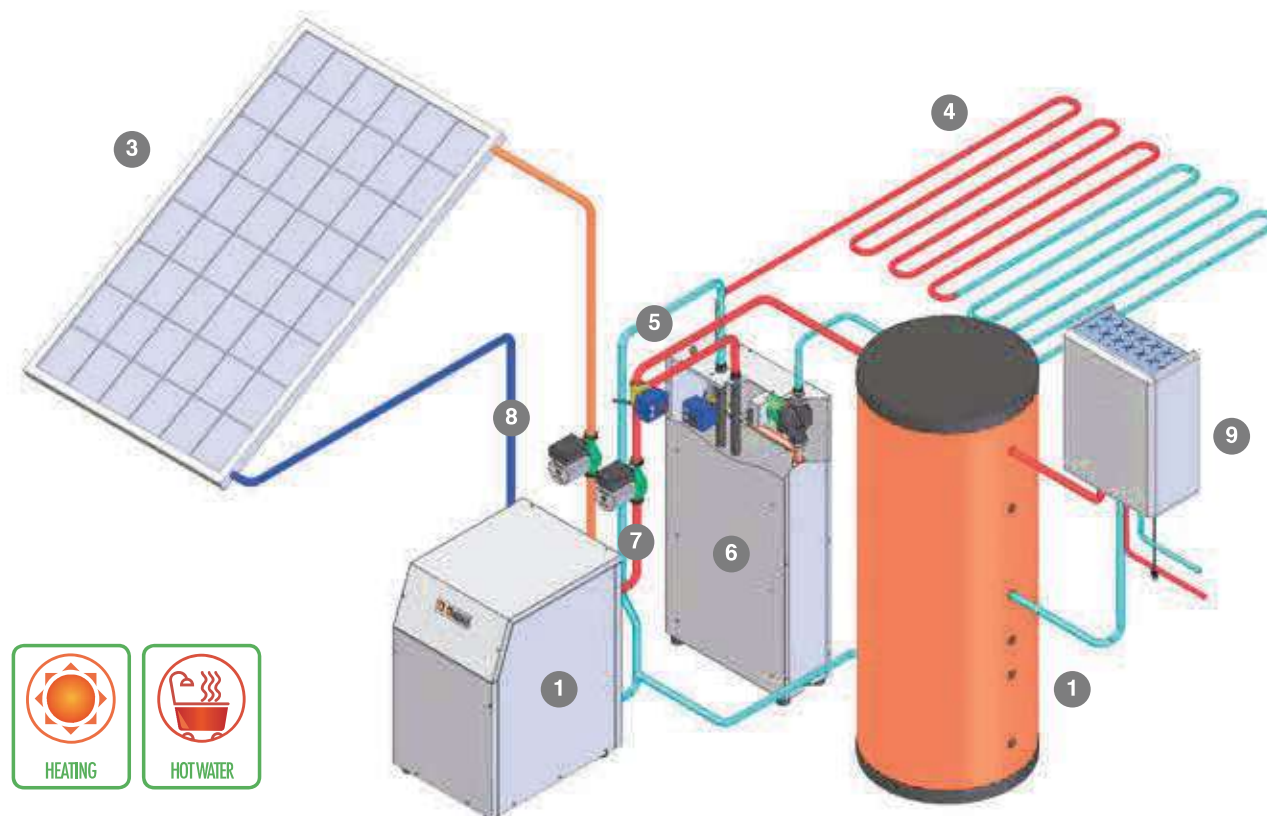


Heating and cooling with EASY-E HTR



# IANUS hybrid system solutions

Heating and DHW production with EASY-E HT + DHW kit

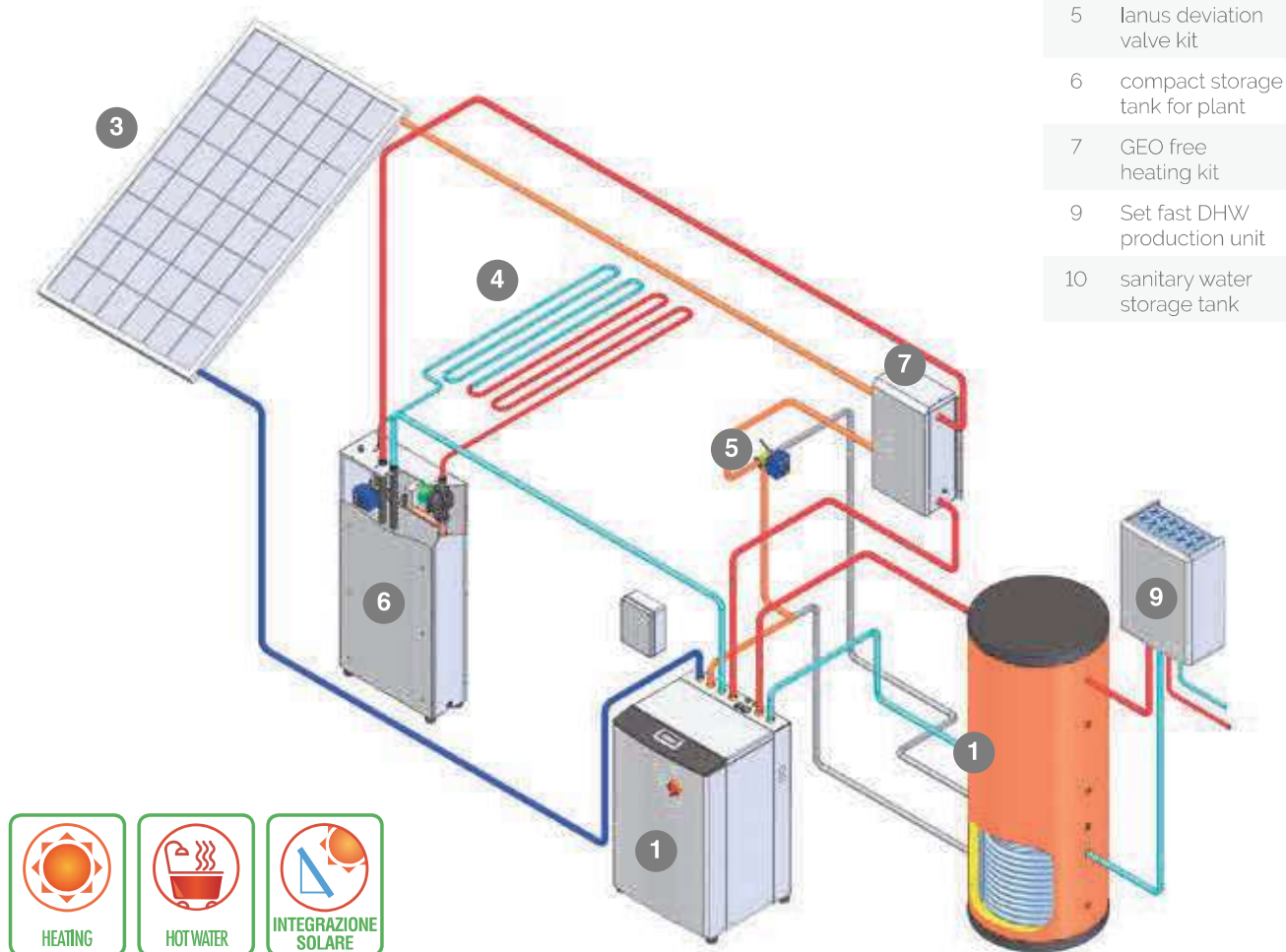


- 1 GEO EASY-E HT heat pump
- 3 thermal photovoltaic panel
- 4 floor heating
- 5 IANUS deviation valve kit
- 6 Compact inertial storage tank
- 7 device circulator kit
- 8 geothermal probe circulator kit
- 9 SET fast DHW production unit
- 10 sanitary water storage tank



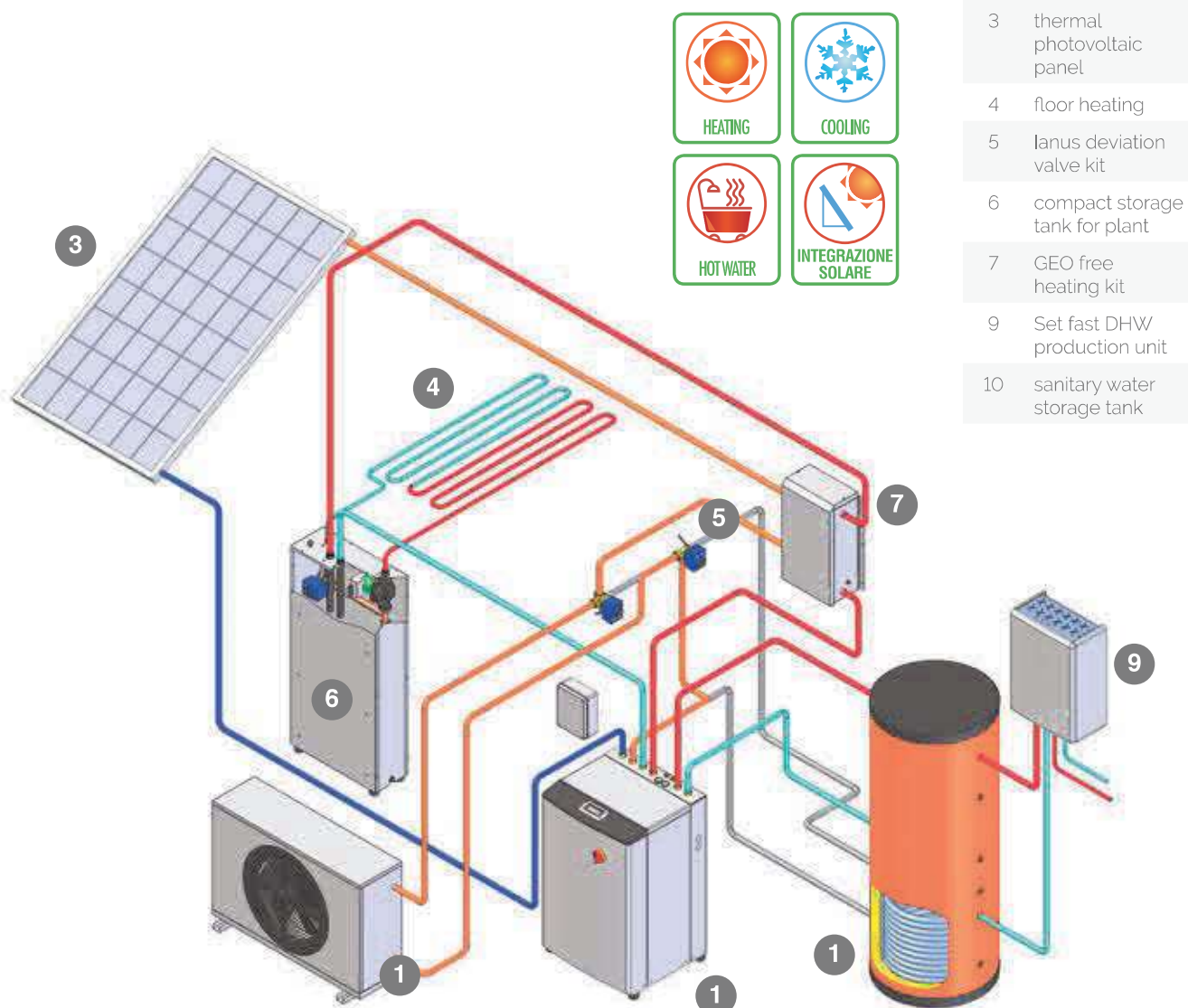
# IANUS hybrid system solutions

Heating + DHW + solar thermal  
With GEO HFE + HFREE kit free heating



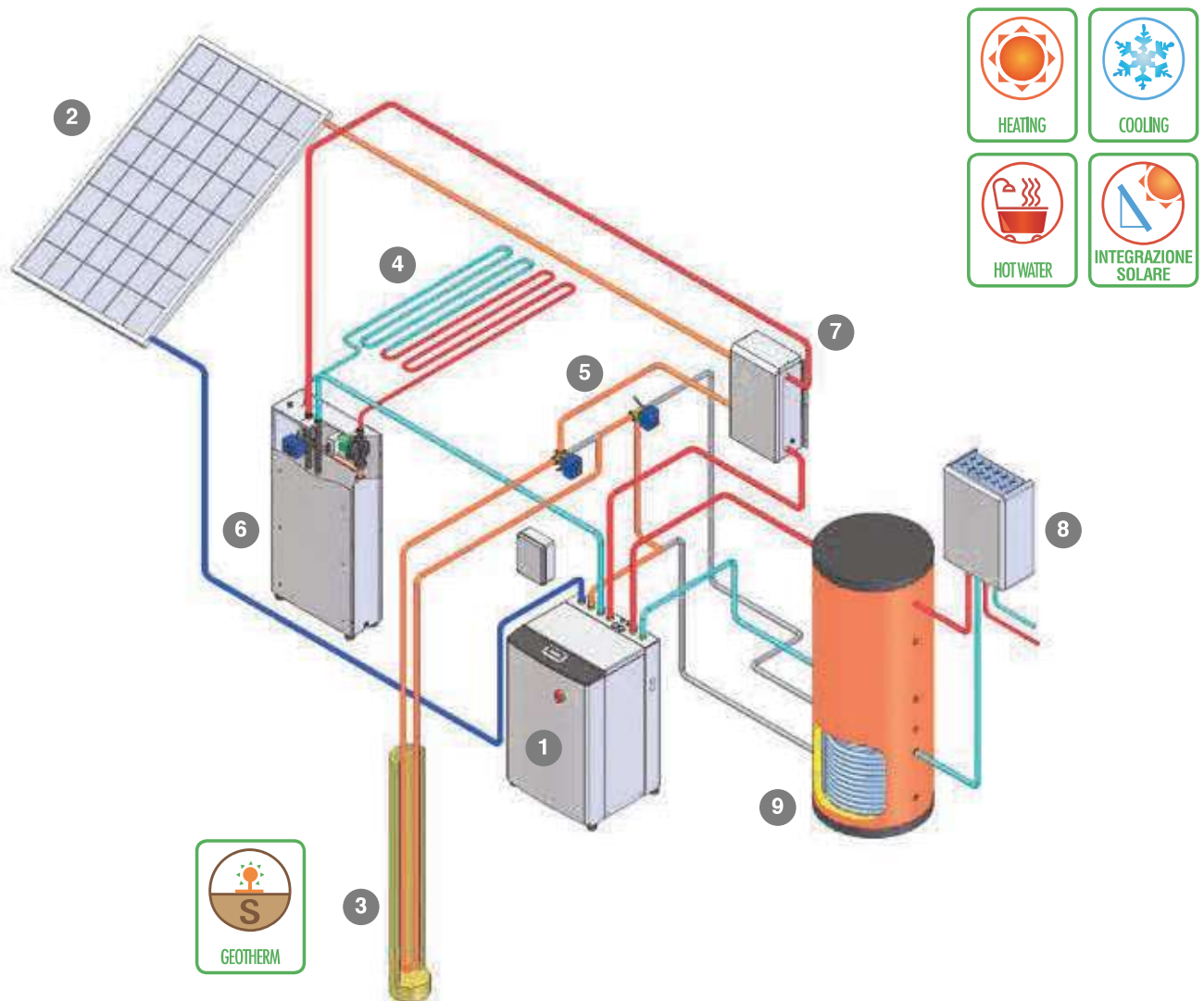
# IANUS hybrid system solutions

heating + cooling + DHW + solar thermal with GEO HFE



# IANUS hybrid system solutions

COMBINED SYSTEM WITH PHOTOVOLTAIC PANEL AND GEOTHERMAL PROBE  
HEATING + COOLING + DHW + SOLAR THERMAL con GEO HF / with GEO HFE



- 1 GEO HFE heat pump
- 2 thermal photovoltaic panel
- 3 geothermal probe
- 4 floor heating
- 5 IANUS deviation valve kit
- 6 compact inertial tank for the installation
- 7 GEO free heating kit
- 8 SET fast DHW production unit
- 9 sanitary water storage tank

By combining the heat pump with a double source (geothermal probe + PV/T panel), the heat pump receives the power needed to ensure the proper operation for winter heating and summer cooling. It also makes it possible to improve energy source management, by reducing the area of the photovoltaic field and the depth and number of probes. During cooling, the heat dissipated by the heat pump and the panel – which, in the meantime, is cooled down – is exchanged in the geothermal probe to obtain a useful soil regeneration effect, working as thermal storage for the following heating phase.

# Accessories for geothermal devices

## MFREE

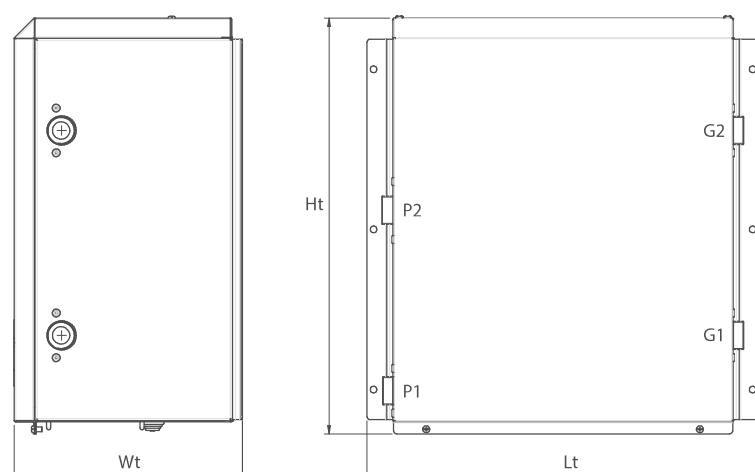
The Freecooling module contains a brazed plate heat exchanger and a diverter valve. In summer mode, the heat pump manages the diverting valve so as to subtract heat from the system circuit transferring it to the geothermal one, obtaining a passive cooling effect (without the use of the compressor, if the conditions allow it).



Model	HFE compatibility	Code	Price
MFREE small	for sizes 6-8-12	421120013	
MFREE medium	for sizes 16-20-24	421120014	
MFREE large	for sizes 33-42	421120015	

### Technical data

HFE size	Compatible MFREE	Exchanger model	Cooling power kW	System		Source	
				Flow m³/h	Load loss kPa	Flow m³/h	Load loss kPa
6	SMALL	P7-30	9,46	1,63	7,1	1,63	6,1
8			12,45	2,14	11,7	2,14	10
12			16,55	2,85	19,7	2,85	16,9
16	MEDIUM	P7-70	20,9	3,59	6,5	3,59	6
20			27,5	4,73	10,6	4,73	9,9
24			32,7	5,64	14,6	5,64	13,6
33	LARGE	P15-70	41,6	7,16	5,4	7,16	5,5
42			49,75	8,56	7,6	8,56	7,6



Size and couplings chart

Model	Ht mm	Lt mm	Wt mm	P1 inch	P2 inch	G1 inch	G2 inch
SMALL	623	588	342	1"1/4	1"1/4	1"1/4	1"1/4
MEDIUM	623	588	342	1"1/4	1"1/4	1"1/4	1"1/4
LARGE	623	600	441	1"1/4	1"1/4	1"1/4	1"1/4

### Couplings legend

<b>P1</b>	To energy source
<b>P2</b>	From energy source
<b>G1</b>	From plant
<b>G2</b>	To plant

For other connection solutions see installation manual.



# Accessories



## SOLAR KIT

Model	Description
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GEOSOL

Solar kit for GEO HFE heat pumps is a control unit supplied with a solar circulator management board and a temperature sensor contact board(2), which have to be placed on collectors and the storage tank. The Galileus software manages the integration of the collectors and their correct operation.

IANUS SOL

The solar system control module for the IANUS System, manages the PVT thermal-photovoltaic panel as a thermal collector, Controlled and managed by the Galileus software (only for GEO HFE).

IDEA SOLAR KIT

It consists of a control card to adjust solar collectors, Fitted inside the Idea unit, it makes it possible to transfer the heat supplied by the thermal solar collectors to the water heater through an external heat exchanger.

EOS PLUS SOLAR KIT

It consists of a control card to adjust solar collectors. Fitted inside the EOS PLUS unit, it makes it possible to transfer the heat supplied by thermal solar collectors to the water heater through an internal heat exchanger.



## WEB KIT

### Description

Network board for the connection and complete management of the heat pump via Internet, does not require the installation of software. It requires a permanent Internet connection with fixed IP.



## AREA KIT

### Description

Temperature/humidity control kit for up to 30 room areas.  
It consists of the following elements:

1. Kit My-Zone: room temperature and humidity thermostat. There are as many kits as room areas to control.

2. My-Board kit: RS485 expansion board with connectors. It is used to control:

- 2 dehumidifiers
- 2 area valves / area pumps
- 1 mixer valve.

Here are its main features:

- Standard power supply (115-230 Vac)
- Measurement of temperature and relative humidity
- Internal Clock
- Compatible with IT, DE, CN and US
- Time-based programs: for 5+2 days, for 7 days or for individual days (up to 6 time slots a day).
- Communication with the RS485 control board with the "master Modbus protocol".
- Connection of up to 30 My-Zone room thermostats on the same network.
- Operating limits: -10 / 50°C.

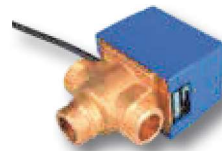
3. Kit RS485 field-bus: RS485 board that can provide communication between Galileus 5 (on the machine), My-Zone and My-Board. Fixed component.

# Accessories

## DIVERTER KIT

### Description

Diverter valve with electric actuator at 24V governed by the Galileus system for the transfer and recovery of the free thermal energy and distributing it inside the domestic storage or the device's storage (with electric control kit for GEO EASY-E).



## MIXING KIT

### Description

Servo-motor modulating mixing valve for controlling the temperature of the flow to the radiant floor.



# Heat pump system for Heating, Cooling and DHW with heat recovery



## Introduction

Fenix is the inverter heat pump (DC) system for HVAC that simultaneously combines direct expansion and hydronic terminals. The system also allows the production of free hot water by heat recovery, at the same time as it cools the rooms.

## How does it work?

It uses outdoor air energy for HVAC with air/air and/or air/water systems, using the peculiar features of the R410A refrigerant gas and the Inverter DC technology (10-130% power modulation).

## Why choose it?

Because the heat pump is the most efficient thermal machine versus any other heat generator on the market. Each kW of absorbed electricity can also generate more than 5 kW of thermal energy.

In addition, the added value of the Fenix system is that it overcomes the standard limits of a heat pump: it heats or cools using hydronic and direct expansion terminals at the same time. It also produces free domestic hot water while cooling and continuously without interrupting the refrigeration cycle.

## Who is it for?

Combining F-idro and F-Tank, with F-ext you get a split air/water heat pump, full DC inverter, 100% made in Italy, capable of heating, cooling and producing domestic hot water: the ideal solution to satisfy all the needs of a home, an office or a shop with a single system.

- Residential (villas, apartments)
- Offices
- Shops
- Bars
- Studies



Cools in the summer



Warms in the winter



Hot water in every season



Heat recovery



Direct expansion



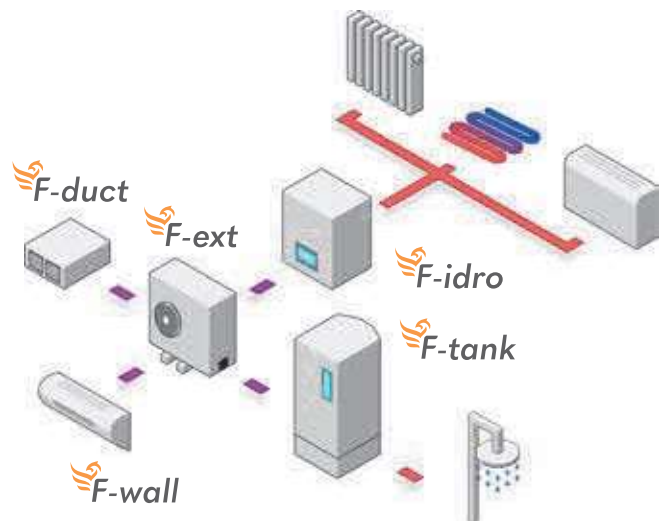
Hydronic



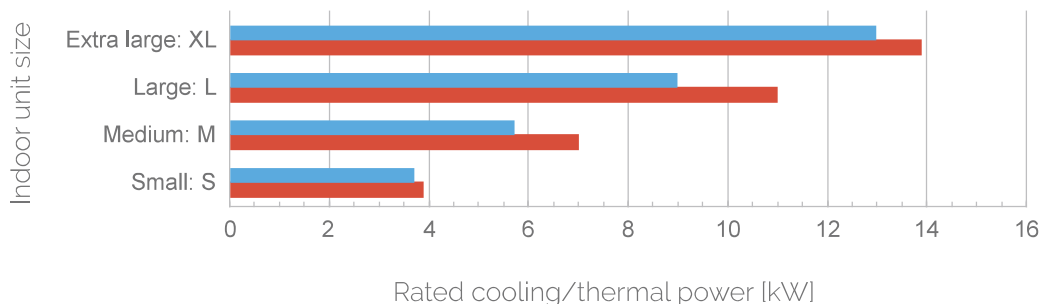
# Fenix: Components

The system consists of the simple combination of outdoor and indoor units:

1. Outdoor unit: **F-ext** (condensing motion) see page 342
1. Indoor hydronic unit: **F-idro** see page 346
2. Indoor unit for DHW: **F-tank** see page 350
3. Indoor units with direct expansion: **F-wall** and **F-duct** see page 354 and 355

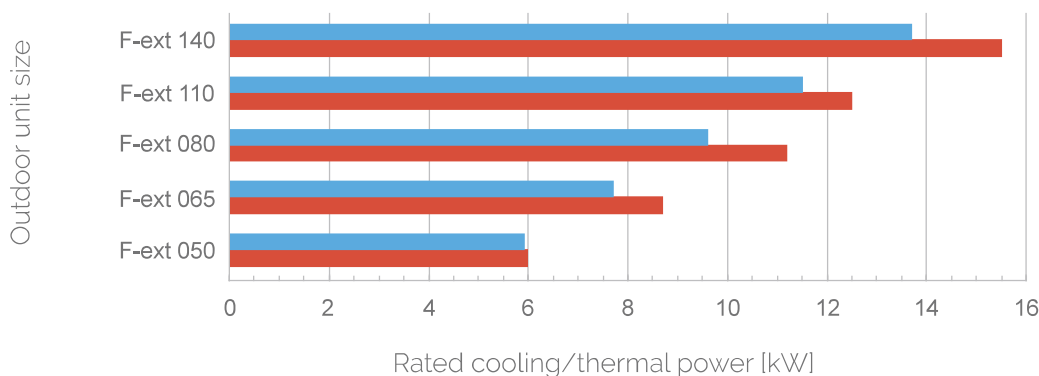


## Indoor units: sizes and powers



The indoor units have a nominal thermal/cooling capacity shown in the graph above. According to the different power values, 4 reference sizes have been defined, respectively indicated with S, M, L and XL. For example, a size S indoor unit expresses a nominal thermal capacity of 3.9 kW and a cooling capacity of 3.7 kW.

## Outdoor units: sizes and power ratings from 6 to 16 kW



Each unit is associated with a size corresponding to the nominal power. this makes it easier to combine the chosen configuration and the correct power size of the outdoor unit. The association between indoor units and outdoor unit is obviously conditioned by the capacity of the latter, summarised in the above graph (for more precise data please refer to the specific sheets).

Refrigeration power  
 Thermal power

The values shown are related to the following working conditions:  
 A2A heating: Outside air T = 7 ° C, Ambient air T = 20 ° C  
 A2A cooling: Outdoor air temperature = 35 ° C, Ambient air temperature = 27 ° C  
 A2W heating: Outside air T = 7 ° C, Water T = 35 ° C  
 A2W cooling: Outside air T = 35 ° C, Water T = 18 ° C

A2A = air/air, A2W air/water

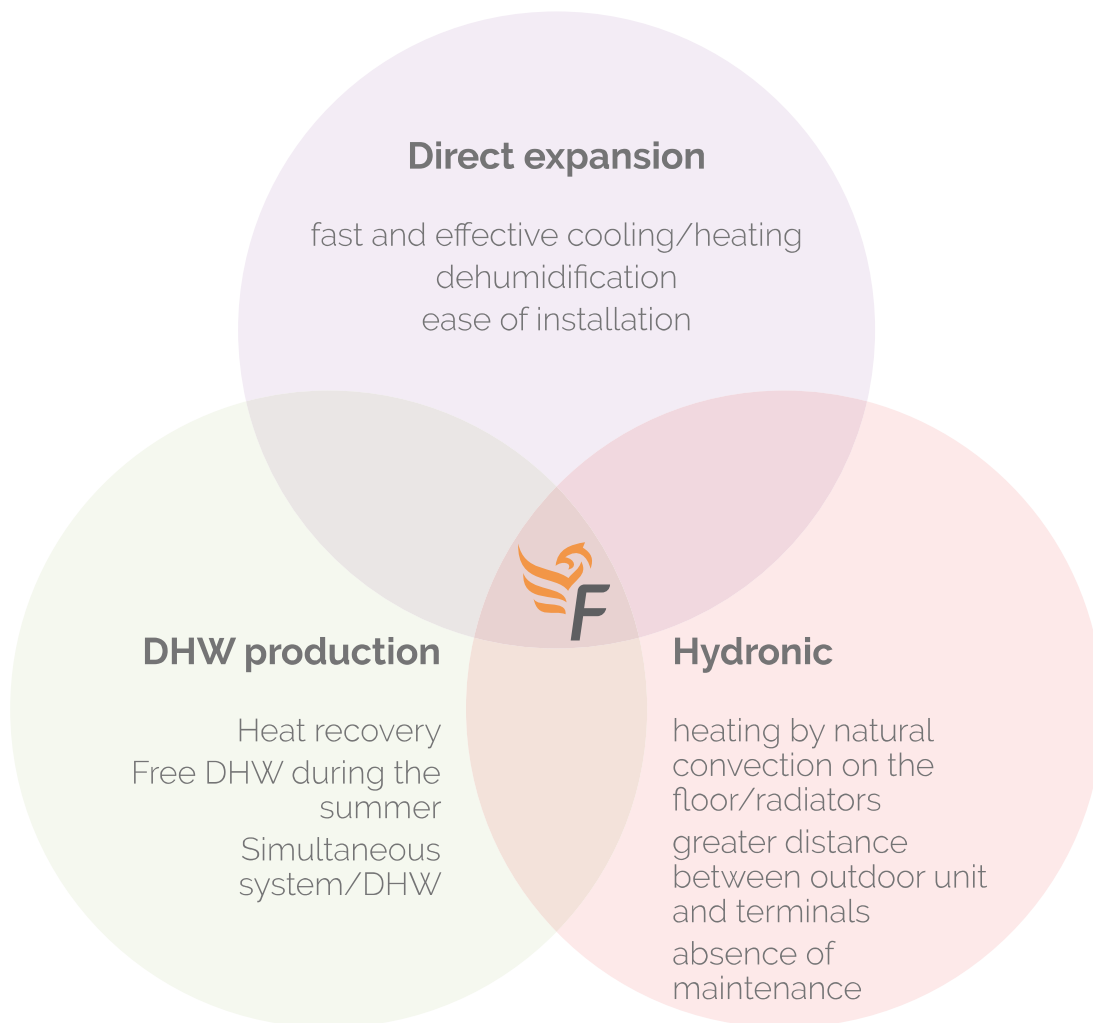


# Fenix, a look at the renewable energy system for your home



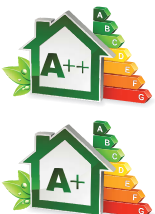


# The advantages of the Fenix system



## UNIQUE AND INNOVATIVE

Fenix is the only system capable of producing domestic hot water at the same time as heating and cooling environments. In addition, during the cooling of indoor environments, the water is heated free of charge, using the heat recovery technology of F-Tank.



## HIGH PERFORMANCE AND SAVINGS

Fenix reaches the most efficient energy classes. As regards heating, its energy classes are A++ on hydronics (A2W) and A+ on direct expansion (A2A). As regards cooling, it reaches energy classes A ++ on direct expansion (A2A) and A + on hydronics (A2W).



## EFFICIENT AND SILENT

The outdoor unit is equipped with a strict inverter compressor and fans, in order to guarantee high efficiency and maximum silence. Low sound levels are ensured by the use of sound-proofing materials and the ability of electronics to intelligently control the compressor cycle.

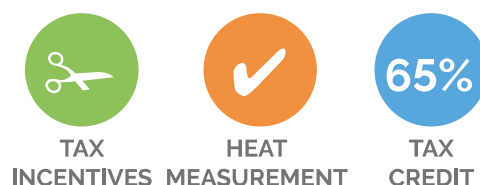
# Outdoor F-ext units

The outdoor F-ext units allow to implement combined hydronic/direct expansion systems from mono to penta split in addition to the production of domestic hot water. The mono or bi-ventilated versions fulfil the needs in the residential or service sector. Each F-Ext has a door dedicated to the connection with F-tank, for the production and storage of domestic hot water.

## Plus:

- ✓ DC Inverter technology
- ✓ Twin Rotary compressors
- ✓ Operating limit -20 ° C / + 50 ° C
- ✓ Extremely silent
- ✓ intelligent defrost
- ✓ very high efficiency

model	code	price	V/Ph/Hz	connection ports	
				split	F-TANK
F-EXT 050 dual	844040017X		230/1/50	2	✓
F-EXT 065 trial	844040018X		230/1/50	3	✓
F-EXT 080 quadri	844040019X		230/1/50	4	✓
F-EXT 110 quadri	844040020X		230/1/50	4	✓
F-EXT 140 penta	844040021X		400/3/50	5	✓



F-EXT 050 dual



F-EXT 065 trial



F-EXT 080 quadri



F-EXT 110 quadri



F-EXT 140 penta

## Performance

	Air-water (*)						Air-Air (**)						DHW (***)			
	power output (kW)		Energy Class				power output (kW)		Energy Class							
	EN 14511		EN 14511		EN 14825		EN 14511		EN 14511		EN 14825		EN 14825			
	Heating	Cooling	COP	EER	35°C	55°C	Heating	Cooling	COP	EER	Heating	Cooling	Load profile	ERP class	COP	% Efficiency
F-EXT 050 dual	4,10	5,30	4,00	3,68	A++	A+	5,00	4,92	4,29	3,35	A+	A++	XL	A	2,23	90
F-EXT 065 trial	6,50	5,60	4,18	3,64	A++	A+	6,50	5,80	4,32	3,64	A+	A++	XL	A	2,21	90
F-EXT 080 quadri	8,00	6,90	4,20	3,65	A++	A+	8,00	6,90	4,22	3,70	A+	A++	XL	A	2,23	89
F-EXT 110 quadri	10,63	9,10	4,07	3,62	A++	A+	11,00	8,70	4,24	3,51	A+	A++	XL	A	2,14	87
F-EXT 140 penta	13,80	11,60	4,01	3,63	A++	A+	12,00	10,60	5,50	3,40	A+	A++	XL	A	2,12	86

Performance referred to:

(\*): Air + 35 ° C - Water 23/18 ° C / Air + 7 ° C - Water 30/35 ° C

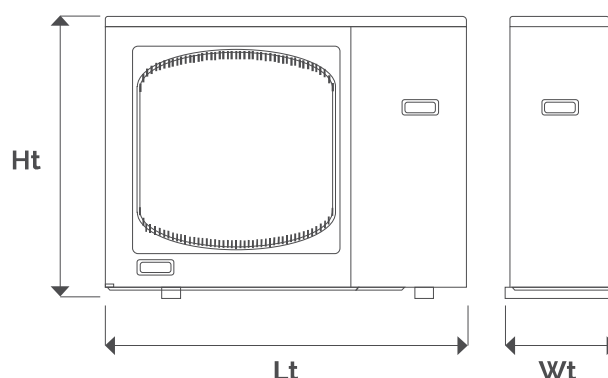
(\*\*): Outdoor air + 35 ° C - Indoor air 27 ° C / Outdoor air + 7 ° C - Indoor air 20 ° C

(\*\*\*): Performances according to ERP Ecodesign EN 14825

# Outdoor F-ext units: technical data

## Dimensions and weights

model	without packaging				with packaging			
	Wt mm	Lt mm	Ht mm	weight kg	Wt mm	Lt mm	Ht mm	weight kg
F-EXT 050 dual	345	895	630	57	410	990	710	62
F-EXT 065 trial	400	1030	735	64	420	1140	900	70
F-EXT 080 quadri	400	1190	835	73	420	1270	1015	87
F-EXT 110 quadri	400	1190	1070	90	420	1270	1250	100
F-EXT 140 penta	450	1270	1335	145	470	1530	1350	160



## Data according to norm UNI/TS 11300-4:2012

### HEATING

model	LAT °C	Outside dry bulb (wet bulb) air temperature									
		-10 (-11)°C		-7 (-8)°C		2 (1)°C		7 (6)°C		12 (11)°C	
		Qh kW	COP	Qh kW	COP	Qh kW	COP	Qh kW	COP	Qh kW	COP
F-EXT 050 dual	20	3,70	2,68	3,90	2,91	3,70	2,57	6,00	3,35	6,70	3,86
F-EXT 065 trial	20	5,30	2,25	5,90	3,09	5,60	2,94	8,70	3,22	9,10	3,50
F-EXT 080 quadri	20	6,50	2,36	6,80	2,45	6,10	2,36	11,20	3,27	11,60	3,55
F-EXT 110 quadri	20	7,50	2,40	8,30	2,36	9,40	2,64	12,50	3,07	13,20	3,45
F-EXT 140 penta	20	8,20	2,29	10,10	2,76	10,90	2,46	15,50	3,10	16,30	3,51

## Data according to norm EN 14511-3:2013

### HEATING

model	LAT °C	Outside dry bulb (wet bulb) air temperature									
		-10 (-11)°C		-7 (-8)°C		2 (1)°C		7 (6)°C		12 (11)°C	
		Qh kW	COP	Qh kW	COP	Qh kW	COP	Qh kW	COP	Qh kW	COP
F-EXT 050 dual	35	2,50	2,24	2,65	2,74	3,10	3,14	4,10	4,00	4,50	4,66
	45	2,52	1,87	2,49	1,99	2,47	2,37	3,83	3,03	4,29	3,56
	55	2,51	1,75	2,39	1,79	2,31	1,80	3,80	2,37	4,01	3,01
F-EXT 065 trial	35	5,10	2,54	5,59	3,21	6,05	3,45	6,50	4,18	7,58	4,66
	45	4,60	2,02	4,95	2,29	5,53	2,57	6,50	3,10	7,22	3,47
	55	4,00	1,59	4,59	1,54	4,76	1,86	5,00	2,31	5,95	2,70
F-EXT 080 quadri	35	6,30	2,55	7,09	2,89	7,80	3,34	8,00	4,20	11,46	4,62
	45	5,70	2,03	6,38	2,48	7,20	2,79	8,00	3,12	10,02	3,64
	55	4,90	1,60	4,99	1,99	5,49	2,10	6,10	2,32	7,78	2,71
F-EXT 110 quadri	35	7,30	2,22	8,14	2,80	8,81	3,29	10,63	4,07	12,15	4,70
	45	6,70	1,97	7,73	2,28	8,02	2,61	9,59	3,02	11,14	3,37
	55	6,11	1,55	6,24	1,93	7,03	2,02	8,13	2,37	9,55	2,41
F-EXT 140 penta	35	10,50	2,56	10,14	2,78	11,20	3,21	13,80	4,01	14,65	4,62
	45	9,50	1,96	10,20	2,22	11,05	2,58	13,40	3,00	14,15	3,28
	55	8,30	1,48	7,73	1,90	8,65	2,00	9,10	2,15	11,15	2,38

### COOLING

model	LAT °C	Outdoor air temperature 35°C	
		Qc kW	EER
F-EXT 050 dual	27 (19)	5,90	3,15
F-EXT 065 trial	27 (19)	7,70	3,32
F-EXT 080 quadri	27 (19)	9,60	3,74
F-EXT 110 quadri	27 (19)	11,50	3,36
F-EXT 140 penta	27 (19)	13,70	2,60

### COOLING

model	LAT °C	Outdoor air temperature 35°C	
		Qc kW	EER
F-EXT 050 dual	7	3,70	2,38
	18	5,30	3,68
F-EXT 065 trial	7	4,00	2,12
	18	5,60	3,64
F-EXT 080 quadri	7	4,90	2,13
	18	6,90	3,65
F-EXT 110 quadri	7	6,50	2,06
	18	9,10	3,62
F-EXT 140 penta	7	8,30	2,19
	18	11,60	3,63

LAT: Internal air temperature  
 Qh: Thermal capacity  
 COP: Efficiency coefficient  
 Qc: Cooling capacity  
 EER: Cooling efficiency

# Outdoor F-ext units: technical data

## General summary table

				F-EXT 050 dual	
				Cooling	Heating
AIR/WATER					
Performance according to EN 14511	Air +35 °C - Water 23/18 °C	Nominal capacity	Kw	5,3	4,1
	Air + 7 °C - Water 30/35 °C	Electric power absorbed	kWel	1,44	1,03
		EER/COP		3,68	4
	Air +35 °C - Water 12/7 °C	Cooling / Thermal Capacity	kW	3,7	2,5
	Air - 7 °C - Water 30/35 °C	Electric power absorbed	kWel	1,55	1,12
		EER/COP		2,38	2,24
Performance according to ERP Ecodesign EN 14825	LOW TEMPERATURE	Nominal thermal power	kW	3,00	
	AVERAGE climate conditions	Seasonal energy efficiency	%	1,50	
		SCOP		3,83	
		Energy efficiency class		A++	
	MEDIUM TEMPERATURE	Nominal thermal power	kW	2,5	
	AVERAGE climate conditions	Seasonal energy efficiency	%	110,00	
		SCOP		2,73	
		Energy efficiency class		A+	
AIR/ AIR					
Performance according to EN 14511	Outdoor Air +35 °C - Indoor air 27 °C	Nominal capacity (min/max)	Kw	4,92 (0,84 / 5,90)	5,00 (0,95 / 6,00)
	Outdoor Air + 7 °C - Indoor air 20 °C	Electric power absorbed	kWel	1,47	1,16
		EER/COP		3,35	4,29
Performance according to ERP Ecodesign EN 14825	AVERAGE climate conditions	Pdesignc/Pdesignh	kW	5,4	4,3
		SEER/SCOP		6,4	4
		Energy efficiency class		A++	A+
DOMESTIC HOT WATER					
Performance according to ERP Ecodesign EN 14825	Load profile			XL	
	ERP class			A	
	COP			2,23	
	Efficiency		%	90	
GENERAL DATA					
Device data	Outdoor temperature operation range	°C		-15 / +43	-15 / +24
	Internal temperature operation range	°C		+10 / +47	+5 / +27
	Power Supply (Voltage / Frequency / Phases)	V/Ph/Hz		230/1+T/50-60	
	Maximum electrical absorption	kW/A		1,79 / 7,8	
	Sound pressure	dB(A)		45	
	Sound power	dB(A)		58	
Components and dimensions	Compressor type			Twin Rotary	
	Fan air flow m3/h			1700	
	Weight	kg		56,4	
	Size HtXLtXWt mm	mm		630x895x345	
Refrigeration lines	Diameters (liquid-gas)	inch		1/4"-3/8"(x2) + 3/8"-3/8"(F-tank)	
	Total piping length (standard charge)	m		multi 15 / mono 7,5	
	Total piping length (additional charge)	m		multi 30 / mono 20	
	Pipe length per unit (standard charge)	m		12	
	Pipe length per unit (additional charge)	m		25	
	Maximum height difference UI-UE	m		10	
	Maximum height difference UI-UI	m		5	
Coolant	Type and GWP			R410A / 2088 kg CO2 eq.	
	Quantity			1,3 kg / 2,71 Tonn CO2 eq.	

	F-EXT 065 tria		F-EXT 080 quadri		F-EXT 110 quadri		F-EXT 140 quadri	
	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
	5,6	6,5	6,9	8	9,1	10,63	11,6	13,8
	1,54	1,56	1,89	1,9	2,51	2,61	3,2	3,44
	3,64	4,18	3,65	4,2	3,62	4,07	3,63	4,01
	4	5,1	4,9	6,3	6,5	7,3	8,3	10,5
	1,89	2,01	2,3	2,47	3,16	3,29	3,79	4,1
	2,12	2,54	2,13	2,55	2,06	2,22	2,19	2,56
	6,00		7,00		8,00		12,00	
	153,00		153,00		150,00		167,00	
	3,90		3,90		3,83		4,24	
	A++		A++		A++		A++	
	5,00		6,00		7,00		10,00	
	110,00		110,00		110,00		110,00	
	2,83		2,83		2,83		2,83	
	A+		A+		A+		A+	
	5,75 (1,57 / 7,65)	6,5 (1,82 / 8,67)	6,87 (1,60 / 9,62)	8,00 (1,7 / 11,2)	8,65 (1,8 / 11,5)	11,00 (1,9 / 13,5)	10,6 (2,6 / 13,7)	12,00 (3,10 / 15,5)
	1,58	1,5	1,86	2,6	2,46	2,59	3,12	2,6
	3,64	4,32	3,7	4,22	3,51	4,24	3,4	5,5
	6,5	6,4	9	7,7	10,6	9,4	13,6	11,5
	6,5	4	6,7	4,1	6,6	4,1	5,11	4,13
	A++	A+	A++	A+	A++	A+	A++	A+
	XL		XL		XL		XL	
	A		A		A		A	
	2,21		2,23		2,14		2,12	
	90		90		87		86	
	-15 / +43	-15 / +24	-15 / +43	-15 / +24	-15 / +43	-15 / +24	-15 / +43	-15 / +24
	+10 / +47	+5 / +27	+10 / +47	+5 / +27	+10 / +47	+5 / +27	+10 / +47	+5 / +27
	230/1+T/50-60		230/1+T/50-60		230/1+T/50-60		400/50/3+N+T	
	2,6 / 12		3,3/15		4,4/20		5,2/10x3	
	45		45		45		45	
	64		64		64		65	
	Twin Rotary		Twin Rotary		Twin Rotary		Twin Rotary	
	2400		3000		3500		3500	
	64		87		90		145	
	735x1030x400		835x1190x400		1070x1190x400		1335x1270x450	
	1/4"-3/8"(x2) + 1/4"-1/2" + 3/8"-3/8"(F-tank)		1/4"-3/8"(x3) + 1/4"-1/2" + 3/8"-3/8"(F-tank)		1/4"-3/8"(x3) / + 1/4"-1/2" + 3/8"-3/8"(F-tank)		1/4"-3/8"(x3)+1/4"-1/2"(x2)+1/2"-1/2"(F-tank)	
	multi 30 / mono 20		multi 40 / mono 30		multi 40 / mono 30		multi 40 / mono 30	
	multi 45 / mono 35		multi 65 / mono 50		multi 65 / mono 50		multi 100 / mono 50	
	dual 25 / trial 20		30		30		30	
	dual 30 / trial 25		30		30		30	
	10		10		10		10	
	5		5		5		5	
	R410A / 2088 kg CO2 eq.		R410A / 2088 kg CO2 eq.		R410A / 2088 kg CO2 eq.		R410A / 2088 kg CO2 eq.	
	2,7 kg / 5,63 Tonn CO2 eq.		2,9 kg / 6,05 Tonn CO2 eq.		3,38 kg / 7,05 Tonn CO2 eq.		4,4 kg / 9,18 Tonn CO2 eq.	



# Hydronic module: F-idro

**F-idro**: the new indoor unit that supplies hydronic terminals, such as radiating wall, floor or ceiling systems, low temperature radiators and fan coils. F-idro is therefore an indoor hydronic module, equipped with an inverter circulator with a pressure of 6.5 to 7.5 MWC, a 7-litre expansion tank, a 3-bar safety valve and an electrical resistance of 2 kW. F-idro can be installed on the wall or above F-tank

model	code	price	size	power output (kW)		
				thermal	cooling	connectable to
<b>F-idro</b>	840010121X		S	≤ 4,1	≤ 5,3	F-EXT 050
<b>F-idro</b>	840010122X		M	≤ 6,5	≤ 5,6	F-EXT 065
<b>F-idro</b>	840010123X		L	≤ 10,6	≤ 9,1	F-EXT 080/110
<b>F-idro</b>	840010124X		XL	≤ 13,6	≤ 11,6	F-EXT 140



## Plus

### ✓ SIMPLE AND INTUITIVE INTERFACE

The digital control panel equipped with an LCD display is easily used both by operators (Installers and Service Centres) and by end users.

### ✓ HAS EVERYTHING UNDER CONTROL

Equipped with temperature and water flow control systems that optimise system operation and guarantee high efficiency.

### ✓ OPEN AND FLEXIBLE

F-idro is open: i.e. compatible with third-party control systems, even advanced ones. It is flexible: suitable to use the available thermal power if the outdoor environmental conditions are particularly harsh.

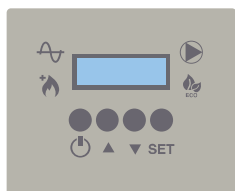
### ✓ POWERFUL

The control system manages the switching on/off of indoor electrical resistances in all cases where a power supply is required.



# F-idro

## Technical data



### The control panel in detail:

- ✓ F-idro is equipped with a control panel installed directly on board. You can connect it remotely.
- ✓ Check for any supplementary elements
- ✓ It defines the climatic curve that allows to change the temperature of the system water according to the outdoor temperature.
- ✓ Additional outdoor temperature sensor for compensation according to  $T_{ext}$  (supplied)
- ✓ Room thermostat management
- ✓ Seasonal change and remote on/off switch

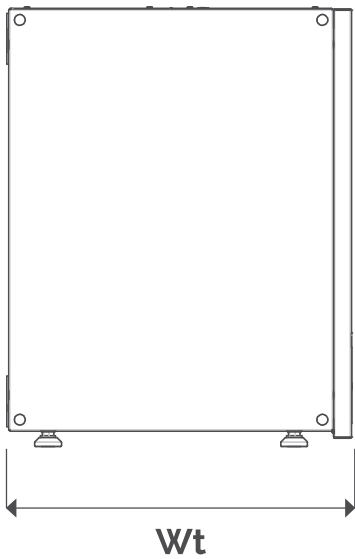
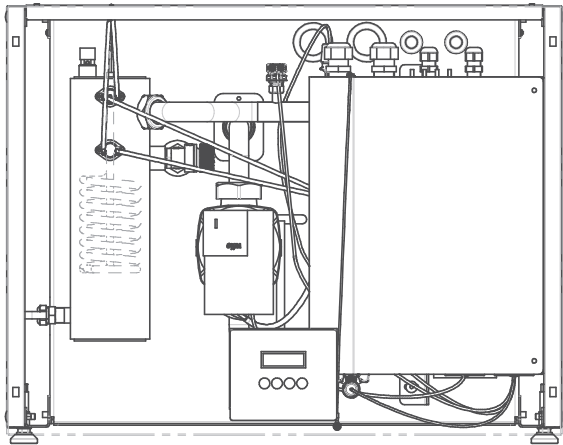
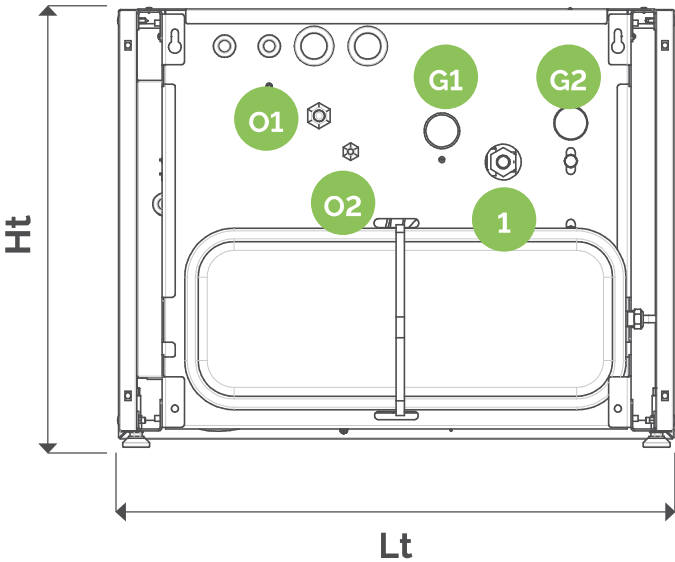
### Technical features

				SIZE			
				Small S	Medium M	Large L	Extra large XL
OPERATING DATA							
Water supply temp	MAX	° C		Up to 58	Up to 58	Up to 58	Up to 58
	35 ° C	l/min		11.5	18.3	30.0	39.2
Water flow	45 ° C	l/min		11.2	18.3	29.2	38.0
	55 ° C	l/min		-	9.2	15.0	19.7
Minimum water volume		l		40	40	80	80
Thermal power		kW		≤ 4.1	≤ 6.5	≤ 10.6	≤ 13.6
Refrigeration power		kW		≤ 5.3	≤ 5.6	≤ 9.1	≤ 11.6
COMPONENTS AND CONNECTIONS							
Expansion vessel		l		7	7	7	7
Residual pressure		mCA		6	7	7	7.5
Indoor electric resistance power		kW		2	2	2	2
Hydraulic connections		"		1"	1"	1"	1"
Liquid refrigerant connections	liquid	"		1/4"	1/4"	1/4"	3/8"
	gas	"		1/2"	1/2"	1/2"	5/8"
Safety valve		bar		3	3	3	3
ACCESSORIES							
Buffer tank		l		40/80	40/80	40/80	40/80
Electric resistance for MINI-HC		kW		2	2	2	2
Condensate collection tank				✓	✓	✓	✓

# F-idro: technical data

## Connections

Ref.	description	SIZE			
		S	M	L	XL
G1	Water inlet connection	1"	1"	1"	1"
G2	Water outlet connection	1"	1"	1"	1"
O1	R410A gas inlet	1/2"	1/2"	1/2"	5/8"
O2	R410A gas outlet	1/4"	1/4"	1/4"	3/8"
1	Safety valve connection and drainage	18 mm	18 mm	18 mm	18 mm



		Dimensions without packaging				Dimensions with packaging			
size		Wt mm	Ht mm	Lt mm	weight kg	Wt mm	Ht mm	Lt mm	weight kg
F-IDRO	S/M/L/XL	390	490	620	34	440	540	670	36

# F-idro: accessories

## MINI-HC buffer tanks

The hydronic part of the system must have a minimum water content to guarantee the correct operation of the heat pump. MINI-HC inertial tanks can be used both to increase the system volume and to perform the hydraulic circuit breaker function.

### Balancing Tank:

Its function is to make the primary circuit (F-idro/Mini HC) and secondary circuit (Mini HC/System) independent. In this case it becomes necessary to install an auxiliary pump on the secondary circuit (not supplied). The installation of the buffer tank is mandatory if the MINIMUM water content in the system is not observed, see p. 9. Two hydraulic distribution tanks are available with a volume of 40 litres for powers up to 8 kW and 80 litres for powers from 9 to 16 kW, which can be equipped with an additional electrical resistance of 2 kW.

### MINI-HC 40 - MINI-HC 80 Description:

Made of carbon steel, Anti-condensation insulation. Designed to contain both hot and cold water in heating and cooling systems powered by a heat pump.



capacity	code	price	class energy	diameter of fittings "	dimensions		weight kg	for sizes F-idro
					with packaging cm	without packaging cm		
40 Liter	817010175X		B	1" 1/2	50x50x50	46x46x48	25	S, M
80 Liter	817010176X		B	1" 1/2	50x50x100	46x46x87	35	L, XL

## Electrical resistance

Single-phase electric heater which can be used as an addition to the storage tanks supplied complete with 20-70 ° C thermostat, manual reset safety thermostat, electric cable.

power W	code	price	voltage V	number elements	diameter of fittings "	length mm	temperature thermostat safety ° C
2000	824100167		230	1	1" 1/2	368	95



## Condensate collection tray

code	price	Description
840030010X		Condensate tray kit



# Domestic hot water producer: F-tank

DHW production unit through heat recovery with built-in glass-lined storage tank of 200 or 300 litres capacity.

Traditional heat pumps are designed to provide cooling or domestic hot water production, but not simultaneously.

The Fenix system breaks this limit thanks to the F-tank technology, making the **production of DHW simultaneously to cooling or heating**.

F-tank allows to bring the hot water temperature up to: 75 ° C when the heat pump operates in cooling mode and 55 ° C when it works in heating mode or only for domestic hot water production.

It is possible to reach such high water temperatures since F-tank operates on the recovery of the overheating heat of the refrigeration cycle. In particular:

- The energy required is taken directly from the refrigerant gas
- The production of DHW is **WITHOUT** cycle inversion
- In summer, with the indoor units doing cooling work, the heat taken from the rooms is transferred directly to the DHW without any increase in the consumption of electricity (energy recovery function). Therefore, **domestic hot water is free**.

## Useful information

- Stainless steel heat exchanger for domestic hot water production
- Includes 2 back-up electrical resistors with operating software or manual
- Solar coil included
- Includes mixing valve to limit the temperature of the DHW at the tap
- Galvanised white painted steel cabinet
- Dynamic management of the **anti-legionella** cycle
- Up to 75 ° C from a thermodynamic cycle in summer operation
- Heat recovery and energy storage during cooling operation, **free hot water**
- Glazing according to DIN 4753.8
- Combined installation with F-idro (see page 346)



model	capacity l	cod.	price
F-TANK	200	842030143X	
F-TANK	300	842030144X	



# F-tank in the Fenix system

The F-Tank unit is managed by the Fenix system like any other indoor unit, and is exclusively intended for the production of DHW.

This is possible because the F-EXT outdoor units are equipped with an exclusive connection port dedicated to domestic water, to which only the F-tank unit can be connected.

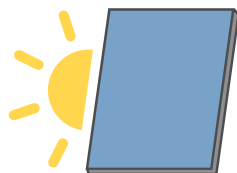
All other indoor units, however, are connected via standard refrigerant connections.

The setting of the desired temperature for hot water is also very simple: the set point can be set with a single button and the temperature is indicated via the LED interface.

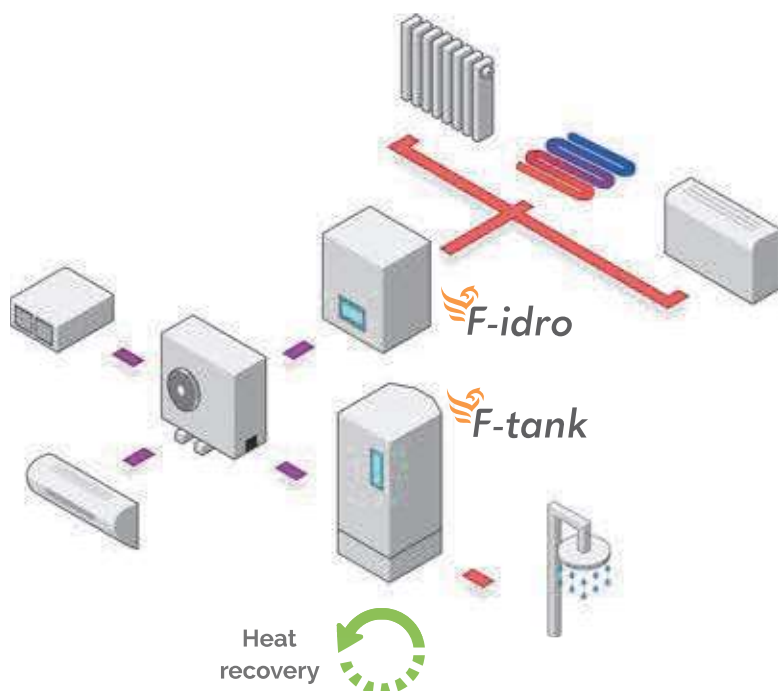
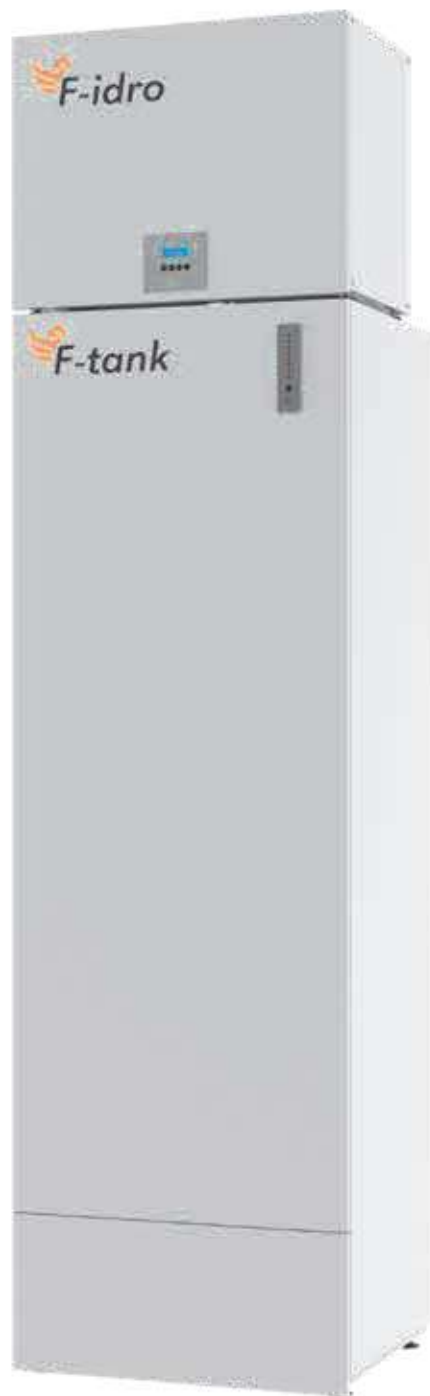
The F-tank setting will take care of everything else. The system user does not have to worry about a thing: **the anti-legionella cycle is also managed automatically**.

## Combination with solar systems

F-Tank can be connected to solar systems both with natural circulation and forced circulation, thanks to its indoor fixed coil.



In this case it will work as a supplement to provide hot water when the efficiency of the solar panels is low (during winter or at night) or when there is a large demand for water from the users.



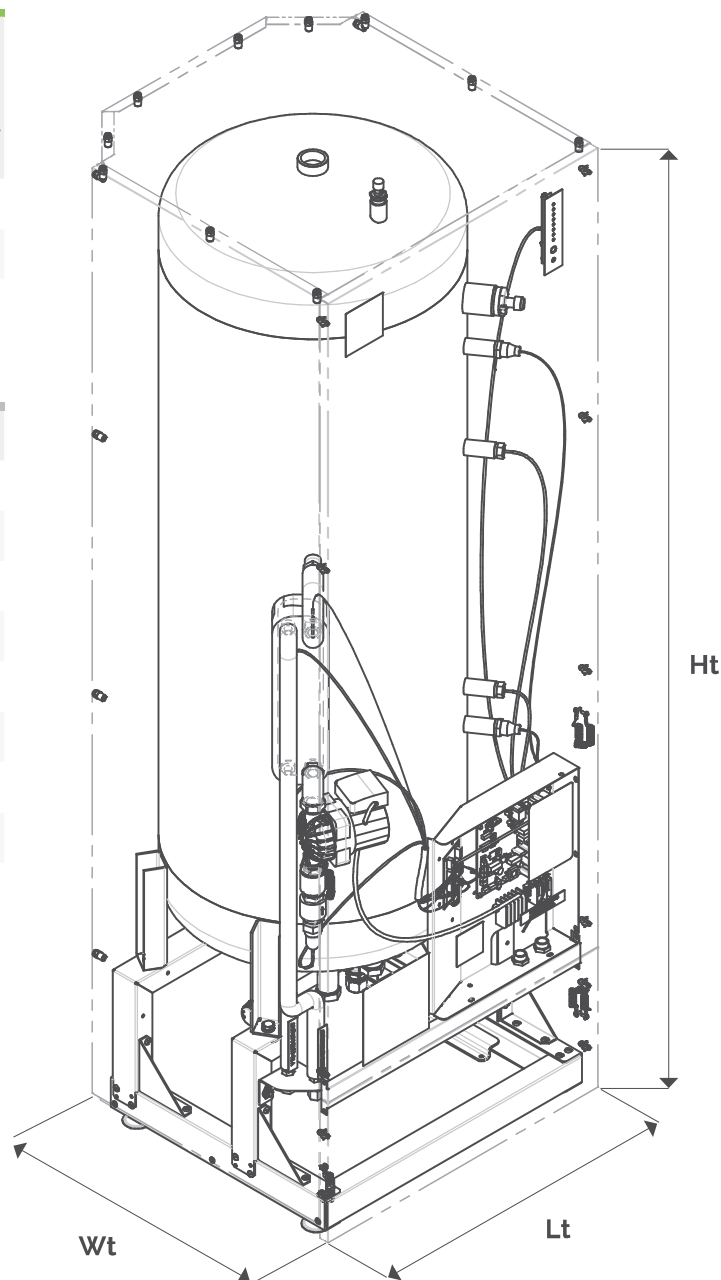
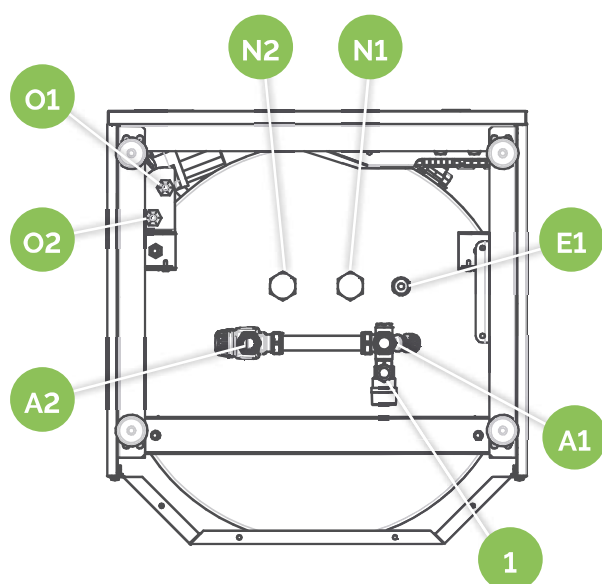
# F-tank

## Technical data

capacity l	Dimensions without packaging				Dimensions with packaging			
	Wt mm	Ht mm	Lt mm	weight kg	Wt mm	Ht mm	Lt mm	weight kg
200	640	1460	620	103	700	1600	700	115
300	640	1875	620	133	700	2000	700	145

### Connections

Ref.	description	connections
A1	Cold water inlet	3/4"
A2	Hot water outlet	3/4"
E1	Boiler sensor shaft	7 mm
N1	Solar coil outlet	1"
N2	Solar coil inlet	1"
O1	Refrigerant circuit inlet	3/8"
O2	Refrigerant circuit outlet	3/8"
1	Safety valve outlet	1/2"



# F-tank

## Technical data

		F-TANK 200	F-TANK 300
TECHNICAL DATA			
Power supply	V/Ph/Hz	230/1/50	
Maximum electrical absorption (without electrical resistance)	W	60	
Maximum electrical absorption (with electrical resistance)	W	2000	
Hydraulic connections	inches	Press Fitting EN 1254-2 for Ø22" pipe	
Gas fittings	inches	3/8 "SAE	
Solar exchanger connections	inches	G 1"	
Solar exchanger pipe dimensions	mm	33.7 x 1.8	
Solar exchanger surface	m <sup>2</sup>	1.4	
Solar exchanger length	mm	13200	
Solar exchanger material	carbon steel		
Maximum length of refrigeration piping	m	10	
Maximum height difference between indoor and outdoor unit	m	10	
Maximum height difference between indoor units (Fenix system installation)	m	5	
Additional R410a refrigerant load (if required)	g/m	15 for G 3/8", 20 for G1/2" pipes	
Tank capacity	l	200	300
Maximum working pressure	bar	6	
Sound power level	dB (A)	35	
PERFORMANCE OF DOMESTIC HOT WATER PRODUCTION ***			
ERP Class (*)	-		
Loading profile (tapping) (*)	-	L	XL
Energy efficiency of water heating (*)	%	92	94
COP - DHW (**)	-	2,28	2,33
Annual electricity consumption (**)	kWh	1108	1783
Heating time from 10 ° C to 50 ° C	h: m	03:57	05:23
Maximum quantity of water mixed at 40 ° C	the	280	390

(\*): with test method according to EN 16147

(\*\*): average climate conditions

(\*\*\*) Matching with F-EXT 050

# F-wall: Indoor units with direct expansion

## Indoor F-wall mounted units

- ✓ DC inverter technology
- ✓ Structure in PS satin white
- ✓ Sophisticated and discreet even at maximum power
- ✓ Consume as a LED lamp
- ✓ Save over 70% compared to traditional units



## 5 in 1

- ✓ heating
- ✓ cooling
- ✓ dehumidification
- ✓ purification
- ✓ ventilation

Elegant and discreet, available in sizes S and M, it is set up as an indoor unit with a pleasant design, suitable for all environments both due to its design and its thermal performance.

They are also ideal in rooms with a very low ceiling, thanks to special anti-intrusion grids.

Infrared remote control included

model	code	price	size	thermal power (KW)	refrigeration power (KW)
<b>F-wall S</b>	844110001X		S	≤ 4,0	≤ 3,7
<b>F-wall M</b>	844110002X		M	≤ 7,0	≤ 5,7

		<b>F-wall S</b>	<b>F-wall M</b>
IO airflow (sb-b-m-a)	m³/h	390-430-450-470	410-580-710-880
Dehumidification	l/h	1.5	2
Ventilation speed	No.	Auto + 3 from the remote control	
Sound pressure IO (sb-b-m-a)*	dB(A)	23-29-36-39	29-35-43-47
Power supply	V/Ph/Hz	230/1/50	
Max. absorbed power	kW	0.012	0.019
Engine type		DC Motor Inverter	
Diameter of the liquid pipe	"	1/4"	1/4"
Diameter of the gas pipe	"	3/8"	1/2"
Net weight	kg	8	12
Net size internal unit, (Ht/Lt/Wt)	mm	270x805x215	285x995x240

\*2 m from source

# F-duct: ducted indoor units

## F-duct ducted indoor units

- ✓ The reliable and flexible ducted solution
- ✓ Indoor units with medium pressure standard ducts
- ✓ DC Motor Inverter
- ✓ Wired and infrared remote control included
- ✓ Temperature and humidity management
- ✓ Prepared for home automation with removable filters



F-duct is mainly intended for the service sector and is made with great care in the choice of materials and in the assembly of parts. Available in size M and L, it is equipped with high quality centrifugal fans and condensate drain pump; it is also equipped with washable filters easily accessible and manageable through the wired or wireless Fenix universal remote control.

### Pressure up to 62 Pa

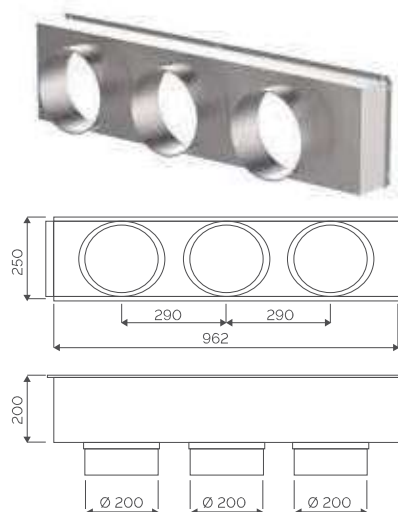
A special function that can be activated by removing a jumper on the circuit board, increasing the pressure for ducting at greater distances.

### Humidex

The units are equipped with a special humidity sensor. The signal coming from this sensor is used by the control software that correlates the humidity of the room and the temperature measured by the air sensor with the Humidex index that measures the temperature perceived by the human body (which is a combination of these two factors). This function is only available when the unit operates in auto mode both in cooling and in heating mode.

## F-duct is the medium pressure ducted unit, to be combined with a standard plenum or set up on site

model	code	price	size	thermal power (KW)	Refrigeration power (KW)
<b>F-duct M</b>	844110003X		M	≤ 7,0	≤ 5,7
<b>F-duct L</b>	844110004X		L	≤ 11,0	≤ 9,0
<b>3-way PLENUM conveyor</b>	844070024X		-	-	-



		F-duct M	F-duct L
IO airflow (b-m-a-aa)	m <sup>3</sup> /h	450/550/720/850	600/720/950/1050
Dehumidification	l/h	2,3	2,5
Ventilation speed	No.	Auto + 3 from the remote control	
Useful pressure	Pa	50/62	50/62
Sound pressure IO (sb-b-m-a)*	dB(A)	32-35-42-47	35-40-46-49
Power supply	V/Ph/Hz	230/1/50	
Absorbed power	kW	0.076	0.118
Current consumption	A	0.68	0.95
Diameter of the liquid pipe	"	1/4 "	1/4 "
Diameter of the gas pipe	"	1/2 "	1/2 "
Net weight IO	kg	23,5	23,5
Net size IO. (Ht/Lt/Wt)		266 x 1175 x 636	266 x 1175 x 636

\*2 m from source

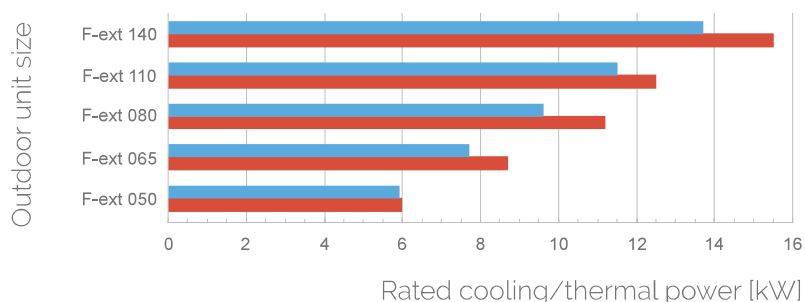
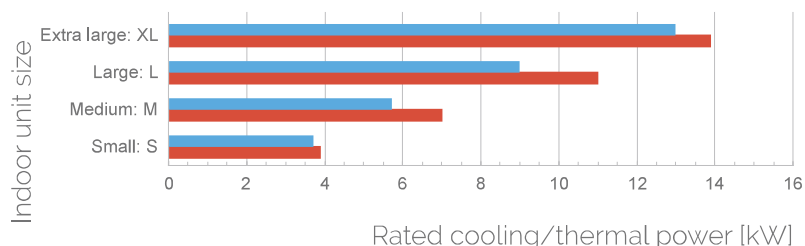


# Set up your own system

Depending on the different thermal/cooling power values, the indoor units have been grouped into 4 reference sizes: S, M, L and XL.

Grouping indoor units in 4 sizes allows a quick and intuitive association with the corresponding outdoor unit, according to a precise series of combinations.

To configure your system, simply choose the size of the outdoor unit, depending on your heating needs; the sizes of the indoor units will be chosen among the possible combinations indicated in the following tables and compatible with the power of the outdoor unit.



## Table reading examples:

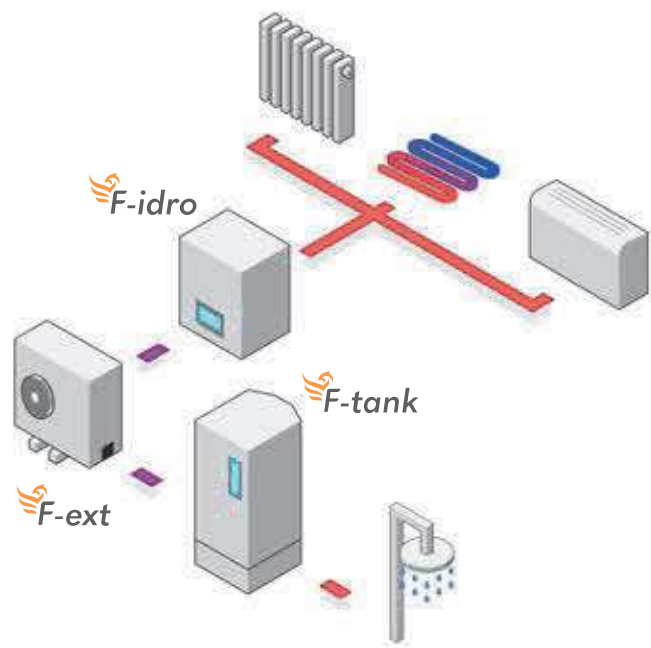
Hydronic HVAC + DHW > Outdoor unit F-ext 080 >> F-type combinable L size

Fenix takes care of everything else, taking advantage of the DC inverter technology: it modulates power and therefore consumption to obtain the desired comfort level. Domestic hot water is always guaranteed thanks to the dedicated F-tank door

## SYSTEM SOLUTIONS - SUGGESTED COMBINATION TABLES

### 1. Hydronic heating and cooling + DHW

Ref.	Indoor unit size	V/Ph/Hz	F-idro	F-tank
1	F-EXT 050 dual	230/1/50	S	✓
2	F-EXT 065 trial	230/1/50	M	✓
3	F-EXT 080 quadri	230/1/50	L	✓
4	F-EXT 110 quadri	230/1/50	L	✓
5	F-EXT 140 penta	400/3/50	XL	✓



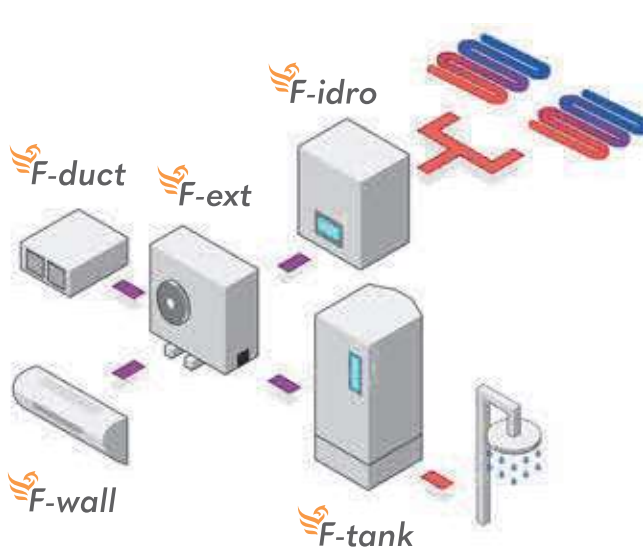
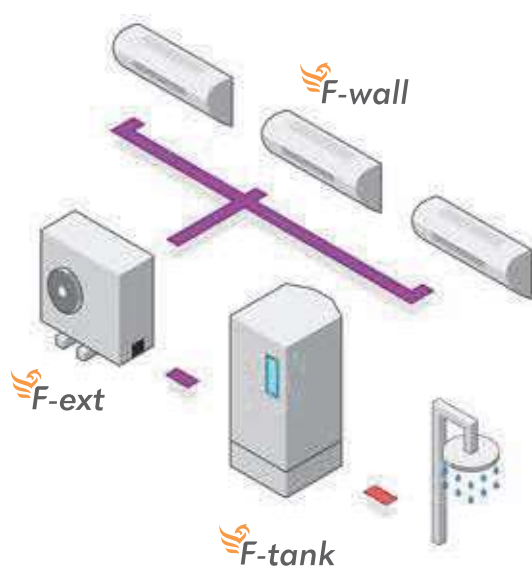
## 2. Direct Expansion heating and cooling + DHW

Ref.	Indoor unit size	V/Ph/Hz	F-wall / F-duct	F-tank
6	F-EXT 050 dual	230/1/50	S	✓
7			M	✓
8	F-EXT 065 trial	230/1/50	M	✓
9			S + S	✓
10			S + M	✓
11	F-EXT 080 quadri	230/1/50	L	✓
12			S + M	✓
13			S + S + S	✓
14			S + S + M	✓
15	F-EXT 110 quadri	230/1/50	XL	✓
16			S + M	✓
17			S + L	✓
18			M + M	✓
19			S + S + S	✓
20			S + S + M	✓
21			S + S + S + S	✓
22	F-EXT 140 penta	400/3/50	S + XL	✓
23			S + S + L	✓
24			S + S + S + S	✓
25			S + S + S + M	✓
26			S + S + S + S + S	✓

## 3. Hydronic heating and cooling + direct expansion + DHW\*

Ref.	Outdoor unit size	V/Ph/Hz	F-idro	F-wall / F-duct	F-tank
27	F-EXT 050 dual	230/1/50	S	S	✓
28	F-EXT 065 trial	230/1/50	M	S + S	✓
29				M	✓
30	F-EXT 080 quadri	230/1/50	S	S + S + S	✓
31				S + M	✓
32			M	S + S + S	✓
33				S + M	✓
34			L	S + S	✓
35	F-EXT 110 quadri	230/1/50	M	S + S + S	✓
36				S + S + M	✓
37			L	M + M	✓
38				S + S + S	✓
39				S + M	✓
40	F-EXT 140 penta	400/3/50	L	S + S + S	✓
41				S + S + M	✓
42				S + S + S + S	✓
43			XL	S + S + S + M	✓
44				S + M	✓
45				S + S + S	✓

\* For mixed solutions: air / water for heating and air / air for cooling, not in simultaneous operation



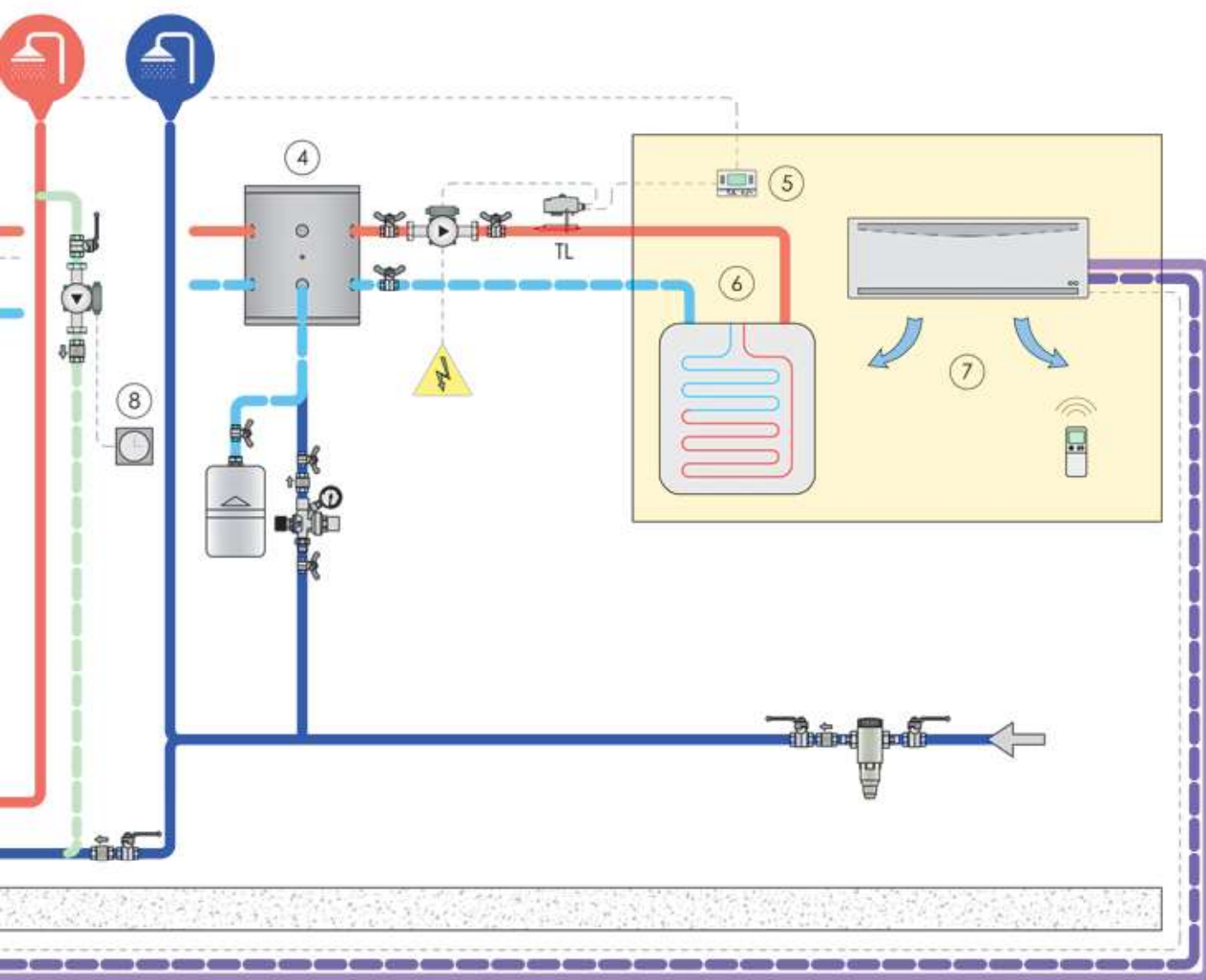
**Hydronic heating with F-idro and cooling with direct expansion unit, single thermal zone. Production of DHW with F-TANK.**



### Caption

- 1 Outdoor unit of the Fenix system, F-Ext series
- 2 Indoor unit of the Fenix, F-idro
- 3 Indoor unit of the Fenix system, F-tank 200/300
- 4 MINI HC inertial storage tank (or hydraulic circuit breaker), available from 40 or 80 litres
- 5 Room thermostat or chrono-thermostat (not supplied)
- 6 Hydronic circuit (circulator and regulation not supplied)
- 7 Direct expansion unit, F-wall
- 8 Sanitary recirculation pump, if any. Not supplied and not controlled by F-idro.

Outdoor climate sensor: the outdoor F-ext unit is already sold with an outdoor sensor of its own; however, if it is installed in an area with variable temperature, a second remote sensor can be used (supplied with F-idro).

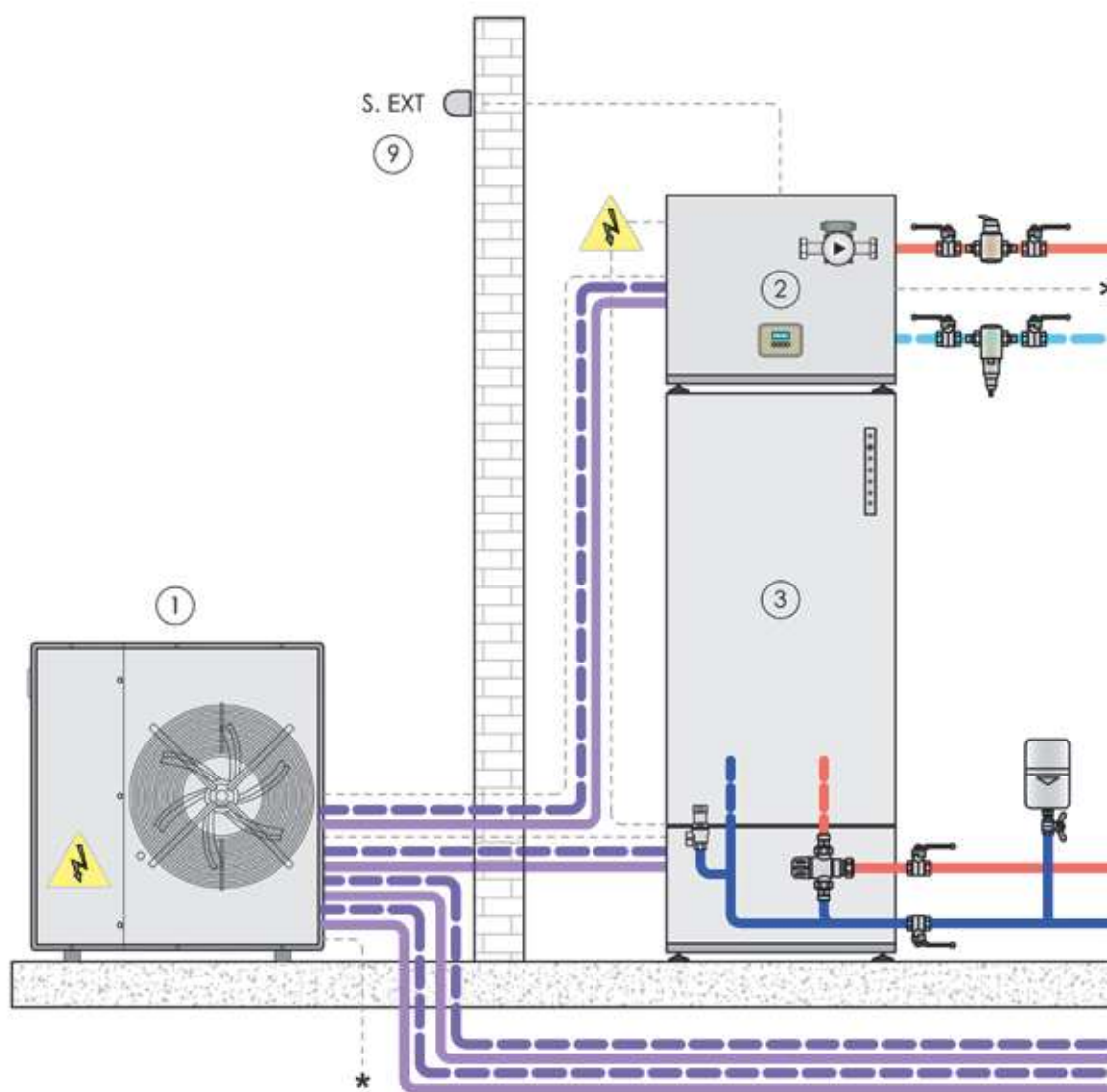


# Type B diagram

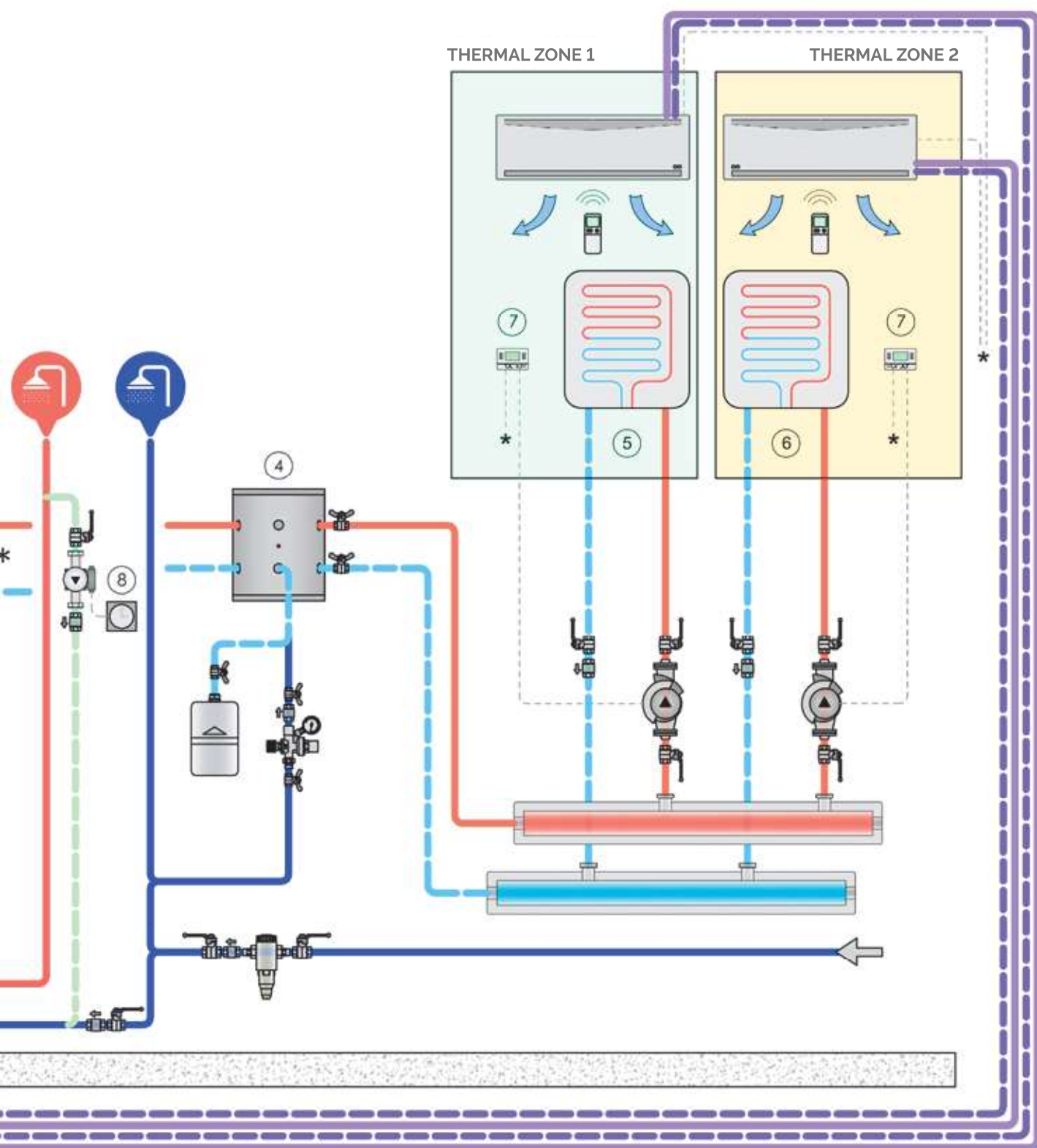
**Hydronic heating and cooling with F-idro and dehumidification/combined with direct expansion unit, Multiple thermal zone, Production of DHW with F-TANK.**

## Caption

- 1 Outdoor unit of the Fenix system, F-Ext series
- 2 Indoor unit of the Fenix, F-idro
- 3 Indoor unit of the Fenix system, F-tank 200/300
- 4 MINI HC inertial storage tank (or hydraulic circuit breaker), available from 40 or 80 litres
- 5 THERMAL ZONE 1 - Hydronic circuit and direct expansion terminal, F-wall
- 6 THERMAL ZONE 2 - Hydronic circuit and direct expansion terminal, F-wall
- 7 Room thermostat or chrono-thermostat (not supplied) or other clean contacts (e.g. home automation systems, etc.)
- 8 Sanitary recirculation pump, if any. Not supplied and not controlled by F-idro.
- 9 Outdoor climate sensor: the outdoor F-ext unit is already sold with an outdoor sensor of its own; however, if it is installed in an area with variable temperature, a second remote sensor can be used (supplied with F-idro).

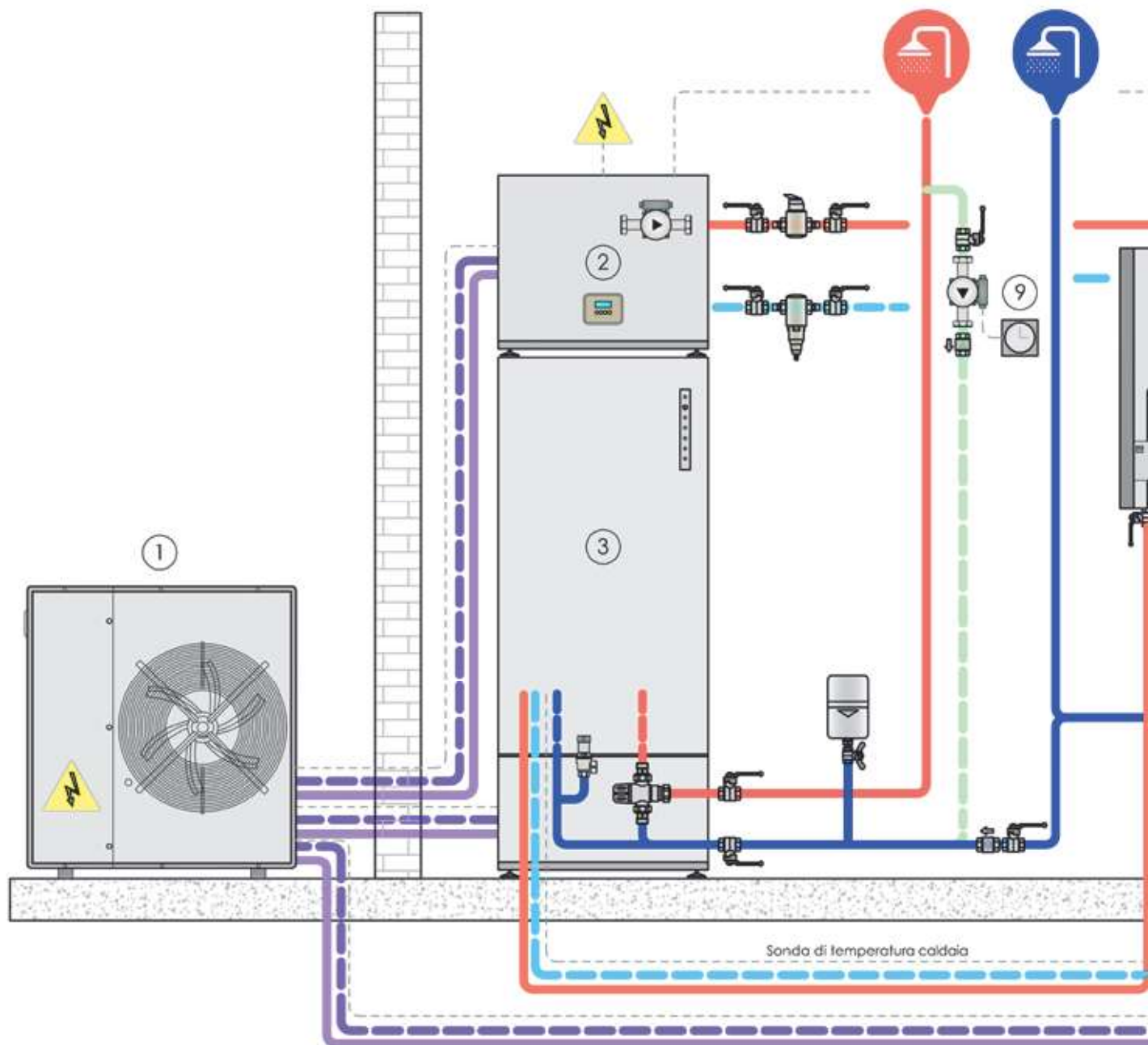






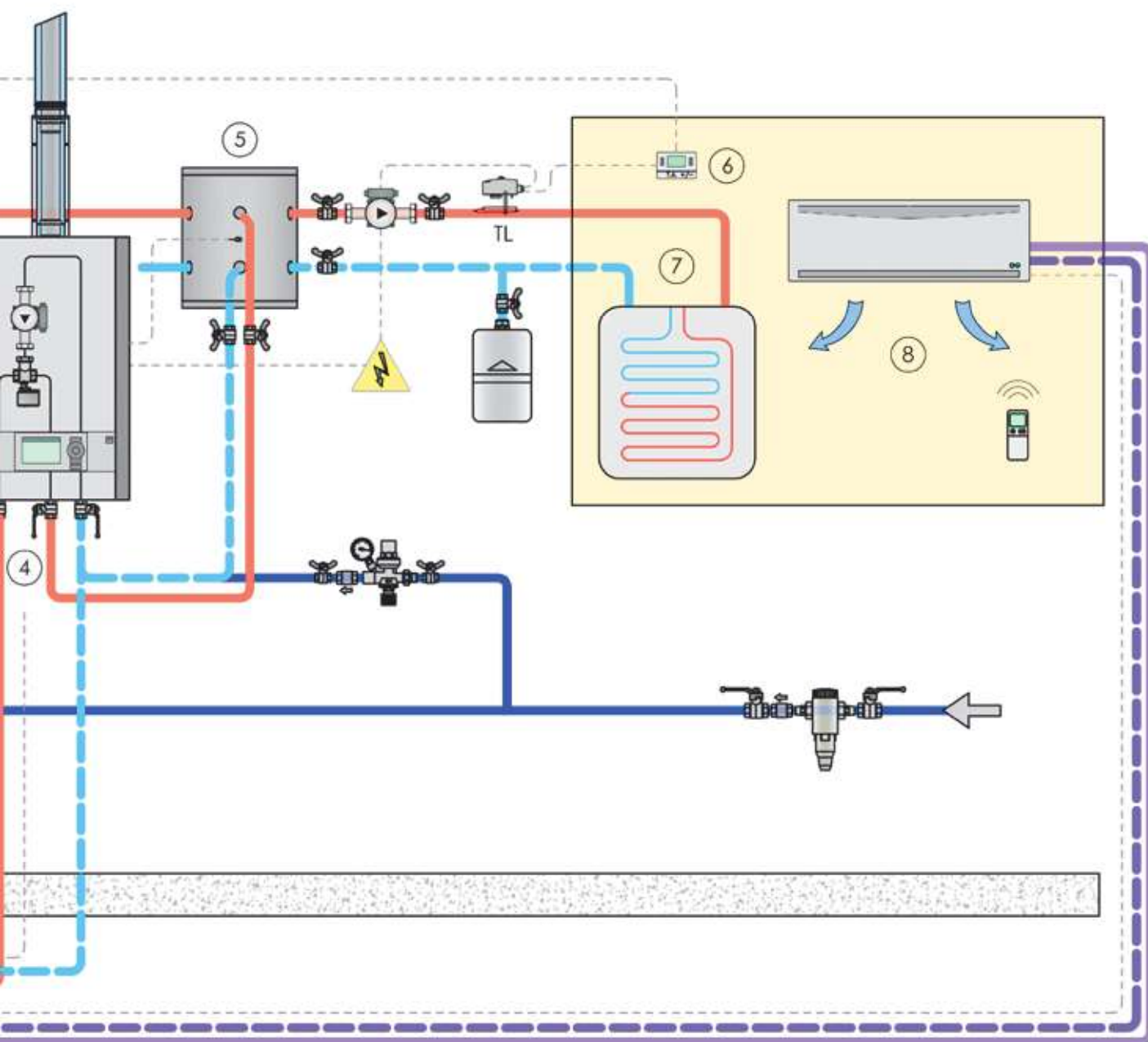
# Type C diagram

Hydronic heating with F-idro combined with boiler, cooling with direct expansion unit, single thermal zone.  
Production of DHW with F-TANK combined with boiler.



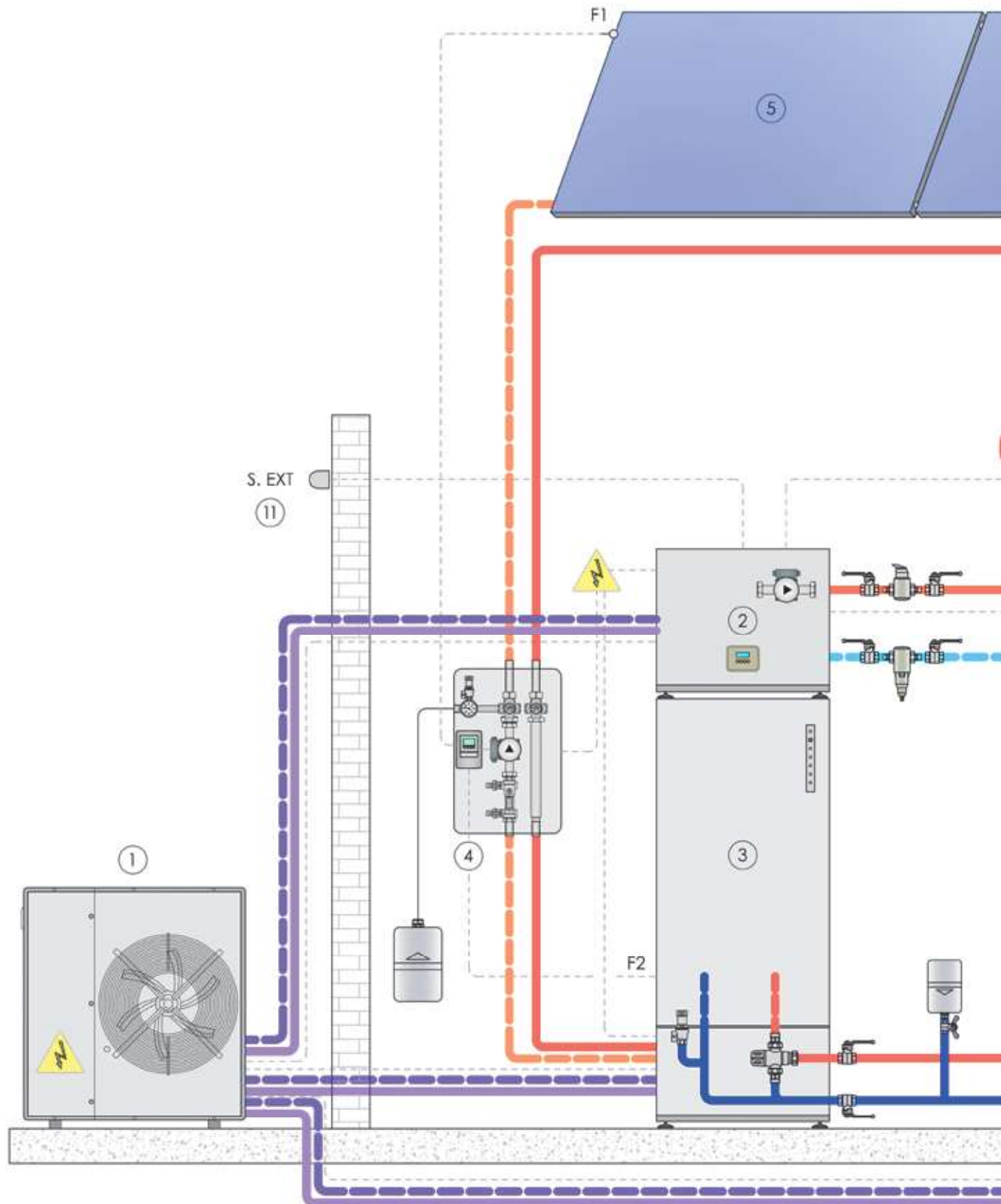
#### Caption

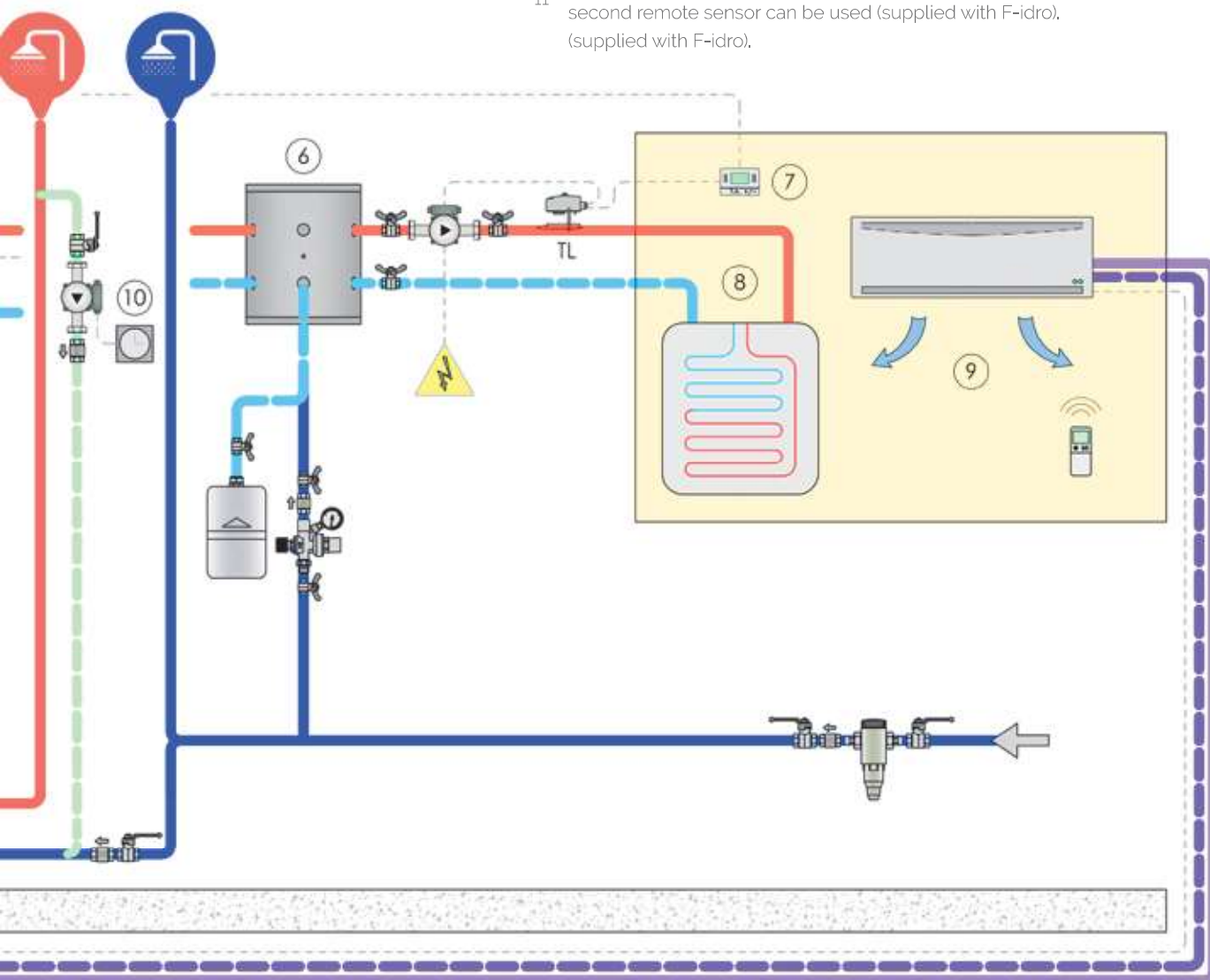
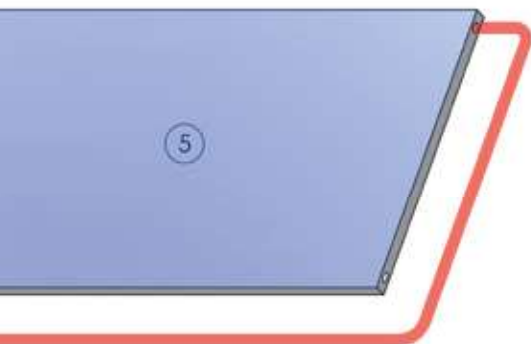
- 1 Outdoor unit of the Fenix system, F-Ext series
- 2 Indoor unit of the Fenix, F-idro
- 3 Indoor unit of the Fenix system, F-tank 200/300
- 4 Combined boiler for heating only, with immersion NTC sensor
- 5 MINI HC inertial storage tank (or hydraulic circuit breaker), available from 40 or 80 litres
- 6 Room thermostat or chrono-thermostat (not supplied)
- 7 Heating circuit (circulator and regulation not supplied)
- 8 Direct expansion terminal, F-wall
- 9 Sanitary recirculation pump, if any. Not supplied and not controlled by F-idro.



# Type D diagram

Hydronic heating with F-idro and cooling with direct expansion unit, single thermal zone. Production of DHW with F-TANK combined with solar thermal unit.





#### Caption

- 1 Outdoor unit of the Fenix system, F-Ext series
  - 2 Indoor unit of the Fenix, F-idro
  - 3 Indoor unit of the Fenix system, F-tank 200/300 with E-MIX module at the base
  - 4 Solar thermal recovery unit, S2 SOLAR 30 module
  - 5 Fiorini H 2000 solar thermal collectors
  - 6 MINI HC inertial storage tank (or hydraulic circuit breaker), available from 40 or 80 litres
  - 7 Room thermostat or chrono-thermostat (not supplied)
  - 8 Hydronic circuit (circulator and regulation not supplied)
  - 9 Direct expansion terminal, F-wall
  - 10 Sanitary recirculation pump, if any. Not supplied and not controlled by F-idro.
- Outdoor climate sensor: the outdoor F-ext unit is already sold with an outdoor sensor of its own; however, if it is installed in an area with variable temperature, a second remote sensor can be used (supplied with F-idro).



# Idea Flex

A compact and efficient option for climatization in residential applications.

The Idea system enables total control over the habitation climate both where floor heating and fan coil is used.

## Main features:

- high seasonal efficiency
- easy to install in new buildings and in renovated buildings
- easy to use, to start-up and to maintain with all the internal components accessible from the front
- all couplings in the unit are placed on the inferior part as in a traditional heater
- adapted to all climate circumstances, the external units are designed to guarantee operation in  $-20^{\circ}\text{C}$
- external unit with inverter to efficiently exchange heat with the environment
- DHW production up to  $55^{\circ}\text{C}$
- integrated management of the solar thermal system or the heater
- all hydraulic components that are necessary are included in the internal unit: recirculation pump, back-up reheater (optional electrical resistor), deviation valve for DHW production (optional)
- minimal encumbrance and accurate design for a perfect integration

## CONTROL

During the first start-up a menu will send the installer through the right order of operations. A programming timer for heating, cooling and DHW production makes it possible to adapt the activity of the unit to your personal requirements. The graphical display of the control panel clearly shows all operation parameters.

## Main components

### Idea (Indoor components)

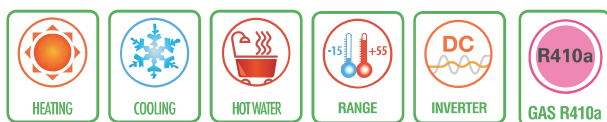
The heart of the Idea system is the indoor unit, which looks like a traditional wall-mounted water heater. With a microprocessor control unit to manage and control the heating and cooling of the water running through the system for maximum comfort.

### DC-Inverter condensing unit (Outdoor components)

It consists of a condensing unit with an inverter; in the winter this technology makes it possible to efficiently extract heat from outdoor air. In summer, a pleasant cooling is obtained by inverting the cooling cycle.



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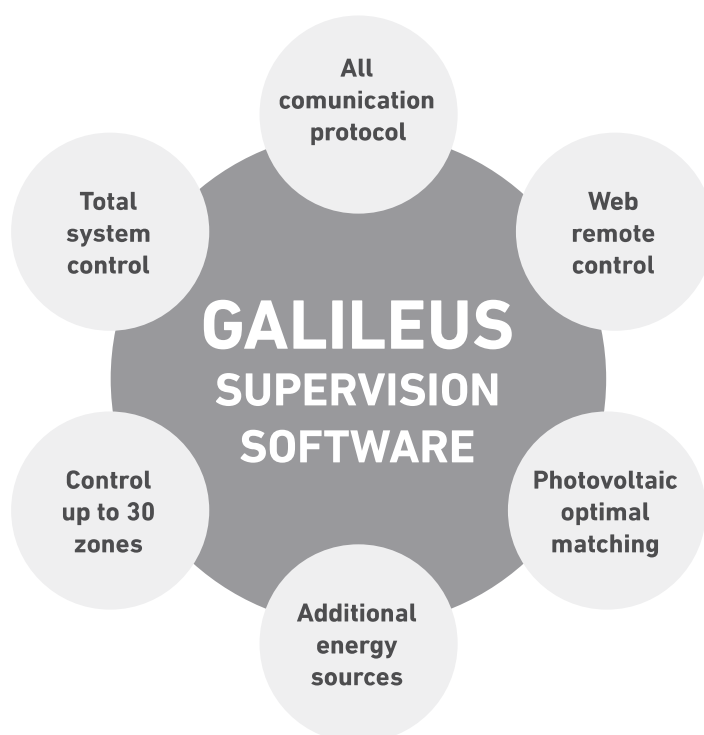


# Idea Flex GALILEUS

Idea flex is also available for the special Galileus software.

Galileus is the result of the long experience Fiorini has in the field of renewable energy. The system makes it possible to intelligently control the whole heating and cooling installation. The main features of the Galileus are:

- ✓ temperature and humidity management of up to 30 zones
- ✓ management of the optimization of the consumption of photovoltaic energy production
- ✓ connection to the web
- ✓ management of the anti-legionella cycles
- ✓ management of up to 5 units connected in series
- ✓ management of the solar thermal system
- ✓ management of the integration of the heater and other sources on the device or domestic side
- ✓ management of the mixing valve
- ✓ management of the pumps and the zone valve
- ✓ alarms
- ✓ recording of the energy



# Technical information

## Idea Flex

Sizes	Idea	6	8	12	16
<b>Winter functioning A7/W35 (A)</b>					
Energy label		A++	A++	A++	A++
Thermal power	kW	5,34 - 2,8	9,0- 4,5	11,3-5,7	14,6-7,3
Compressor's absorbed power	kW	1,3	2,2	2,8	3,6
COP		4,27	4,10	4,10	4,05
Thermal power					
Compressor's absorbed power	m³/h	0,91	1,50	1,95	2,51
Head pressure	mca	4,5	4,2	3,9	3,1
Pump's absorbed power	kW	0,13	0,13	0,13	0,13
<b>External</b>					
Air flow	m³/h	2400	3000	5000	5000
Sound pressure at 1m	dBa	38-56	40-55	41-57	41-57
Absorbed power ventilator	kW	0,12	0,12	0,20	0,20
<b>Domestic A7/W50 (B)</b>					
Thermal power	kW	5,0	8,4	10,4	13,6
Domestic water flow	m³/h	0,97	1,44	1,78	2,33
<b>Summer functioning A35/W18 (C)</b>					
Cooling power	kW	5,2	8,2	11,0	14,1
Compressor's absorbed power	kW	1,2	2,1	2,8	3,6
EER		3,95	3,93	3,92	3,91
<b>Device</b>					
Water flow	m³/h	0,89	1,41	2,04	2,46
Heat pressure	mca	4,5	4,2	3,8	3,2
<b>Summer functioning A35/W7 (D)</b>					
Cooling power	kW	4,3	6,8	9,2	11,7
Compressor's absorbed power	kW	1,2	1,9	2,6	3,4
EER		3,57	3,55	3,50	3,40
<b>Device</b>					
Water flow	m³/h	0,68	1,08	1,46	1,85
Head pressure	mca	6,4	5,7	5,0	4,3
<b>Features</b>					
Expansion vessel	l	10	10	10	10
Max amount of water in the circuit	l	350	350	350	350
Refrigerant		R410A	R410A	R410A	R410A
Compressor type		rotary	rotary	rotary	rotary
Number of compressors		1	1	1	1
Electric supply of internal unit	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50
Electric supply of external unit	V/Ph/Hz	230/1/50	230/1/50	230/1/50	400/3/50
Pipes	mm	6,35	9,53	9,53	9,53
Gas	mm	12,7	16	16	16
Max length	m	25	30	30	30
Max difference in level	m	15	15	20	20
Weight indoor unit (unpacked)	kg	34	34	34	34
Weight indoor unit (packed)	kg	37	37	37	37
Weight outdoor unit (unpacked)	kg	50	66	109	114
Weight outdoor unit (packed)	kg	61	77	122	127

All indicated working conditions comply with the regulation EN14511

(A) Utility circuit: radiant plant 30/35°C In-Out ;  
External circuit: outdoor air °C 7-85% RH

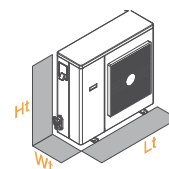
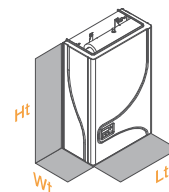
(B) Domestic circuit: °C 45/50 In/Out;  
External circuit: outdoor air °C 7-85% RH

(C) Utility circuit: radiant plant °C 23/18 In/Out;  
External circuit: outdoor air °C 35-50% RH

(D) Utility circuit: radiant plant °C 12/7 In/Out;  
External circuit: outdoor air °C 35-50% RH

		6	8	12	16
Lt	mm	515	515	515	515
Wt	mm	270	270	270	270
Ht	mm	816	816	816	816

		6	8	12	16
Lt	mm	916	975	1024	1024
Wt	mm	379	374	454	454
Ht	mm	719	861	1402	1402



# Code Idea Flex



HEATING



COOLING



HOTWATER



INVERTER

Air/water system				
IDEA FLEX			IDEA FLEX GALILEUS	
model	code	price	code	price
Single-ph.	840010090X		840010092X	
Three-ph.	840010091X		840010093X	

Air/water system Motocondensing IDEA		
model	code	price
IDEA 6 M	844040012X	
IDEA 8 M	844040013X	
IDEA 12 M	844040014X	
IDEA 16 T	844040015X	

IDEA FLEX accessories Accessories for the device		
code	description	price
452010033	IDEA FLEX solar kit	
838110001	Control unit for solar pumping kit	

IDEA FLEX GALILEUS accessories Accessories for control and regulation		
code	description	price
452010050	MYZONE KIT thermostat T/U	
452010051	MY BOARD expansion for MYZONE kit	
452010010	Serial port RS485 kit	
452010061	Mypower kit	
452010006	WEB KIT (remote control) (*)	

IDEA FLEX accessories Accessories for internal machine		
code	description	price
452010071	Internal domestic deviation valve kit	
452020106	Resistor for collector 1kw m	
452020107	Resistor for collector 2kw m	
452020108	Resistor for collector 3kw m	
452020109	Resistor for collector 2kw T	
452020110	Resistor for collector 3kw T	
452020111	Resistor for collector 4kw T	
824180085	Modbus converter RS485	

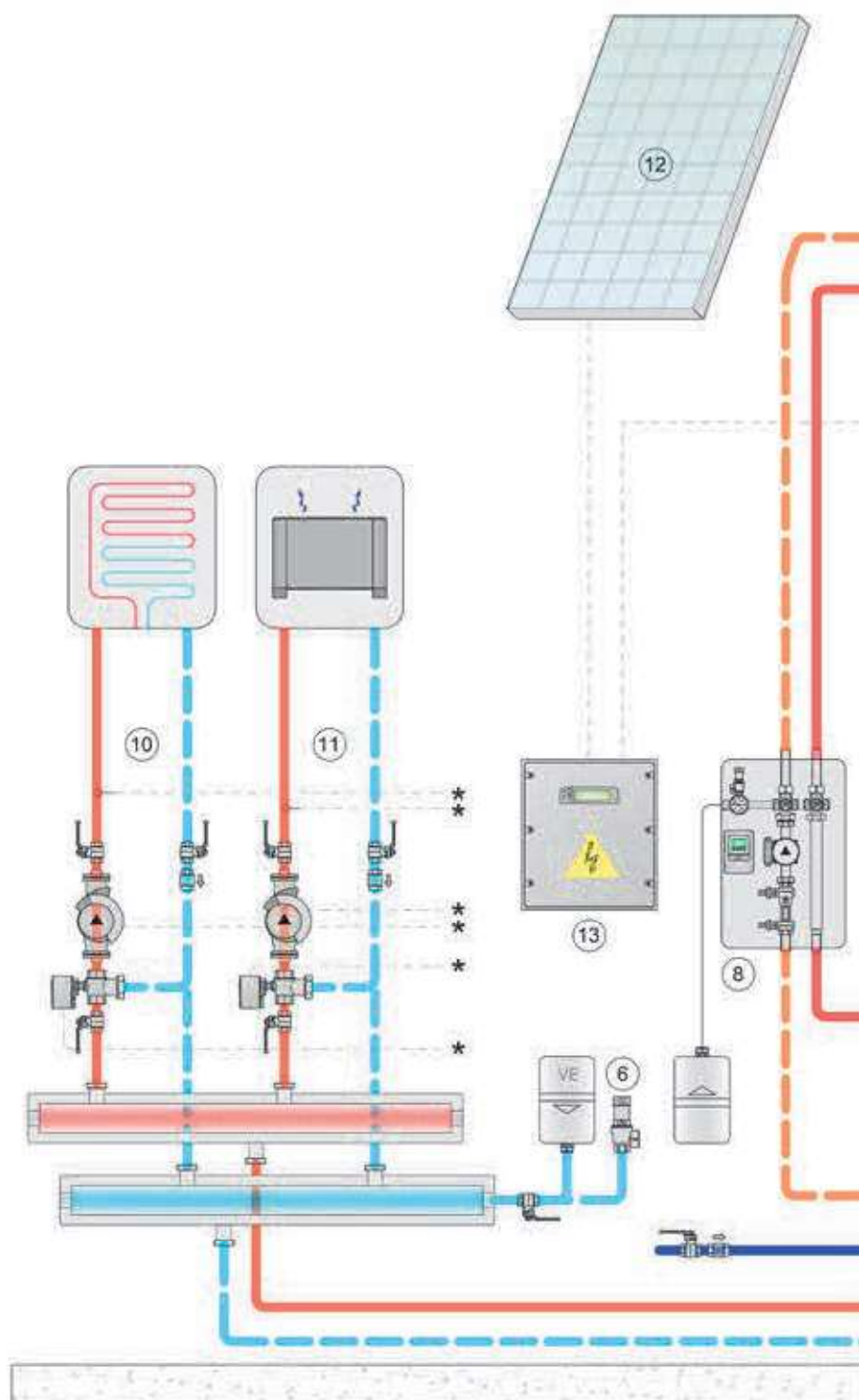
IDEA FLEX GALILEUS accessories Accessories for device		
code	description	price
452010072	SOLAR IDEA GALILEUS kit	
838110001	Control unit for solar pumping kit	

(\*) In the IDEA FLEX GALILEUS model you can not mount the WEB KIT if the MY-ZONE KIT is present.

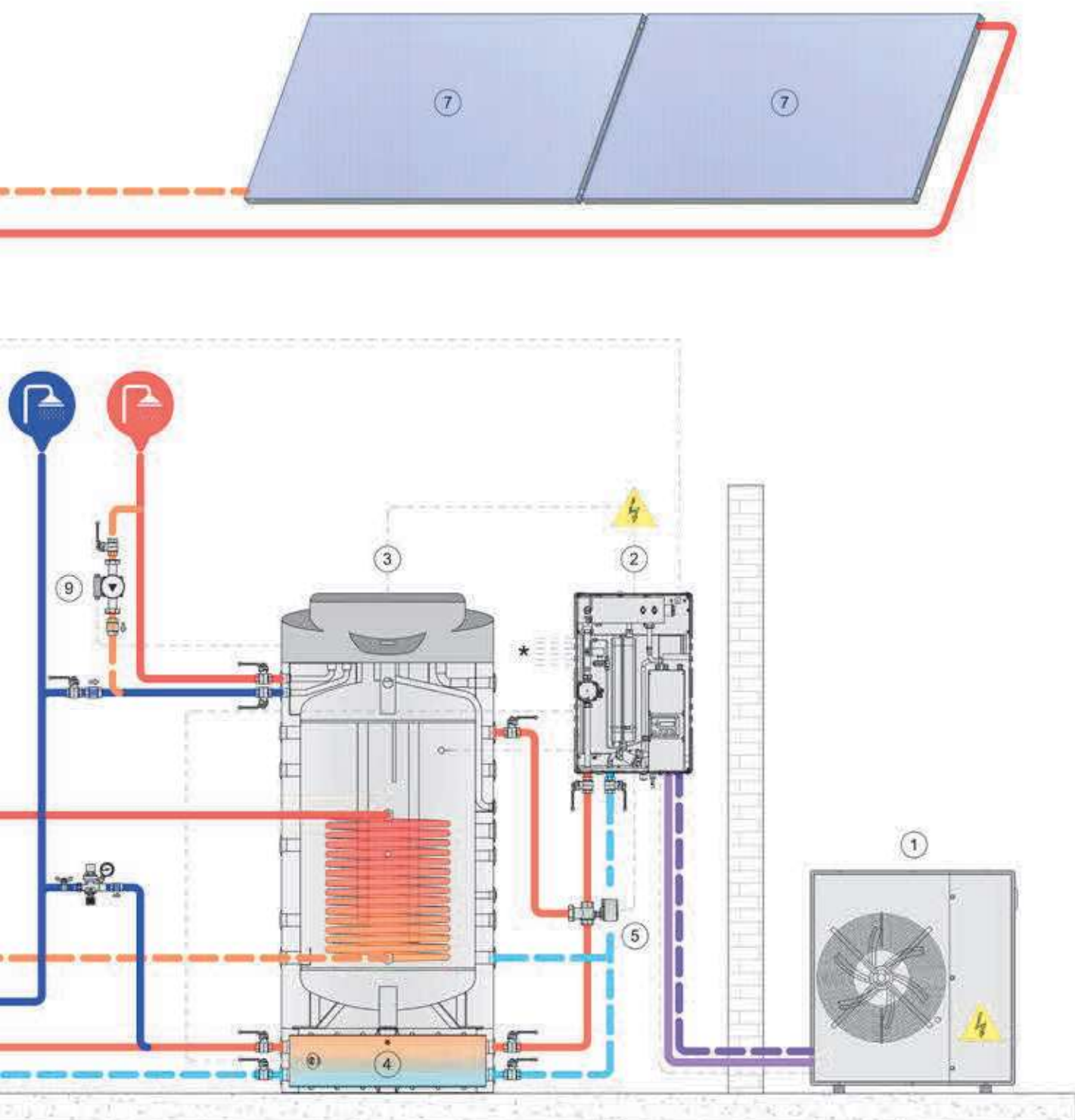
IDEA FLEX GALILEUS accessories Accessories internal installation		
code	description	price
452010071	Internal domestic deviation valve kit	
452020106	Resistor for collector kit 1KW M	
452020107	Resistor for collector kit 2KW M	
452020108	Resistor for collector kit 3KW M	
452020109	Resistor for collector kit 2KW T	
452020110	Resistor for collector kit 3KW T	
452020111	Resistor for collector kit 4KW T	

# Layout IDEA System

- 1 IDEA heat pump (outdoor unit)
- 2 IDEA heat pump (indoor unit)
- 3 AQUAMATIC storage tank with integrated DHW production unit
- 4 AQUAMATIC inertial tank (integrated accessories)
- 5 3 way diverting valve for DHW system
- 6 Safety kit
- 7 Thermal solar collector
- 8 Solar pump kit
- 9 DHW recirculation system
- 10 Heating system 1
- 11 Heating system 2
- 12 PV system
- 13 PV inverter







# Air-water heat pumps for DHW production EOS GREEN

EOS GREEN is the hot water heater for the production of hot water: water heating is carried out by a rotary compressor heat pump and a condensate coil outside the tank. A 2 kw auxiliary electric resistance is supplied as standard to make water heating faster if necessary.

## Available in two versions:

- EOS GREEN 2 (200l)
- EOS GREEN 3 (270l)



## Storage tank characteristics:

**Material:** carbon steel S 235 JR

**Internal protective coating:** inorganic glass lining (norm DIN 4753.3)

**Insulation:** thermal insulation in rigid high density polyurethane

## Functions

- ✓ Production of hot water up to 55°C (75°C with resistor)
- ✓ Built-in monoblock structure
- ✓ Touch screen control
- ✓ ECO function: only heat pump
- ✓ PARTY function: heat pump + electric resistance
- ✓ Antilegionella: heat treatment of sanitation
- ✓ Integrated Solar Thermal Management
- ✓ Integrated thermal solar heat exchanger
- ✓ Possibility of channeling the aspirated / expelled air
- ✓ Built-in auxiliary electrical resistance management



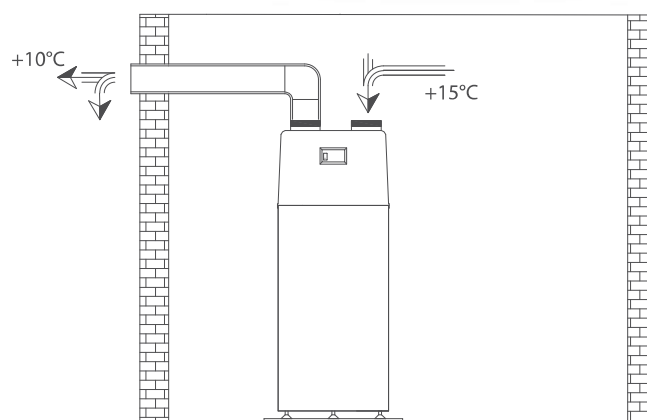
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Model	Code	Price
EOS GREEN 2	844020016X	
EOS GREEN 3	844020017X	

EOS GREEN heat pump accessories		
Model	Code	Price
Canalization Kit**	844070022X	

\*\* (10 meters of aluminum hub 160mm diam 160mm double wall + stainless steel clamps)



# Air-water heat pumps for DHW production

## EOS GREEN

### Technical data

		EOS GREEN 2	EOS GREEN 3
Capacity	l	200	270
Thermal power*	kW	2	2
Absorbed power* (only heat pump)	kW	0,4	0,4
Power supply	V/Ph/Hz	230/1/50	230/1/50
Built-in resistor power	kW	2	2
Overall power (heat pump + resistor)	kW	4	4
Maximum current consumption	A	10,7	10,7
Q <sub>elec</sub> Daily energy consumption	kWh	3,145	5,677
Degree of protection		IP22	IP22
Electrical protection		C16	C16
COP *		3,49	3,06
COP **		3,76	3,36
Energy label		<b>A</b>	<b>A</b>
Water consumption profile (EN-16147)		L	XL
Air flow	m³/h	365	365
Suction air temperature min/max	°C	+7/+35	+7/+35
Air pipe diameter	mm	160	160
Max pipe length	m	10	10
Max DHW temperature	°C	55	55
Max DHW temperature (with resistor)	°C	75	75
Max operating temperature of the tank	°C	95	95
Max operating temperature of the exchanger	°C	110	110
Max operating pressure of the tank	bar	10	10
Max operating pressure of the exchanger	bar	16	16
Water inlet / outlet connection diameter	inch	1"	1"
Recirculation connections diameter	inch	3/4"	3/4"
Condensate drain connection diameter	mm	12	12
Integrative heat exchanger		1	1
Heat exchanger surface (solar)	m²	1	1
Coolant		R134a	R134a
Coolant load	kg	1,2	1,2
Compressor type		rotary	rotary
Number of compressors		1	1
Sound pressure	db(A)	56	56
Set-up time only HP	h	4	5
Set-up time HP + RES.	h	2	2
Packaging weight	kg	143	160,5
Dimensions (Ht x Øe)	cm	150x67	173x67
Packaging dimensions (Wt x Lt x Ht)	cm	80x83x180,5	80x83x191,5



### Conditions

\* EN-16147 T air 15°C, T water from 10°C to 55°C  
 \*\* EN-16147 T air 20°C, T acqua from 10°C to 55°C

# Air-water heat pumps for DHW production EOS GREEN

