CATALOGUE
PRICE LIST
2019 REV 1

fiorini®
INDUSTRIES

Via Zampeschi 119 – 47121 Forlì (FC) – Italy
Ph. +39 0543 723197 – Fax +39 0543 720413
www.fiorini-industries.com

Catalogue – Price List 2019 REV 1


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INDUSTRIES

Paving the way towards the future

For over 40 years we have aimed to transfer our values to our clients by designing and realising high quality and trustworthy products for both the residential and the industrial sector.

Our hard work has yielded us a leadership role in Italy and abroad. Especially, in designing and producing thermo-technical systems such as heating and conditioning systems, domestic hot water systems and heat exchangers.

All our products are handcraft with attention to the client's requirements, quality and detail. Moreover, every product is tested in order to guarantee long-term reliability.

To ensure a steadfast improvement of our products we constantly invest in innovation. As a result, our products are high-performance, efficient, energy saving and practical.

The aim is to design and build hydronic products and systems for each specific need, investing in the research of technologically innovative and customized solutions and supporting our customers with a continuous consultancy activity, from the design phase to the management and maintenance phase.

Experience and competence are two core points of Fiorini and the other companies that are part of the Fiorini Industries group. As such, we design and realize solutions based on the use and integration of various energy sources. In this way, we are capable of answering the costumer's demand, which is becoming more diverse and complex.

fiorini®

General Terms of Sale

go.fiorinigroup.it/eng/condizionivendita

Our certificates

An added value for our clients and partners

To the Fiorini group, certificates are a proof of responsibility towards the clients, the partners, the community and the territory. It springs from the awareness that our activity cannot come before the guidelines and the expectations of the stakeholders.

Whoever chooses for Fiorini products, chooses a company which:

ensures clarity and transparency towards the client by explicitly communicating every production and sales detail. This facilitates the operational management of the products (ex. estimates and order confirmations are send with a detailed description of the product, the delivery date, the transport measure, technical drawings with indications of the different uses, dimension schemes and other possible details);

TESTED

testes every single product. Every product is provided with a Certificate of Conformity and Testing and our qualitative management system guarantees the correct execution of every process in accordance with the defined standards;

constantly invests in research on innovative solutions and on the improvement of the products' performance, focussing on both quality and cost reduction;

realises qualitative products which also positively influence our clients' projects;

operates with a respect for people, the environment and the territory;

invests in training on subjects such as health, occupational safety and environmental sustainability. Our staff is kept up to date on the binding rules and on how to share best practices;

assures competence, reliability and personalized solutions.

We have implemented international management systems and standards that have been recognised with numerous certificates.

Certificate for Quality management – ISO 9001

The system for quality management, which is certified in accordance with the ISO 9001 norm, has been in force in our company for years. It implicates a structured and complete analysis of every activity and the best planning and rationalizing of all operational processes. This implies:

✔ keeping the highest levels of efficiency and effectiveness;
✔ the timely control of the internal operational costs;
✔ constant attention to the requirements and the expectations of the client.

We want to satisfy all requirements and expectations of the clients, ensuring profitable working conditions and high standards. Moreover, we want to contribute to the reputation of the entire supply chain of the bids we are a part of, also on an international level.

We have implemented a management system focused on quality, which we apply to all of our daily business activities. Our purpose is to come up with solutions for specific problems, such as problems with deadlines, and to satisfy the expressed and unexpressed needs of both our internal and external clients.

Certificate for Environmental Management System – ISO 14001

In 2011, we have been awarded the Certificate for an Environmental Management System – ISO 14001. This means that our company works within the parameters imposed through some rules. We operate with respect for the environment and limit air pollution. Moreover, with our general approach to efficient and sustainable products and production systems, **we are continuously trying to improve the environmental management in order to globally improve our performance.**

Certification for Health and Safety on the workfloor OHSAS 18001

In 2015, we have been awarded the OHSAS 18001 certificate. This is the result of Fiorini's effort to proactively protect the health and safety of its own workers and to guarantee conformity to all laws.

Certificate for designing and producing pressurized devices

H1

In 2014 we have been awarded another certificate: **the certificate for designing and producing pressurized devices** conform to the 2014/68/UE directive (PED pressure equipment directive) which guarantees the ability of designing and producing:

✔ tanks
✔ heat exchangers
✔ collectors

which are produced to contain liquids and gas, also those which are classified as dangerous, up to those of the highest risk category described by the directive (risk category IV)

In particular, we have obtained the module H1 for surveillance, which **recognizes the quality** of the specific techniques and verifies the design process, the production processes and the testing procedures for all types of tanks, also those which are in the risk category. This gives the client the **guarantee they are acquiring a product which was designed and produced in accordance with criteria** for performance, but also for safety and durableness.

Insulations

During the last two years, following the new ERP directive, we have updated our products, equipping them with advanced insulation and dedicated to the specific capacity. Thanks to this, we are now able to offer tanks and systems with higher energy classes using different combinations of insulating materials. Below you will find the most used materials in the insulation of our products:

1. EPS+PS: GRAPHIC POLYSTYRENE + POLYESTER FIBER

Innovative insulation with graphite particles inserted into the polystyrene, to improve energy efficiency, perfect for the accumulations of DHW and Buffer tanks, as the polyester fiber stems the thermal bridges, due to the numerous connections.

✔ REMOVABLE

2. PE+PU-F: POLYETHYLENE EXPANDED WITH CLOSED CELLS + POLYURETHANE EXPANDED FLEXIBLE

Insulation consisting of the combination of two materials to achieve maximum energy efficiency.

✔ REMOVABLE for HOT solutions,

✔ NOT REMOVABLE (inner layer) for HOT/COLD solutions

3. PE+PS: POLYETHYLENE EXPANDED WITH CLOSED CELLS + POLYESTER FIBER

Insulation consisting of the combination of two materials to achieve maximum energy efficiency.

✔ REMOVABLE for HOT solutions,

✔ NOT REMOVABLE (inner layer) for HOT/COLD solutions

4. PU-F: FLEXIBLE EXPANDED POLYURETHANE

Excellent solution for efficiency in small sizes and for ease of assembly in large sizes.

✔ REMOVABLE

5. PU-R: HIGH DENSITY EXPANDED POLYURETHANE

The high density foaming of Fiorini is excellent for both hot and chilled water.

✔ NOT REMOVABLE

6. PE: CLOSED CELL POLYETHYLENE

Insulation for chilled water, avoids condensation.

✔ NOT REMOVABLE

7. PS:POLYESTER FIBER

The polyester fiber in addition to being a sound-absorbing material is also a thermal insulator with high performance characteristics.

✔ REMOVABLE

Energy label
Energy related Products (ErP)

All of our products for heating and producing DHW meet the measures required for reducing energy consumption, as is established by Ecodesign Directive 2009/125/EC.

This will help the European Union achieve the targets established in the 20-20-20 Plan: these aim to cut CO2 emissions by 20%, increase the use of renewable energy by 20%, and increase energy efficiency by 20%, all by 2020.

Our products are provided with energy class labels and technical data sheets (where expected) that specify the energy performance and the class of efficiency in a simple and straightforward manner.

Thanks to this identification, both consumers and expert users can select solutions that are the most efficient and are most suitable for their needs.

Starting in September 2017, the new Energy Efficiency Standard requires that, for tanks up to 2,000 litres designed to contain hot water, the minimum required energy class is Class C. Thanks to important innovations in its insulation methods, Fiorini respects what is indicated in the specific Directive.

The products for which an energy label is, at the moment, not mandatory are also designed and produced with the same criteria, in order to meet maximum efficiency and energy saving requirements.

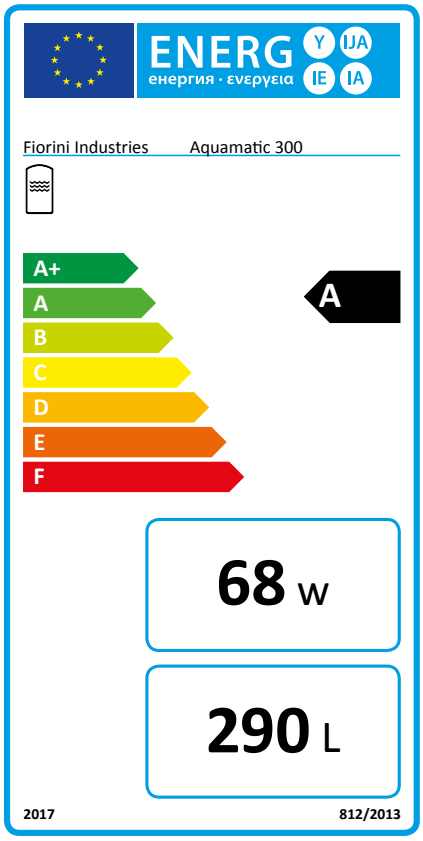
Energy label
Energy related Products

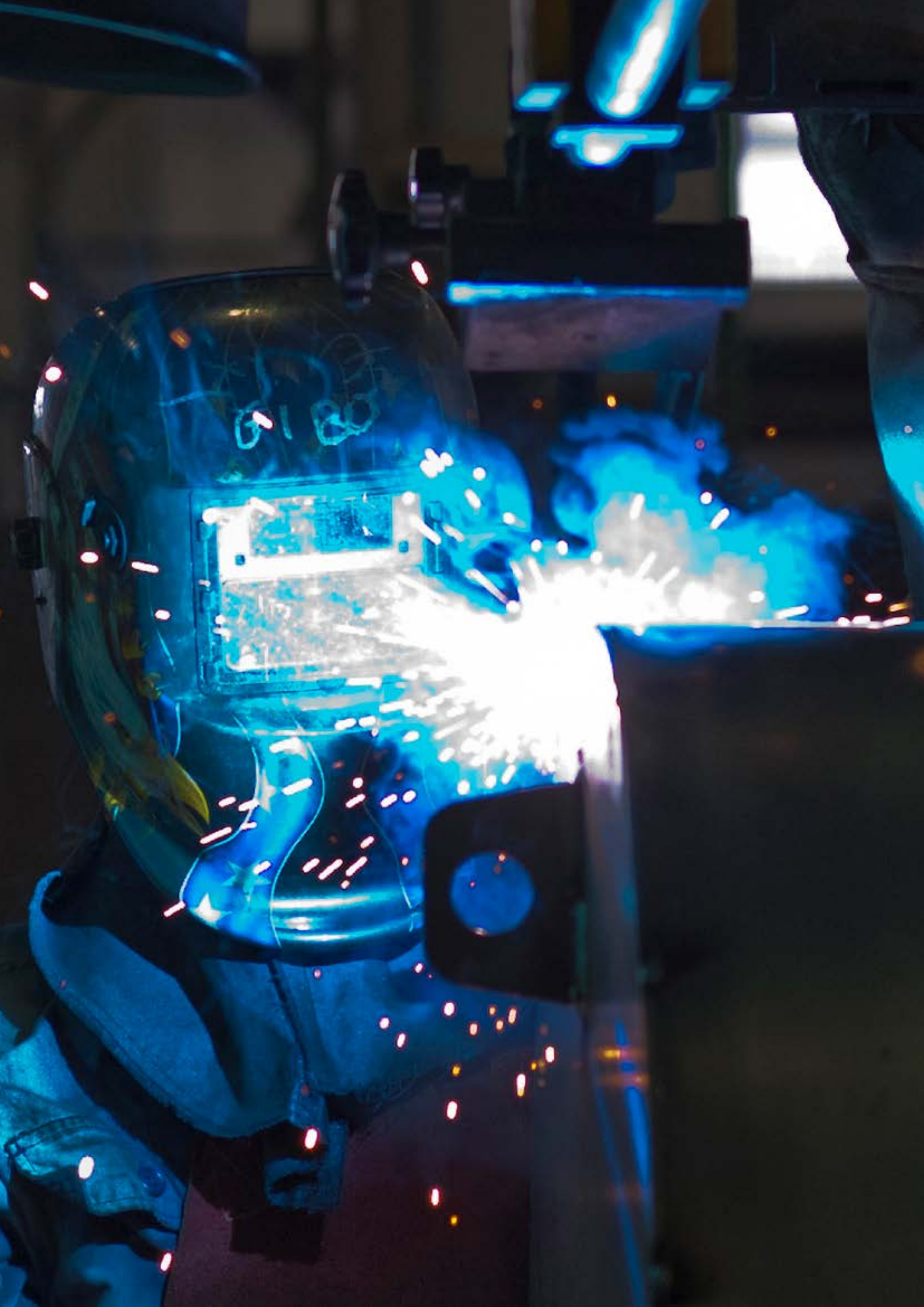
Product and system label

The energy label for the product indicates product performance in terms of consumption, and the system label identifies the efficiency specifications of the heating and/or cooling system based on a scale expressed in Energy Classes from A+ to F. This label must be affixed to each single product and it is the responsibility of the retailer to make it clearly visible.

The energy labels on our products/systems contain the following information:

I. company name and brand
II. model identification number
III. reference to heating functions for the premises and DHW
IV. efficiency class
V. nominal thermal power of the machine and/or dispersion (in relation to product type)
VI. sound level in dB (only on system label)
VII. possibility of system running on off-hours (only on system label)





Tailored solutions

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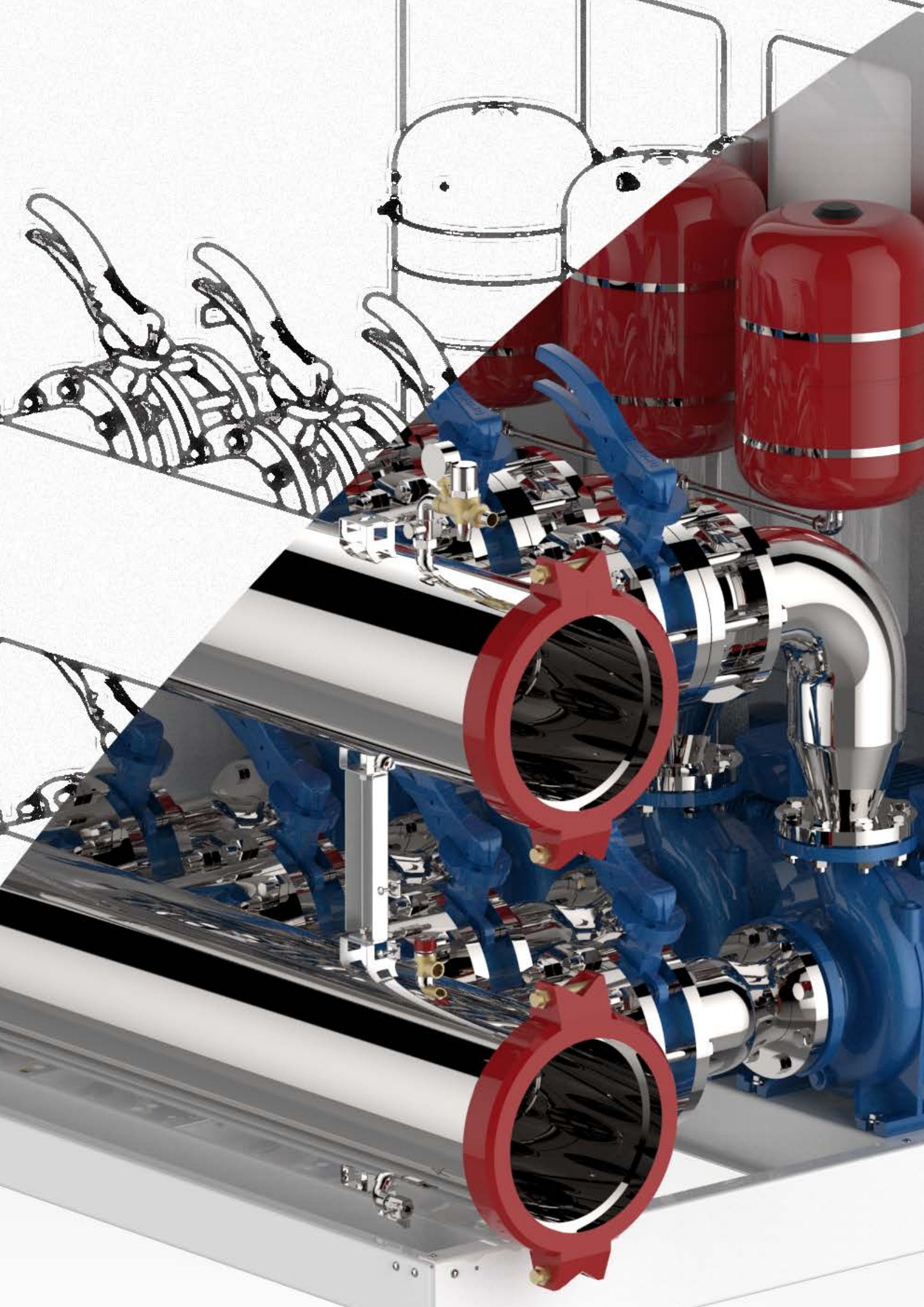
Tailored solutions



A wealth of innovative capabilities and customized solutions

Since 1979, Fiorini Industries has aimed its development strategy towards an integrated policy of innovation and cutting-edge solutions and technologies, also investing in personalized solutions and customized components and systems.

Today, the company is a reference point for the design and production of thermo-technical products, such as heat exchangers, tanks, heaters, water supply modules and heat transfer units, cooling units, heat pumps, and it is also Europe's top manufacturer of hydronic systems for heating and cooling.

Fiorini Industries is partnered with major industrial groups in the cooling and heating sector, which operate worldwide and for which a research team carries out studies and proposes "customized" solutions, both for products and also processes, while handling all the phases of design, industrialization, and testing.

Fiorini Industries is the select manufacturer of integrated heating, cooling, and hot water production systems in the field of heat exchange high technology, based on the use of renewable sources, such as solar heating, hybrid solar photovoltaic, low-enthalpy geothermal, and conventional sources, as well.

Customized projects for the manufacturers

Constant research and innovative solutions for multinational corporations, which operate in major industrial sectors, have given the company a leadership role in technology and in the market, also extending its presence on an international level.

Our client support ranges from the stages of design and leads to the production of components for complex systems and production processes that include hot and/or cooled water management cycles.

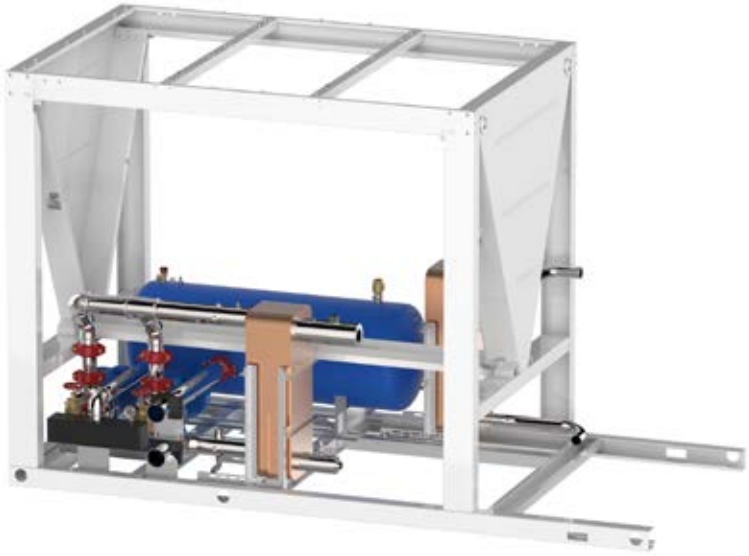
Fiorini Industries has created numerous special projects for public and private clients operating in various production sectors, including the series of pump skids installed in the world's largest aluminum production plant in Saudi Arabia and the hydronic kits created for one of the world's largest gas treatment plants in Abu Dhabi.

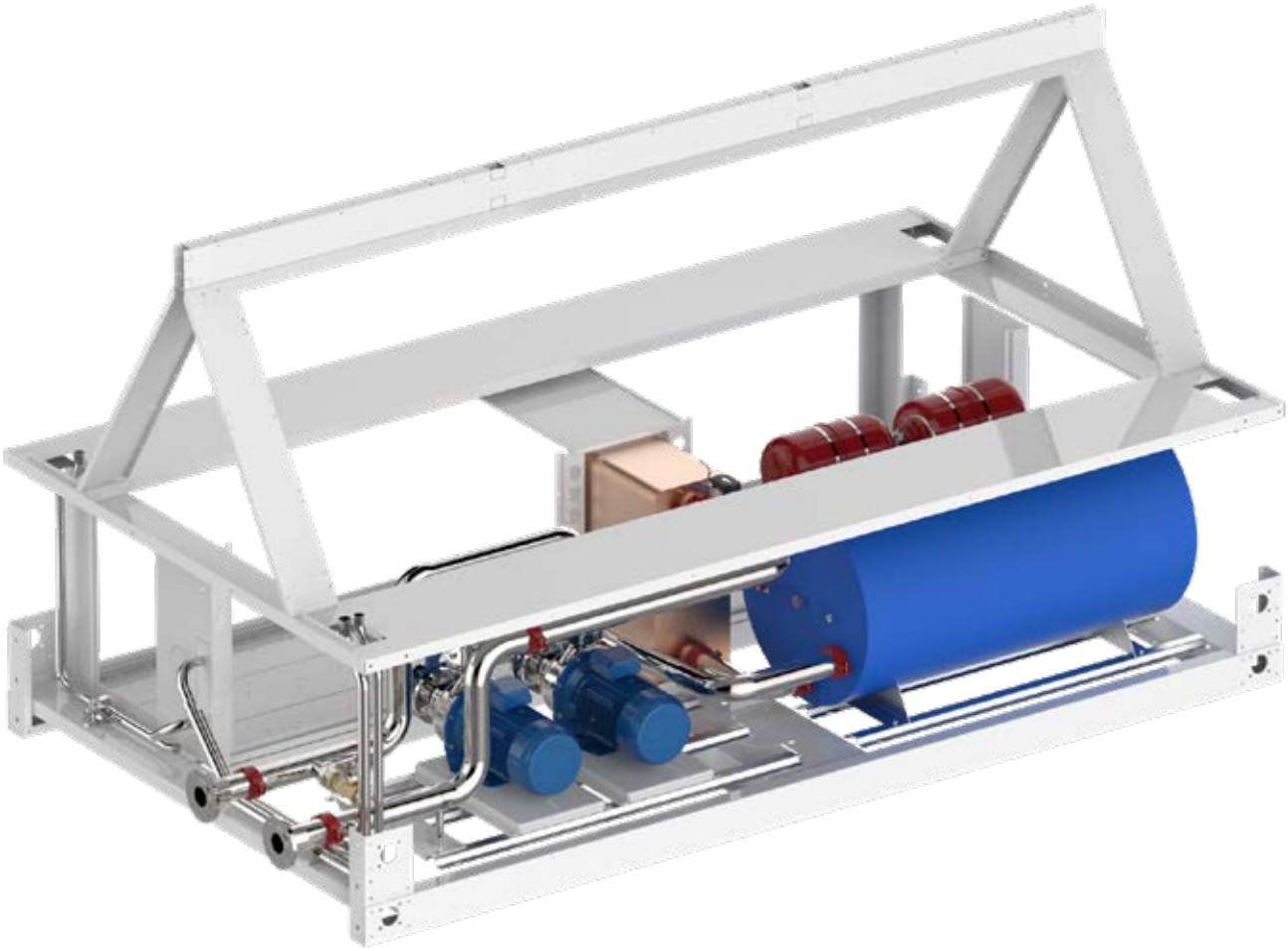
This is also supported by the production in series of many lines of products, such as:

- gasketed and braze-welded plate heat exchangers
- district heating substations
- fast preparation units and instantaneous DHW units
- polyvalent heaters and water storage tanks, heat storage units
- tanks and autoclaves tested under pressure
- heat recovery systems
- hydronic kits for storing and distributing cooled water designed for refrigeration machines, chillers, and heat pumps
- cooled water tanks
- inertial storage tanks

Chiller Integrated Hydronic Kits

Hydronic kits for storing and distributing cooled water, designed to be installed inside refrigeration machines. The company designs and manufactures customized systems upon client specifications and industrialized solutions that are applied within numerous production processes. In addition to the complete solutions shown here, the company also manufactures: collectors, piping, tanks and accessory parts, etc.





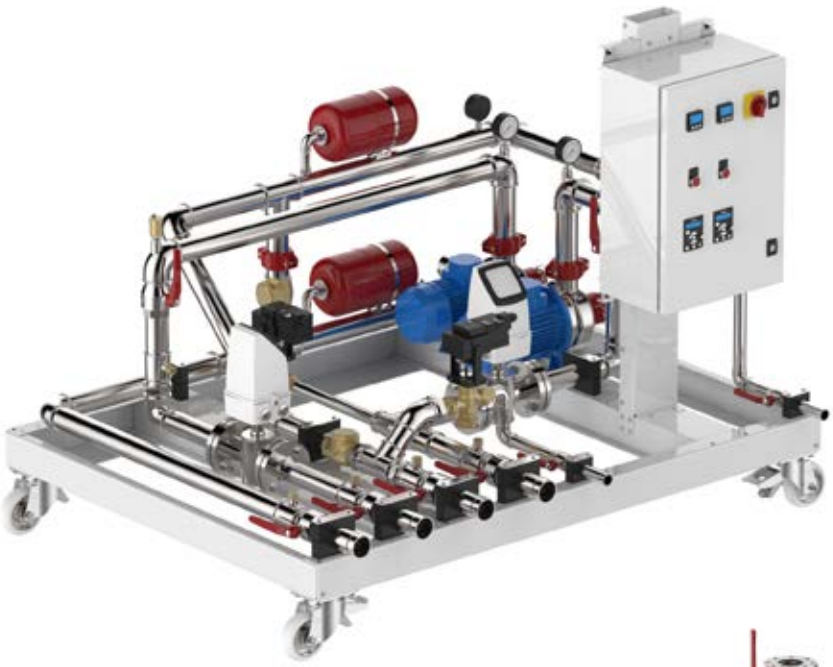
Free Cooling Station

The types of applications for this system are numerous. One of the most important is aimed at cooling Data Centers and operation rooms that house servers, as well as powerful computing centers that need to be cooled on a continuous basis with specified parameters. The company develops specifically designed modules for these types of applications that must ensure proper functionality. These include flow modulation and electronic temperature adjustment systems, created to meet the specific requests of the client. All projects provide for customized layouts that make for an efficient installation in a variety of environmental and climatic conditions.

Heat Pumps Test Bench

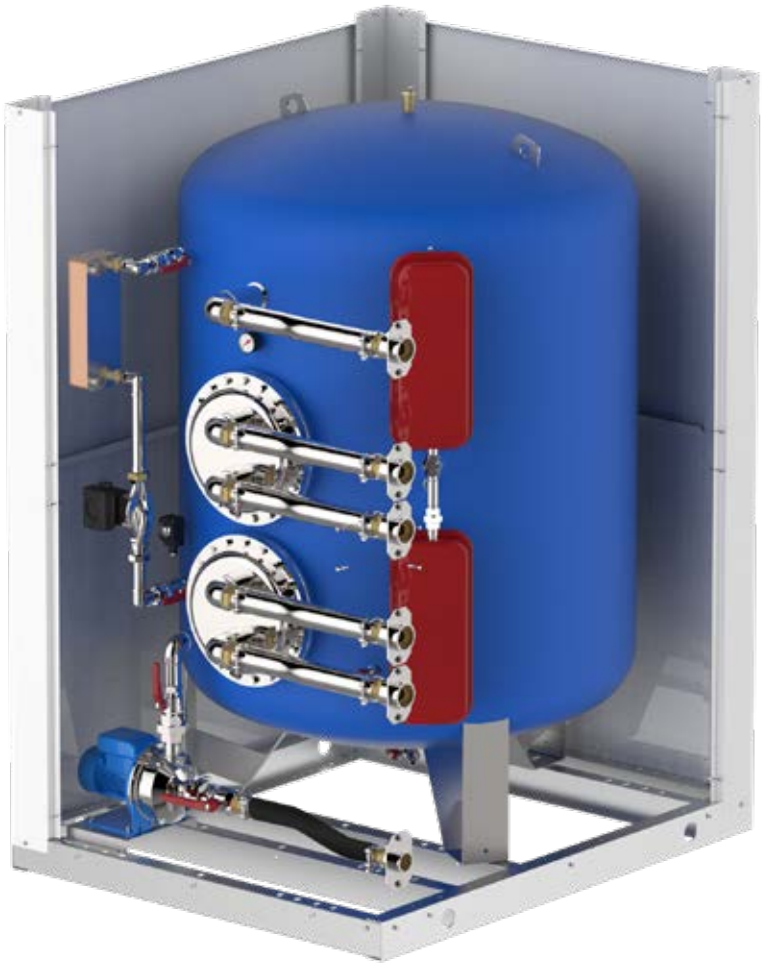
One of the most qualifying aspects of the company's "custom" design is the large number of stations for hydraulic "chiller" testing for large conditioning systems; produced on manufacturing specifications for major commissioners worldwide. These solutions, designed for testing the end of the factory line, allow the quality assessment of hydraulic and functional water chiller of air and water cooled systems. Each station is produced according to specific functional and insertion requirements within production lines. The testing station in the pictures is designed for a new plant in Malaysia for the production of large air-conditioning systems in key hotels, industrial and commercial centres in the "Far East". Based on specific customer and plant technical requirements, it reproduces operating conditions in terms of water flow rate and operating temperature and is a plant with great testing potential.

Realized in compact monoblock, it contributes to the optimization of space and is functional to integration in this specific production line.

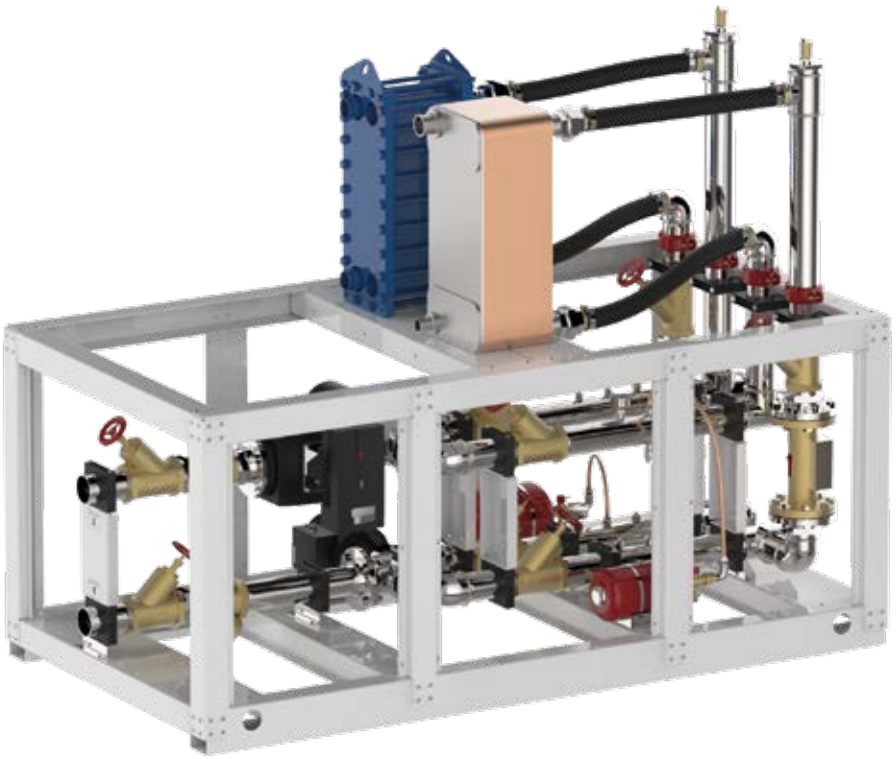


Heat Pumps Test Bench

Heat Recovery System

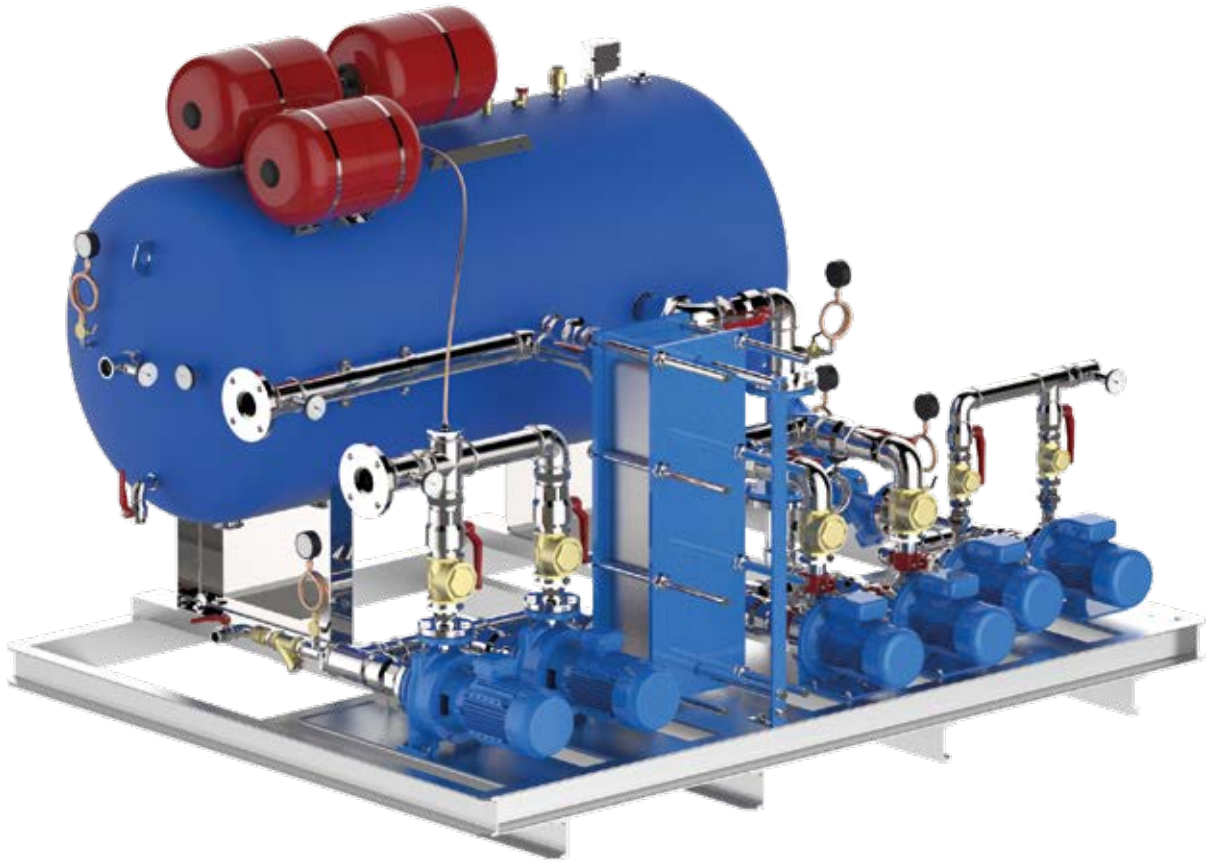


Integrated systems for recovering the heat,developed and not used, by heating plants and production processes. “Extra” heat energy is recovered to heat domestic or non-domestic water and “reused” when re quired. Designs are customized to meet all customer requests/needs.



Skid

A wide range of solutions for industrial plants and processes.
Small and medium-sized skid systems, equipped with electric panels and, where required, control units, all ready to be installed inside a single system through simple hydraulic and electrical connections.

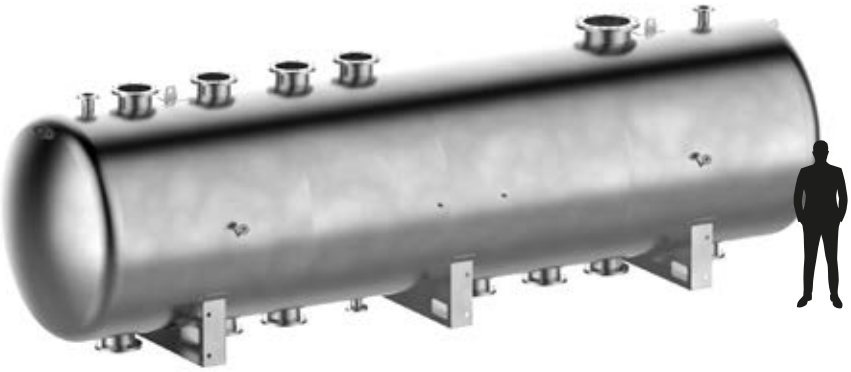


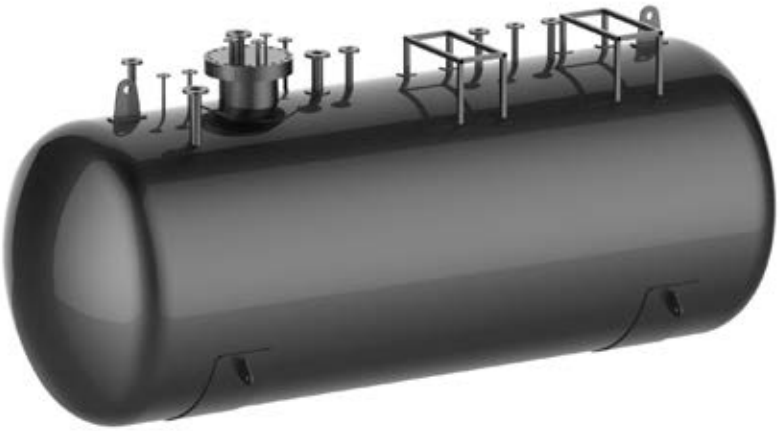
Powerful Hydronic Kits

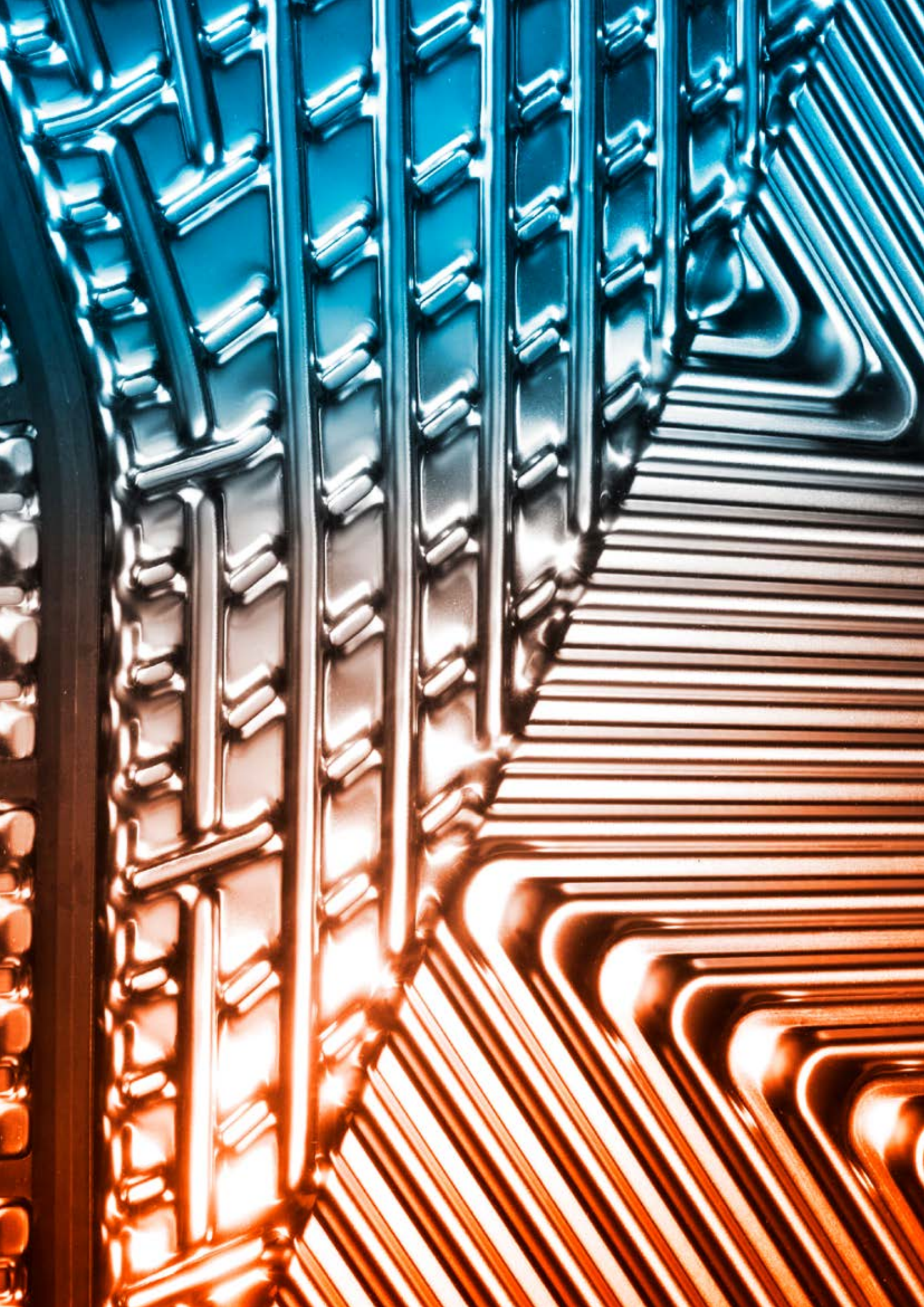
Multiple pumps Hydronic kits for high power applications in heating and cooling plant, to optimize costs for first installation and subsequent maintenance. Pumps can work with on-off logic or driven by inverter.

Large-Sized Tanks

Production of large-sized tanks for external or "underground" installation. Available on vertical, horizontal execution and with fullest freedom regarding materials and connections. Can be EC marked, in compliance with Directive PED 2014/68/EU.







Gasketed and brazed plate heat exchangers

Contents

Fiorini has supplied the plate heat exchangers **that equip the GST3 system** aimed at the cooling of the transfer and launch stations of the Ariane Sud.

Gasketed and brazed plate heat exchangers

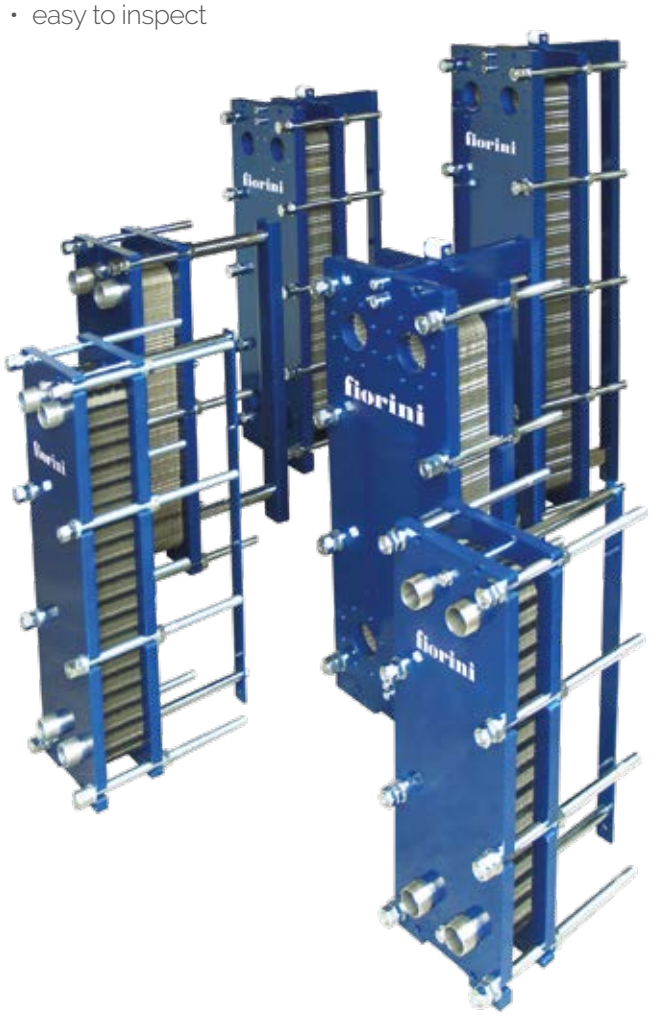
Customized and efficient options for all your requirements for heat exchanging

The gasketed plate heat exchangers (K and F series) and brazed plate heat exchangers (P and WP series) are the option for someone who demands efficiency and trustworthiness. Our thirty years' experience in this sector makes it possible to meet every requirement, in a residential as well as an industrial setting. We guarantee support during the design phase, the installation phase and after sale.

Gasketed exchangers

Our gasketed plate heat exchangers have the following features:

- designed to improve the exchange performance and to reduce and simplify the maintenance operations;
- use of high quality materials which can be paired with a wider range of fluids and applications;
- custom made production
- design of modular and customized solutions;
- easy to inspect



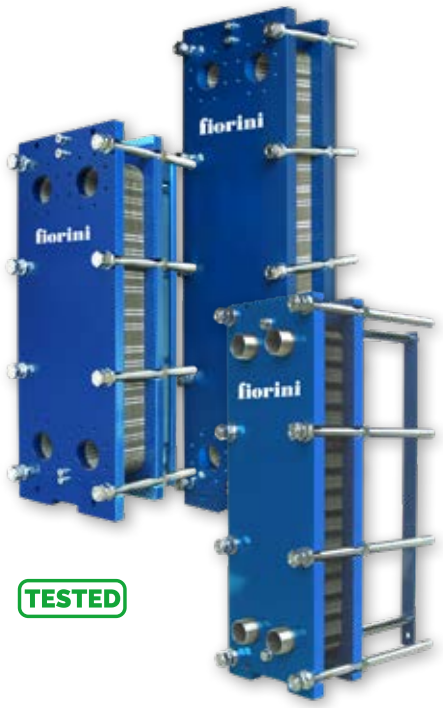
Brazed exchangers

The quality of the parts, as well as the brazing process makes it possible to attach the plates without using gaskets. This is a huge advantage because it makes the exchanger compact and resistant to high temperatures and pressure.

Gasketed plate heat exchangers K and F series

The heat exchangers (K and F series) are designed and manufactured with materials and applications which guarantee high, durable efficiency standards in residential applications as well as industrial processes.

- The plates are made in high quality materials which makes it possible to reach an excellent overall heat exchange coefficient and guarantees resistance against corrosion;
- The plates can be manufactured with several corrugations which improve the exchange performance in function of the operative conditions (fluid type, viscosity). Their particular conformation makes the fluid in the device move turbulently and guarantees an elevated heat exchange coefficient.
- The lining is available in several materials, adapted to the different applications (gasoline, oil, alimentary fluids, aggressive fluids, high temperature fluids, etc.) and desired performance;
- The frame is made of varnished carbon steel, designed in such a way that it can be easily accessed, inspected and maintained;
- All exchangers are tested (leakage test) before dispatch in order to verify possible losses.



Gasketed plate heat exchangers K and F series

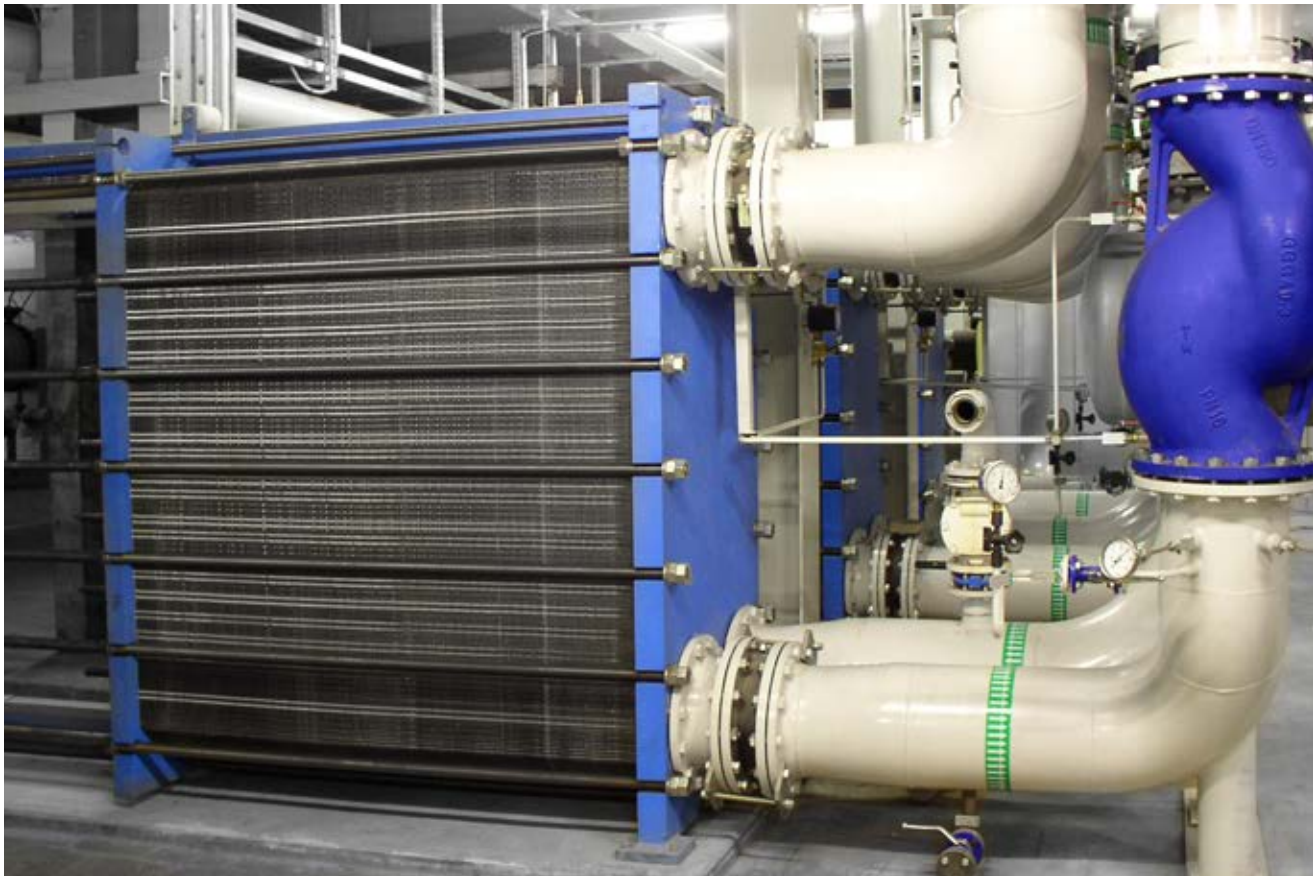
Environment and sectors of application

Wherever a heat exchange between two fluids takes place, the Fiorini plate heat exchangers guarantee a series of significant advantages:

- high efficiency
- long life span
- low cost
- compact dimensions
- possibility to expand
- easy maintenance
- trustworthiness

The Fiorini heat exchangers are products of reference in the residential and industrial sectors (HVAC, food, chemical, renewable energy, cooling, oil and gas).
They offer the best options for numerous applications, such as:

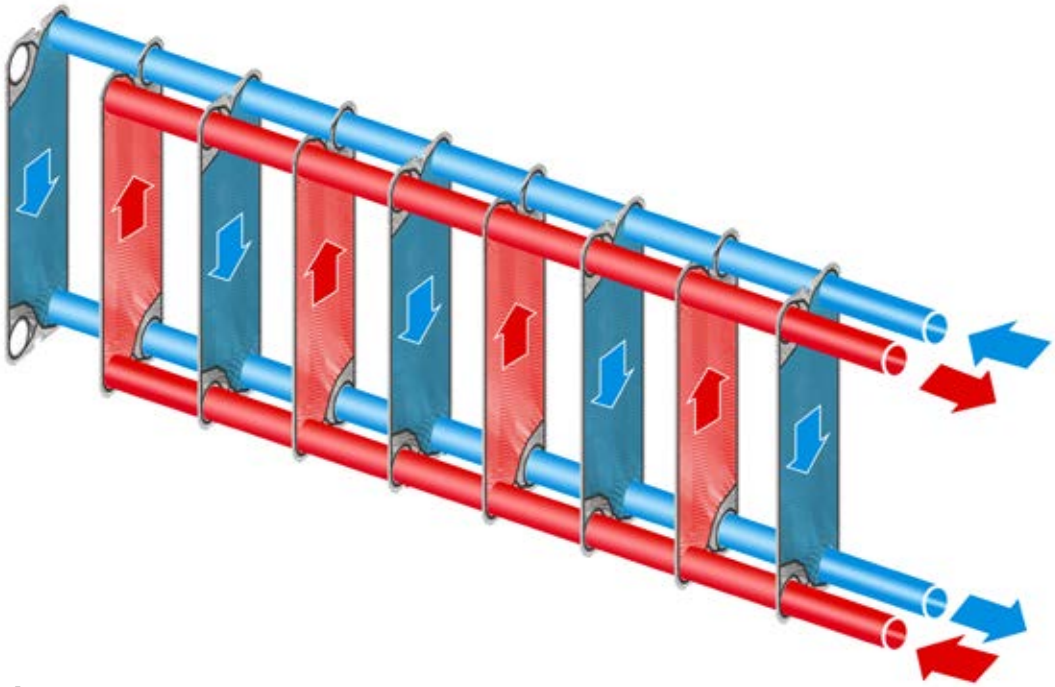
- DHW production
- heat exchanging in heating systems
- teleheating
- pool water heating
- solar power systems
- heating/cooling of alimentary fluids (milk, beer, wine…)
- cooling of machines
- recuperation of heat from industrial processes
- hydraulics



Principles

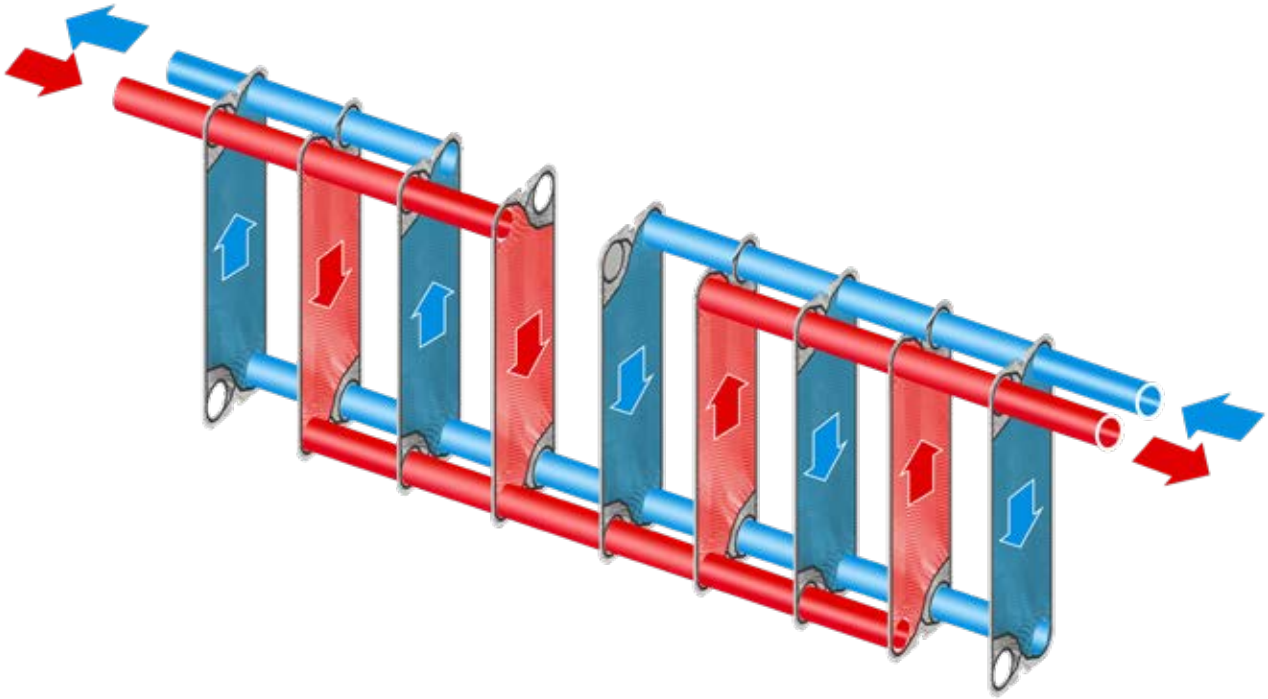
Single passage

In the version with a single passage the fluid which runs through the exchangers, goes through one canal (the space between two adjacent plates). This is the most commonly used layout.

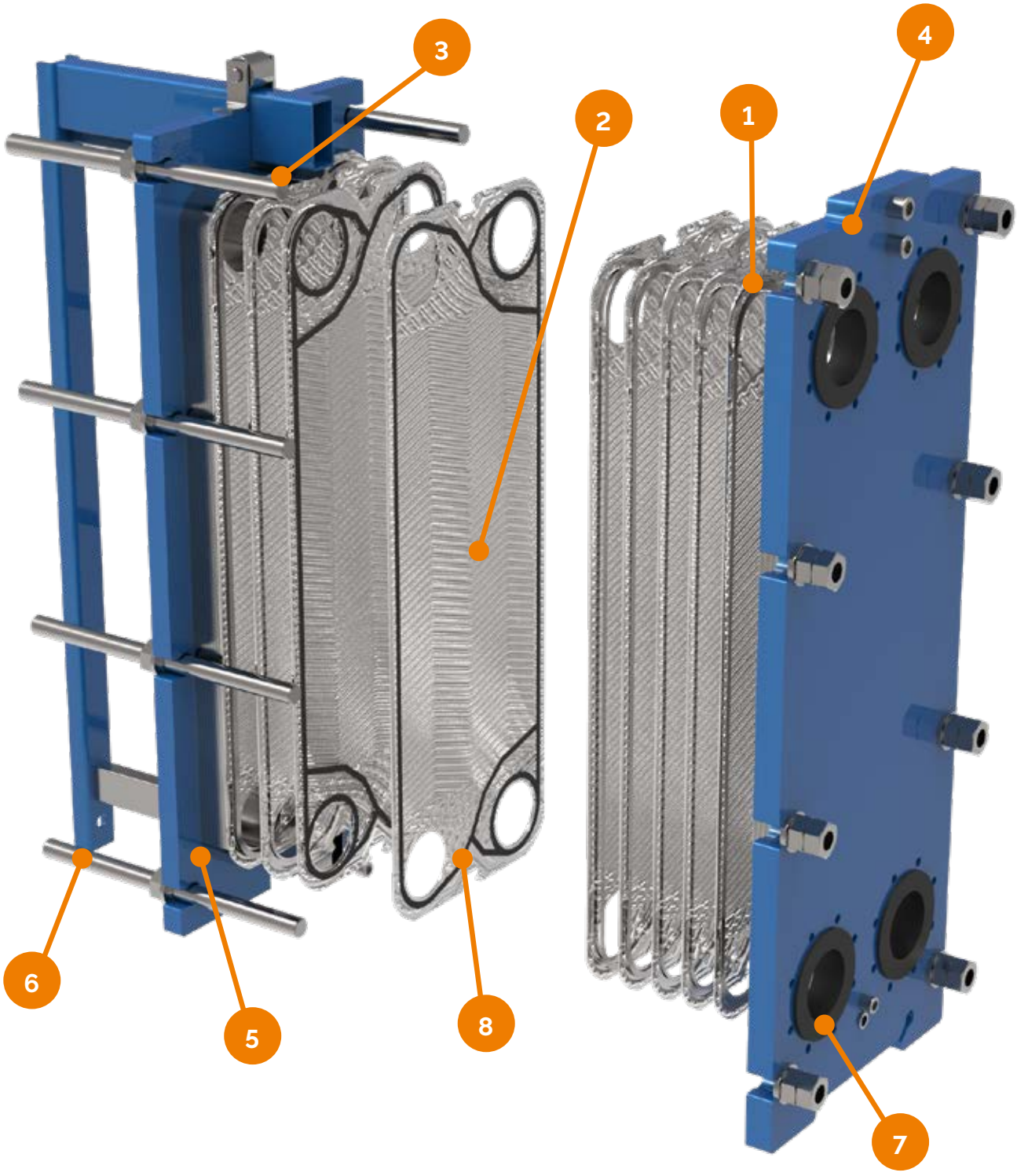


Multiple passage

In this version the thermal length of the exchanger increases with the number of passages (double length with 2 passages, triple length with 3 passages, etc.) This solution is necessary when there is a very low temperature difference between the primary and the secondary circuit.



Main components



Legend

1. anterior plate
2. mid plate
3. posterior plate
4. fixed cover
5. movable cover
6. tie rod
7. coupling
8. gaskets

Fiorini Plate heat exchangers are designed to ease access and maintenance. Furthermore, its modularity allows to increase number of the plates according to the heat exchange requirements.

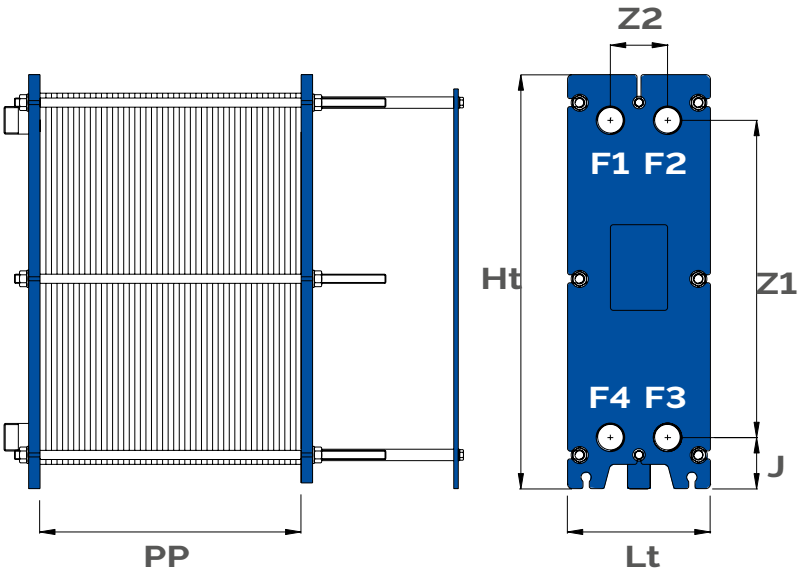
Gasketed plate heat exchangers
Our range

Model	DN 32	DN 40	DN 50			DN 100				DN 150	
	K042/H1	K080/H2	F10	F16	F22	F206	F31	F50	F71	F 41-42	F60-F62
Plate surface (m²)	0,042	0,085	0,10	0.15	0.22	0.21	0.30	0.50		0.40	0.60
Nominal pressure	PN10/PN16	PN10/PN16	PN10/PN16/PN25			PN10/PN16/PN25				PN10/PN16/PN25	
Available corrugations	H	H - V	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L
Standard coupling	1"1/4 GAS M	1"1/2 GAS M	2" GAS M			DN 100 UNI PN16				DN 150 UNI	PN16
PP (mm)	NPx3,1+2	NPx3,05+2	NPx 2.9+3	NPx 2.9+3	NPx 2.9+3	NPx 3.1 *	NPx 3.1 *	NPx 3.1 *	NPx 3.1 *	NPx 3.5 *	NPx 3.5 *
Ht (mm)	470	725	733	932	1132	1160	1332	1826	2320	1470	1835
Lt (mm)	200	250	310	310	310	480	480	480	480	620	620
Z1 (mm)	380	555	494	694	894	719	894	1388	1882	941	1306
Z2 (mm)	68	100	126	126	126	225	225	225	225	290	290
J (mm)	45	90	128	128	128	204	204	204	225	290	290

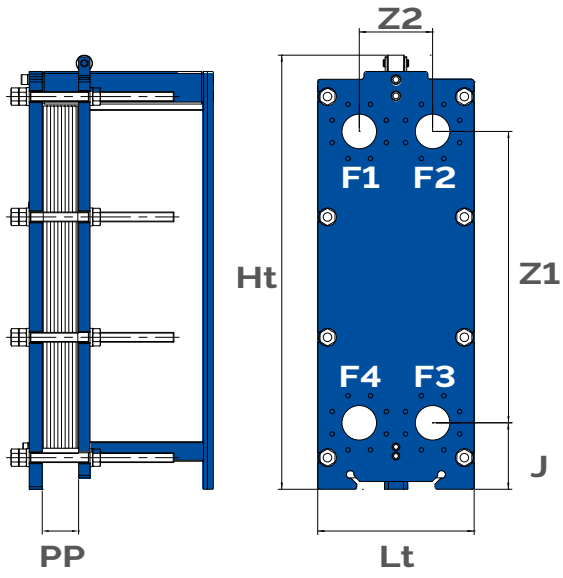
* With rubber liner add 1.5 mm

› Special executions are available on request

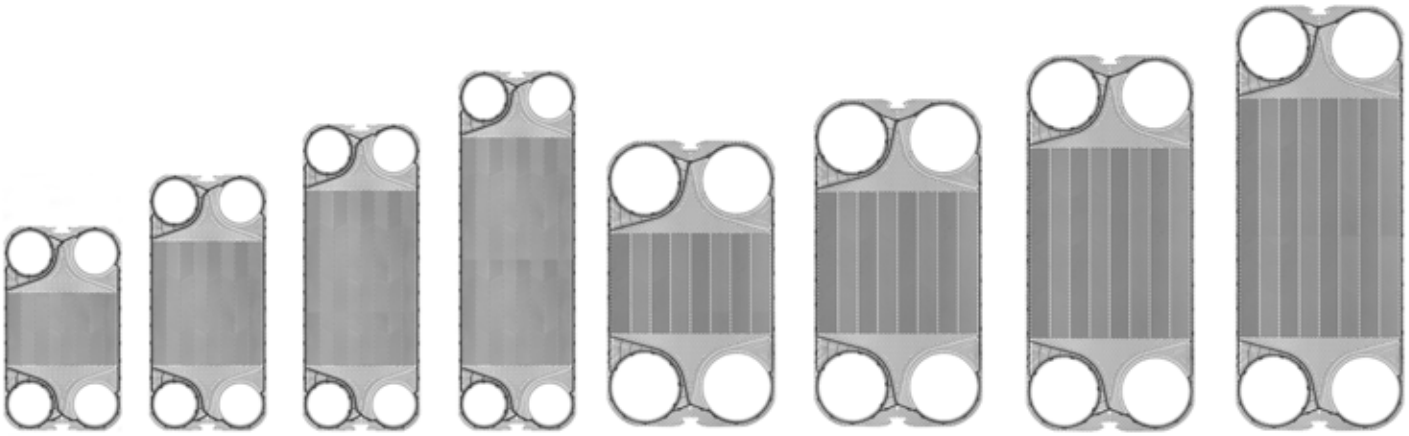
Couplings
Primary: Inlet F1 - Outlet F4
Secondary: Inlet F3 - Outlet F2



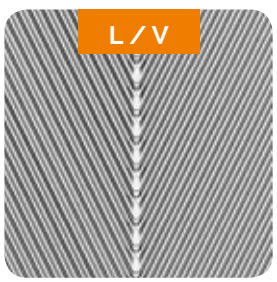
DN32 DN 40 DN 50



DN ≥ 100



DN 150		DN 200				DN 300				DN 500			
F80-F82	F112	F405	F70	F100	F130	F81	F120	F160	F190	F150	F200	F250	F300
0.80		0.41	0.68	1.00	1.30	0.80	1.20	1.60	1.90		2.00	2.50	3.00
PN10/PN16/PN25		PN10/PN16/PN25				PN10/PN16/PN25				PN10/PN16/PN25			
H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L	H - L
DN 150 UNI	PN16	DN 200 UNI PN16				DN 300 UNI PN16				DN 500 UNI PN16			
NP.x 3.5 *	NP.x 3.5 *	NP.x 3.1 *	NP.x 3.1 *	NP.x 3.1 *	NP.x 3.1 *	NP.x 3.8 *	NP.x 3.8 *	NP.x 3.8 *	NP.x 3.8 *	NP.x 4.1 *	NP.x 4.1 *	NP.x 4.1 *	NP.x 4.1 *
2200	2687	1380	1740	2100	2460	930	2320	2710	3100	2500	2855	3211	3567
620	620	760	760	760	760	980	980	980	980	1370	1370	1370	1370
1671	2157	770	1130	1490	1850	1100	1490	1879	2267	1466	1822	2178	2534
290	290	395	395	395	395	480	480	480	480	672	672	672	672
290	290	395	395	395	395	480	480	480	480	672	672	672	672



Corrugations

The plates are available with various corrugations and can be combined in order to reach better performances.

H: this type of corrugation maximizes the thermal power which is exchanged

L and V: these versions minimize the pressure loss

Available materials

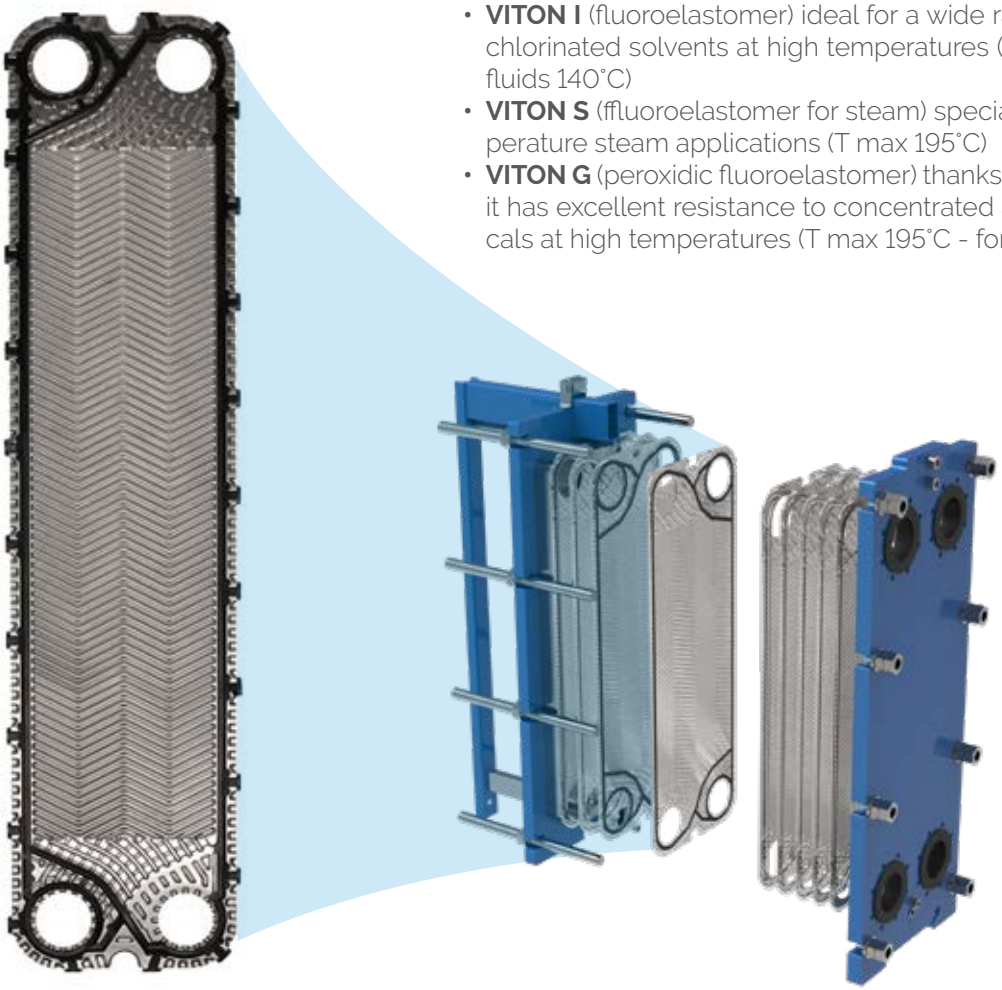
Model	Plates			Gaskets			Covers		Tie rod	
	AISI 304	AISI 316L	TITANIO	NBR	EPDM	VITON	PAINTED STEEL	AISI 304/316	GALVANIZED STEEL	AISI 304/316
K serie	-	✔	✔	✔	✔	-	✔	O	✔	O
F serie (up to DN50)	-	✔	✔	✔	✔	O	✔	O	✔	O
F serie (from DN100)	O	✔	✔	✔	✔	O	✔	O	✔	O

Legend: ✔ standard O upon request - not available
F serie available upon request with plates in the following materials; 245 SMO, AISI 904L, ALLOY C276.

Gaskets

The gaskets are attached to the plates through a clip-on system, which ensures hygiene and easy maintenance and does not use glue and solvents. The particular conformation of the gaskets creates a double barrier and prevents accidental contamination of the two fluids, also in case of loss. The gaskets are available in various materials, to be used in function of the different user parameters:

- **NBR/NBRHT** (nitrile rubber): generally used with water, other liquids, oily mineral liquids (T max 130°C / 140°C)
- **EPDM/EPDM HT** (ethylene-propylene rubber) broad range of use, such as with non-mineral oils, water, steam, caustic soda, alcohol, low % acids, etc. (T max 150°C/160°C)
- **VITON I** (fluoroelastomer) ideal for a wide range of oils, gasolines and chlorinated solvents at high temperatures (T max 195°C - for aqueous fluids 140°C)
- **VITON S** (ffluoroelastomer for steam) specially designed for high temperature steam applications (T max 195°C)
- **VITON G** (peroxidic fluoroelastomer) thanks to the high level of fluorine it has excellent resistance to concentrated acids and aqueous chemicals at high temperatures (T max 195°C - for aqueous fluids 165°C)



Fluid/material compatibility

In the table, some guidelines for the correct combination of materials are outlined.

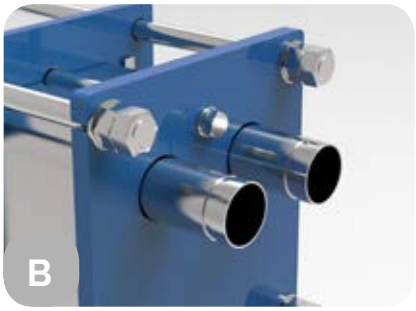
		Plates			Gaskets		Couplings	
Fluid type	Fluid	AISI 304*	AISI 316L	TITANIUM	NBR	EPDM	STAINLESS STEEL	NYLON (TMAX 50°C)
WATER	water (tmax < 110°c)	✔	✔	✔	✔	✔	✔	✔
	water (tmax > 110°c)	-	✔	✔	-	✔	✔	-
	water demineralized	-	✔	✔	✔	-	✔	✔
	sea water (NaCl)	-		✔	✔	-	-	✔
	chlorinated water for swimming pool	-	✔	✔	✔	-	✔	✔
	thermal water	-		✔	-	✔		✔
	mineral water	-	✔	-	-	✔	✔	-
	steam < 4 bar	-	✔	-	-	✔	✔	-
WATER & GLYCOL	ethylene glycol (glycol < 30%)	✔	✔	✔	✔	✔	✔	✔
	ethylene glycol (glycol > 30%)	✔	✔	✔	-	✔	✔	✔
	propylene glycol (glycol < 30%)	✔	✔	✔	✔	✔	✔	✔
	propylene glycol (glycol > 30%)	✔	✔	✔	-	✔	✔	✔
HYDROCARBONS	diesel fuel	-	✔	✔	✔	-	✔	-
	kerosene	-	✔	✔	✔	-	✔	-
	Petroleum	-	✔	✔	✔	-	✔	-
	pure gasoline	-	✔	✔	✔	-	✔	-
	naphtha	-	✔	✔	✔	-	✔	-
OILS	sae oil	-	✔	✔	✔	-	✔	-
	oil iso vg	-	✔	✔	✔	-	✔	-
	diathermic oil	-	✔	✔	✔	-	✔	-
	hardening oil	-	✔	✔	✔	-	✔	-
	mineral oil	-	✔	✔	✔	-	✔	-
	synthetic oil	-	✔	✔	-	✔	✔	-
	olive oil	-	✔	✔	✔	-	✔	-
	seeds oil	-	✔	✔	✔	-	✔	-
ACIDS	sulfuric acid 20% (aqueous), 50°c	-	**	-	-	✔	-	✔
	hydrochloric acid 1% (aqueous), 20°c	-	**	-	-	✔	-	✔
	acetic acid 70°c	-	✔	-	-	✔	-	✔
	chromic acid 20%, 20°c	-	✔	-	-	✔	-	✔
FOOD	milk	✔	✔	-	✔	✔	✔	-
	wine, juice	✔	✔	-	✔	✔	✔	-
	beer	✔	✔	-	✔	✔	✔	-
	whiskey	✔	✔	-	✔	✔	✔	-
	wine vinegar	-	✔	-	-	✔	✔	-
	liquor	✔	✔	-	-	✔	✔	-
OTHER FLUID	acetone	-	✔	✔	-	✔	✔	-
	ethyl alcohol	-	✔	✔	-	✔	✔	-
	ethanol	-	✔	✔	-	✔	✔	-
	ethylene	-	✔	✔	✔	-	✔	-
	methanol	-	✔	✔	-	✔	✔	-

Legend: ✔ compatible - in compatible
* Only for closed circuits and with a chloride concentration less than 25 ppm and Tmax 80C
** Use 254 SMO - AISI 904 L - Alloy C276 plates

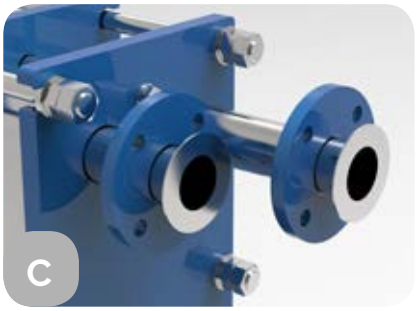
Couplings

Our gasketed plate heat exchangers can be manufactured with numerous kinds of couplings, threaded, with a free flange, with a welded flange and with liner. Liner is the coating in the shaft conection edges, that can be made of steel or rubber.

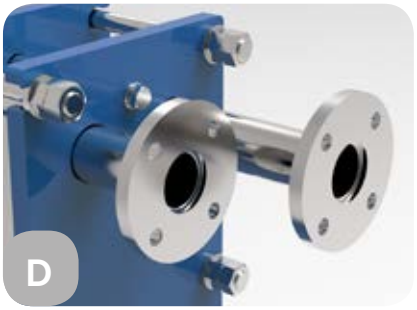
Threaded coupling (steel or nylon)



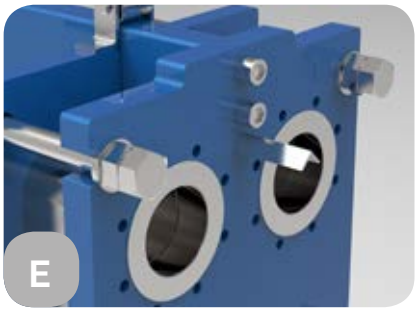
Victaulic coupling



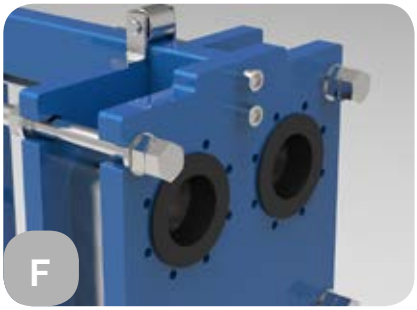
Free Flange coupling



Welded Flange coupling



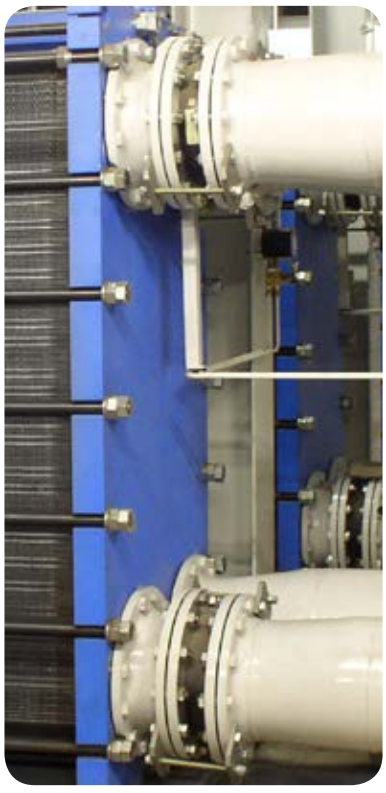
Metal Liner coupling



Rubber Liner coupling

Coupling compatibility

Model	A	B	C	D	E	F
K042	✔	✔	✔	✔	✔	✔
K080	✔	✔	✔	✔	✔	✔
F10	✔	✔	✔	✔	✔	✔
F16	✔	✔	✔	✔	✔	✔
F22	✔	✔	✔	✔	✔	✔
F206				✔	✔	✔
F31				✔	✔	✔
F50				✔	✔	✔
F71				✔	✔	✔
F41-42				✔	✔	✔
F60-62				✔	✔	✔
F80-82				✔	✔	✔
F112				✔	✔	✔
F405				✔	✔	✔
F70				✔	✔	✔
F100				✔	✔	✔
F130				✔	✔	✔
F81				✔	✔	✔
F120				✔	✔	✔
F160				✔	✔	✔
F190				✔	✔	✔
F150				✔	✔	✔
F200				✔	✔	✔
F250				✔	✔	✔
F300				✔	✔	✔



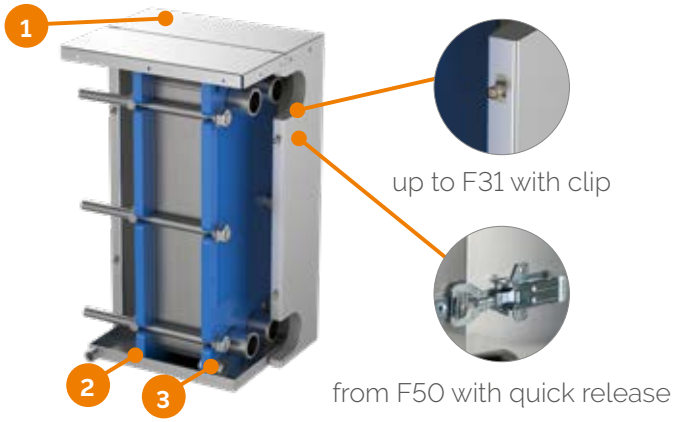
Accessories
Insulation box, Condensate collection tub, Feet set

For **models K042 e H1** it is available an **thermoformed** insulation box, removable by coupling with velcro strips (**feet set included**).

Model	Plates threshold	Thermoformed Insulation Box Code	Price
K042	up to 64 plates	843090028X	
H1	up to 64 plates	843090028X	

Legend

1. Aluminium Insulation Box: Available for the entire range, it is made of an aluminium structure covered with insulating material.
2. Condensate collection tank: **mandatory in applications in refrigeration and cooling plants**
3. Support feet set



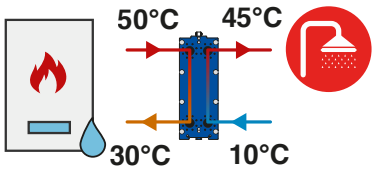
Model	Plates threshold	Aluminium insulation box Code	Price	Ht x Lt x Wt mm	Condensate collection tub (mandatory T<15°C) Code	Price	Feet set Code	Price
K042	up to 38 plates	821080037X		493x250x300	829090894X		821070049X	
	up to 64 plates	821080077X		493x250x450	829091409X			
K080	up to 38 plates	821080085X		752x300x455	829091546X		821070051X	
	up to 64 plates	821080091X		752x300x555	829093407X			
H1	up to 38 plates	821080037X		493x250x300	829090894X		821070049X	
	up to 64 plates	821080077X		493x250x450	829091409X			
H2	up to 38 plates	821080085X		752x300x455	829091546X		821070051X	
	up to 64 plates	821080091X		752x300x555	829093407X			
F10	up to 30 plates PN10	821080070X		778x440x400	829092542X		821070031X	
	up to 30 plates PN16	821080080X		778x440x650	829091094X			
	up to 60 plates	821080080X		778x440x650	829091094X			
	up to 150 plates	821080082X		778x440x1150	829090946X			
F16	up to 30 plates PN10	821080063X		978x440x400	829092542X		821070031X	
	up to 30 plates PN16	821080019X		976x388x658	829091094X			
	up to 60 plates	821080019X		976x388x658	829091094X			
	up to 150 plates	821080027X		971x383x1155	829090946X			
F22	up to 30 plates	821080071X		1178x440x400	829092542X		821070031X	
	up to 60 plates	821080054X		1124x384x656	829091094X			
	up to 150 plates	821080032X		1175x387x1157	829090946X			
F206	up to 60 plates	821080055X		1204x540x715	829091028X		821070032X	
	up to 150 plates	821080059X		1204x540x1215	829090857X			
F31	up to 60 plates	821080029X		1371x536x709	829091028X		821070032X	
	up to 150 plates	821080017X		1371x536x1209	829090857X			
F50	up to 60 plates	821080024X		1865x535x700	829091028X		821070032X	
	up to 150 plates	821080021X		1865x535x1209	829090857X			
F71	up to 60 plates	821080096X		2365x535x700	829091028X		821070032X	
	up to 150 plates	821080072X		2365x535x1206	829090857X			

Tables for fast selection - GASKETED

INSTANTANEOUS DHW with LOW temperature source

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	50°C	30°C	10 bar	H_2O
COLD side	Domestic Hot Water	10°C	45°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	871	4	494	1	K080	9	821K080AHNN009		77x27x42	78
25	1088	4	618	1	K080	11	821K080AHNN011		77x27x42	79
30	1306	4	741	1	K080	13	821K080AHNN013		77x27x42	80
35	1524	4	865	1	K080	15	821K080AHNN015		77x27x54	82
40	1714	5	988	2	K080	15	821K080AHNN015		77x27x54	82
50	2177	5	1235	2	K080	19	821K080AHNN019		77x27x54	84
60	2612	6	1482	2	K080	21	821K080AHNN021		77x27x54	85
75	3265	7	1853	2	K080	25	821K080AHNN025		77x27x54	88
85	3700	6	2100	2	K080	29	821K080AHNN029		77x27x54	90
100	4353	7	2471	2	K080	33	821K080AHNN033		77x27x54	93
120	5224	32	2965	10	F16	15	821F016AN015-1HH07XX00N		97x33x75	134
150	6530	30	3706	9	F16	19	821F016AN019-1HH09XX00N		97x33x75	137
180	7836	36	4447	11	F16	21	821F016AN021-1HH10XX00N		97x33x75	139
210	9142	34	5189	11	F16	25	821F016AN025-1HH12XX00N		97x33x75	142
240	10448	33	5930	10	F16	29	821F016AN029-1HH14XX00N		97x33x75	145
270	11754	32	6671	10	F16	33	821F016AN033-1HH16XX00N		97x33x75	152
300	13060	35	7412	11	F16	35	821F016AN035-1HH17XX00N		97x33x75	153

*Accessories see pag. 37 (See Model and plates number)

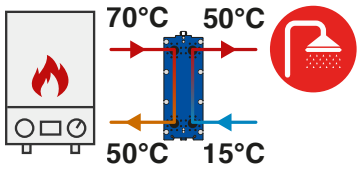
Alternative solution with brazed heat exchangers: see pag. 50

Tables for fast selection - GASKETED

INSTANTANEOUS DHW with HIGH temperature source

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	10 bar	H_2O
COLD side	Domestic Hot Water	15°C	50°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	879	10	495	3	K042	7	821K042AHNN007		50x25x35	31
25	1099	9	619	3	K042	9	821K042AHNN009		50x25x35	32
30	1319	13	743	4	K042	9	821K042AHNN009		50x25x35	32
35	1539	17	867	6	K042	9	821K042AHNN009		50x25x35	32
40	1759	14	991	5	K042	11	821K042AHNN011		50x25x35	33
50	2199	15	1236	5	K042	13	821K042AHNN013		50x25x35	33
60	2638	22	1486	8	K042	13	821K042AHNN013		50x25x35	33
75	3298	25	1858	9	K042	15	821K042AHNN015		50x25x45	34
85	3737	25	2106	9	K042	17	821K042AHNN017		50x25x45	34
100	4397	23	2477	8	K042	21	821K042AHNN021		50x25x45	36
120	5276	32	2973	11	K042	21	821K042AHNN021		50x25x45	36
150	6596	36	3716	13	K042	25	821K042AHNN025		50x25x45	37
180	7915	35	4459	12	K042	31	821K042AHNN031		50x25x45	39
210	9234	34	5202	12	K042	37	821K042AHNN037		50x25x45	41
240	10533	32	5945	11	F 10	17	821F010AN017-1HH03HL05N		77x33x47	106
270	11872	35	6688	12	F 10	19	821F010AN019-1HH04HL05N		77x33x47	107
300	13191	34	7431	12	F 10	21	821F010AN021-1HH04HL06N		77x33x47	108

*Accessories see pag. 37 (See Model and plates number)

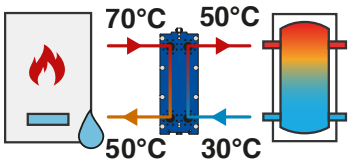
Alternative solution with brazed heat exchangers: see pag. 51

Tables for fast selection - GASKETED

DHW with STORAGE TANK and HIGH temperature source

Project conditions 1

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	10 bar	H_2O
COLD side	Domestic Hot Water	30°C	50°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	878	6	871	6	K042	9	821K042AHNN009		50x25x35	32
25	1098	9	1087	9	K042	9	821K042AHNN009		50x25x35	32
30	1318	13	1307	13	K042	9	821K042AHNN009		50x25x35	32
35	1537	17	1523	17	K042	9	821K042AHNN009		50x25x35	32
40	1760	22	1742	22	K042	9	821K042AHNN009		50x25x35	32
50	2200	22	2174	22	K042	11	821K042AHNN011		50x25x35	33
60	2640	22	2610	22	K042	13	821K042AHNN013		50x25x35	33
75	3298	25	3265	26	K042	15	821K042AHNN015		50x25x45	34
85	3737	25	3697	26	K042	17	821K042AHNN017		50x25x45	34
100	4396	28	4352	28	K042	19	821K042AHNN019		50x25x45	35
120	5278	27	5223	28	K042	23	821K042AHNN023		50x25x45	36
150	6595	27	6527	28	K042	29	821K042AHNN029		50x25x45	38
180	7916	28	7834	28	K042	35	821K042AHNN035		50x25x45	40
210	9234	28	9140	28	F 10	17	821F010AN017-1HH04HL04N		77x33x47	106
240	10055	27	10044	27	F 10	21	821F010AN021-1HH06HL04N		77x33x47	108
270	11930	27	11808	27	F 10	21	821F010AN021-1HH06HL04N		77x33x47	108
300	13190	30	13053	29	F 10	25	821F010AN025-1HH07HL05N		77x33x47	111

*Accessories see pag. 37 (See Model and plates number)

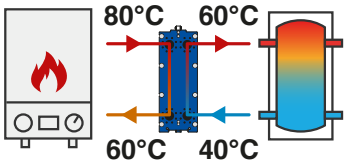
Alternative solution with brazed heat exchangers: see pag. 52

Tables for fast selection - GASKETED

DHW with STORAGE TANK and HIGH temperature source

Project conditions 2

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	80°C	60°C	10 bar	H_2O
COLD side	Domestic Hot Water	40°C	60°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	882	6	864	6	K042	9	821K042AHNN009		50x25x35	32
25	1105	9	1094	9	K042	9	821K042AHNN009		50x25x35	32
30	1324	12	1310	13	K042	9	821K042AHNN009		50x25x35	32
35	1548	17	1530	17	K042	9	821K042AHNN009		50x25x35	32
40	1767	22	1749	22	K042	9	821K042AHNN009		50x25x35	32
50	2210	22	2185	22	K042	11	821K042AHNN011		50x25x35	33
60	2649	22	26244	22	K042	13	821K042AHNN013		50x25x35	33
75	3312	25	3279	25	K042	15	821K042AHNN015		50x25x45	34
85	3754	25	3718	25	K042	17	821K042AHNN017		50x25x45	34
100	4597	27	4374	28	K042	19	821K042AHNN019		50x25x45	35
120	5302	27	5248	27	K042	23	821K042AHNN023		50x25x45	36
150	6627	28	6559	28	K042	29	821K042AHNN029		50x25x45	38
180	7952	28	7873	28	K042	35	821K042AHNN035		50x25x45	40
210	9277	19	9184	20	K080	23	821K080AVNN023		77x27x54	87
240	10605	27	10497	27	F 10	19	821F010AN019-1HH04HL05N		77x33x47	107
270	11930	27	11808	27	F 10	21	821F010AN021-1HH04HL06N		77x33x47	108
300	13255	30	13122	29	F 10	23	821F010AN023-1HH05HL06N		77x33x47	109

*Accessories see pag. 37 (See Model and plates number)

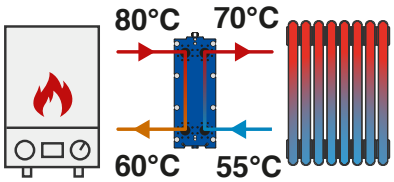
Alternative solution with brazed heat exchangers: see pag. 53

Tables for fast selection - GASKETED

HEATING with HIGH temperature endpoints

Project conditions 1

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	80°C	60°C	10 bar	H_2O
COLD side	Radiators	55°C	70°C	10 bar	H_2O

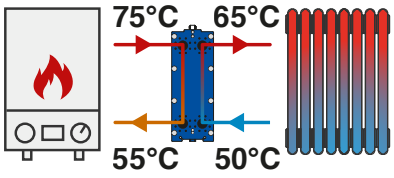


Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	663	1	880	1	K042	19	821K042AHNN019		50x25x45	35
25	1104	4	1467	7	K080	11	821K080AHNN011		77x27x42	79
35	1546	5	2054	9	K080	13	821K080AHNN013		77x27x42	80
50	2209	6	2934	11	K080	17	821K080AHNN017		77x27x54	83
75	3314	8	4401	8	K080	23	821K080AHNN023		77x27x54	87
100	4418	8	5868	15	K080	29	821K080AHNN029		77x27x54	90
115	5081	9	6748	15	K080	33	821K080AHNN033		77x27x54	93
130	5744	9	7628	16	K080	37	821K080AHNN037		77x27x54	95
150	6628	10	8802	17	K080	41	821K080AHNN041		77x27x64	98
180	7953	11	10562	20	F16	27	821F016AN027-1HH06HL07N		97x33x75	144
200	8837	11	11736	19	F16	31	821F016AN031-1HH07HL08N		97x33x75	150

*Accessories see pag. 37 (See Model and plates number)

Project conditions 2

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	75°C	55°C	10 bar	H_2O
COLD side	Radiators	50°C	65°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	661	4	878	7	K80	7	821K080AHNN007		77x27x42	76
25	1102	4	1463	7	K80	11	821K080AHNN011		77x27x42	79
35	1542	5	2049	10	K80	13	821K080AHNN013		77x27x42	80
50	2203	6	2927	11	K80	17	821K080AHNN017		77x27x54	83
75	3305	8	4390	13	K80	23	821K080AHNN023		77x27x54	87
100	4407	9	5853	15	K80	29	821K080AHNN029		77x27x54	90
115	5068	9	6732	15	K80	33	821K080AHNN033		77x27x54	93
130	5730	9	7609	16	K80	37	821K080AHNN037		77x27x54	95
150	6612	9	8780	16	K80	43	821K080AHNN043		77x27x64	99
180	7934	12	10536	20	F16	27	821F016AN027-1HH10LL03N		97x33x75	144
200	8815	11	11706	19	F16	31	821F016AN031-1HH07HL08N		97x33x75	150

*Accessories see pag. 37 (See Model and plates number)

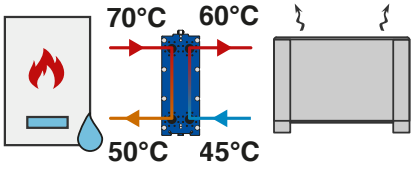
Alternative solution with brazed heat exchangers: see pag. 54

Tables for fast selection - GASKETED

HEATING with HIGH temperature endpoints

Project conditions 3

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	10 bar	H_2O
COLD side	Radiators / Fan Coil	45°C	60°C	10 bar	H_2O

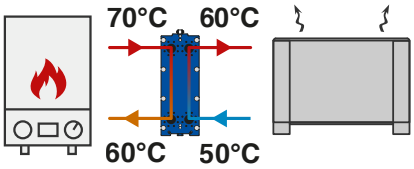


Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging Dimensions	Packaging Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	660	1	876	1	K042	21	821K042AHNN021		50x25x45	36
25	1099	4	1460	7	K080	11	821K080AHNN011		77x27x42	79
35	1539	5	2044	10	K080	13	821K080AHNN013		77x27x42	80
50	2199	6	2920	11	K080	17	821K080AHNN017		77x27x54	83
75	3298	6	4379	11	K080	25	821K080AHNN025		77x27x54	88
100	4397	8	5839	13	K080	31	821K080AHNN031		77x27x54	92
115	5057	8	6715	14	K080	35	821K080AHNN035		77x27x54	94
130	5716	8	7591	15	K080	39	821K080AHNN039		77x27x64	97
150	6596	9	8759	15	K080	45	821K080AHNN045		77x27x64	101
180	7915	9	10510	16	K080	53	821K080AHNN053		77x27x64	106
200	8794	10	11678	17	K080	59	821K080AHNN059		77x27x64	109

*Accessories see pag. 37 (See Model and plates number)

Project conditions 4

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	60°C	10 bar	H_2O
COLD side	Radiators / Fan Coil	50°C	60°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging Dimensions	Packaging Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	1322	12	1315	13	K042	9	821K042AHNN009		50x25x35	32
25	2203	15	2192	16	K042	13	821K042AHNN013		50x25x35	33
35	3085	17	3069	17	K042	17	821K042AHNN017		50x25x45	34
50	4408	19	4385	19	K042	23	821K042AHNN023		50x25x45	36
75	6612	18	6577	18	K080	17	821K080AHNN017		77x27x54	83
100	8816	17	8769	18	K080	23	821K080AHNN023		77x27x54	87
115	10138	19	10085	20	K080	25	821K080AHNN025		77x27x54	88
130	11460	19	11400	19	K080	29	821K080AHNN029		77x27x54	90
150	13223	19	13154	19	F10	27	821F010AN027-1HH04HL09N		77x33x47	112
180	15868	20	15785	20	F10	31	821F010AN031-1HH03HL12N		77x33x71	118
200	17631	19	17539	19	F10	35	821F010AN035-1HH03HL14N		77x33x71	120

*Accessories see pag. 37 (See Model and plates number)

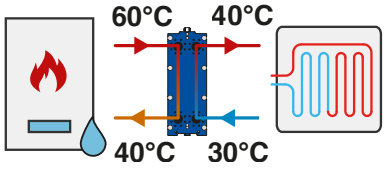
Alternative solution with brazed heat exchangers: see pag. 55

Tables for fast selection - GASKETED

HEATING with LOW temperature endpoints

Project conditions 1

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	60°C	40°C	10 bar	H_2O
COLD side	Radiating floor / Fan Coil	30°C	40°C	10 bar	H_2O

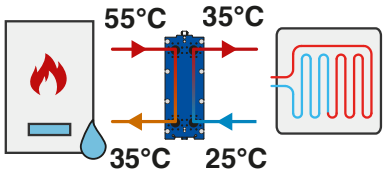


Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	656	3	1302	13	K042	9	821K042AHNN009		50x25x35	32
25	1093	4	2170	16	K042	13	821K042AHNN013		50x25x35	33
35	1531	5	3038	18	K042	17	821K042AHNN017		50x25x45	35
50	2187	5	4340	20	K042	23	821K042AHNN023		50x25x45	36
75	3281	6	6511	20	K080	17	821K080AHNN017		77x27x54	83
100	4375	5	8681	19	K080	23	821K080AHNN023		77x27x54	87
115	5032	5	9983	18	F10	19	821F010AN019-1HH05LL04N		77x33x47	107
130	5687	5	11285	18	F10	21	821F010AN021-1HH05LL05N		77x33x47	108
150	6563	6	13022	19	F10	25	821F010AN025-1HH07LL05N		77x33x47	111
180	7876	6	15626	19	F10	29	821F010AN029-1HH07LL07N		77x33x47	113
200	8751	6	17362	19	F10	33	821F010AN033-1HH08LL08N		77x33x71	119

*Accessories see pag. 37 (See Model and plates number)

Project conditions 2

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	55°C	35°C	10 bar	H_2O
COLD side	Radiating floor	25°C	35°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	655	3	1299	13	K042	9	821K042AHNN009		50x25x35	32
25	1092	4	2165	16	K042	13	821K042AHNN013		50x25x35	33
35	1528	5	3031	18	K042	17	821K042AHNN017		50x25x45	35
50	2182	5	4329	20	K042	23	821K042AHNN023		50x25x45	36
75	3273	5	6494	17	K080	19	821K080AHNN019		77x27x54	84
100	4364	5	8659	20	K080	23	821K080AHNN023		77x27x54	87
115	5019	6	9958	18	F10	19	821F010AN019-1HH05LL04N		77x33x47	107
130	5674	5	11257	20	F10	23	821F010AN023-1HH03HL08N		77x33x47	109
150	6547	6	12988	20	F10	25	821F010AN025-1HH07LL05N		77x33x47	111
180	7856	6	15586	19	F10	29	821F010AN029-1HH07LL07N		77x33x47	113
200	8729	6	17318	19	F10	33	821F010AN033-1HH08LL08N		77x33x71	119

*Accessories see pag. 37 (See Model and plates number)

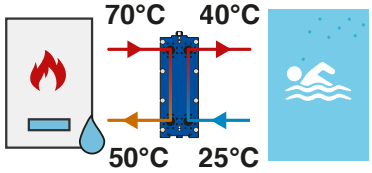
Alternative solution with brazed heat exchangers: see pag. 56

Tables for fast selection - GASKETED

HEATING for CHLORINATED pool

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	10 bar	H_2O
COLD side	Piscina Acqua Clorata	25°C	40°C	10 bar	H_2O+Cl



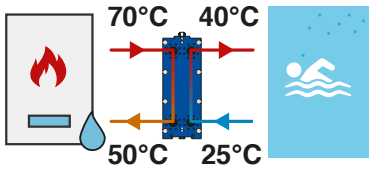
Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging Dimensions	Packaging Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	880	4	1156	7	K042	11	821K042AHNN011		50x25x35	33
25	1099	6	1445	10	K042	11	821K042AHNN011		50x25x35	33
35	1539	8	2023	14	K042	13	821K042AHNN013		50x25x35	33
50	2199	8	2890	13	K042	19	821K042AHNN019		50x25x45	35
75	3298	7	4335	12	K080	15	821K080AVNN015		77x27x54	82
100	4397	7	5780	14	K080	19	821K080AVNN019		77x27x54	84
115	5057	8	6647	14	F10	11	821F010AN011-1LL05XX00N		77x33x47	102
130	5716	9	7514	14	F10	13	821F010AN013-1HL03LL03N		77x33x47	103
150	6596	9	8670	14	F10	15	821F010AN015-1HL03LL04N		77x33x47	104
180	7915	8	10404	14	F10	17	821F010AN017-1LL08XX00N		77x33x47	106
200	8794	9	11560	15	F10	19	821F010AN019-1HL03LL06N		77x33x47	107

*Accessories see pag. 37 (See Model and plates number)

HEATING for SEA WATER pool (Titanium plates)

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	10 bar	H_2O
COLD side	Piscina Acqua Salata	25°C	40°C	10 bar	H_2O+NaCl



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging Dimensions	Packaging Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	879	6	1156	10	K042	9	821K042CHNP009		50x25x35	31
25	1099	6	1445	10	K042	11	821K042CHNP011		50x25x35	31
35	1539	8	2023	14	K080	7	821K080CVNP007		77x27x42	74
50	2198	6	2890	11	K080	11	821K080CVNP011		77x27x42	76
75	3297	7	4335	12	K080	15	821K080CVNP015		77x27x54	77
100	4396	6	5780	10	F10	11	821F010CN011-1LL05XX00N		77x33x47	100
115	5055	8	6647	13	F10	11	821F010CN011-1LL05XX00N		77x33x47	100
130	5714	9	7514	14	F10	13	821F010CN013-1HL03LL03N		77x33x47	100
150	6593	9	8670	14	F10	15	821F010CN015-1HL03LL04N		77x33x47	101
180	7912	8	10404	14	F10	17	821F010CN017-1LL08XX00N		77x33x47	102
200	8791	9	11560	15	F10	19	821F010CN019-1HL03LL06N		77x33x47	103

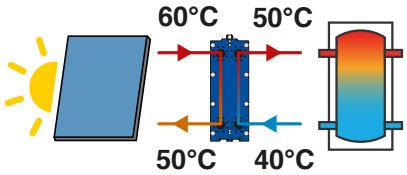
*Accessories see pag. 37 (See Model and plates number)

Tables for fast selection - GASKETED

HEATING with Thermal Solar

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Solar panel	60°C	50°C	10 bar	Glic. 30%
COLD side	Heating / Domestic Hot Water	40°C	50°C	10 bar	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	1839	12	1745	10	K042	13	821K042AHEN013		50x25x35	33
35	3218	14	3054	12	K042	21	821K042AHEN021		50x25x45	36
50	4598	10	4363	8	K080	19	821K080AVEN019		77x27x54	84
75	6897	11	6544	9	K080	27	821K080AVEN027		77x27x54	89
100	9196	14	8726	11	F10	25	821F010AE025-1HH05HL07N		77x33x47	111

*Accessories see pag. 37 (See Model and plates number)

The solar thermal makes it roughly 0.8 kW/m^2.
Example 10 Fiorini collectors H2500 (pag. 254) is equal to 25m^2= 20kW

Alternative solution with brazed heat exchangers: see pag. 57

Brazed heat exchangers P and WP series

The brazed plate heat exchangers (P and WP series) are used in heating, cooling and heat recuperation systems. The quality of the parts and the brazing process, which is carried out with care, make a trustworthy product. The plate design makes it possible to reach higher heat exchange performances and lower pressure loss. Moreover, the product has an elevated resistance to high temperatures and pressure.

Our brazed plate heat exchangers can be used with many kinds of fluids in various combinations (ex: water/water, water/oil, water/steam, steam/oil, Freon/water, etc.)

Advantages

- compact design
- reasonable weight
- high heat exchange efficiency
- high temperature range (-160/+ 195 °C)
- high max operating pressure (30 bar)

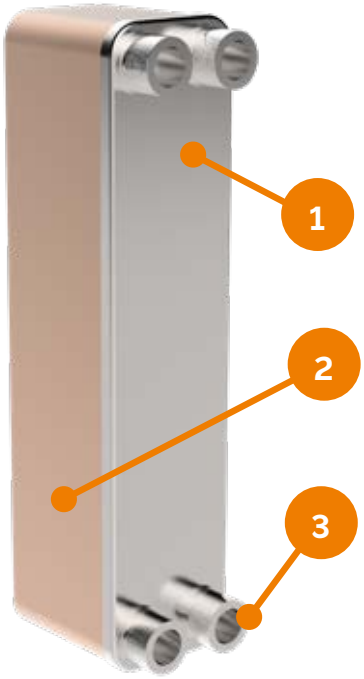
Main applications

- heating/cooling of technical water or industrial fluids
- evaporation and condensation of refrigerant gas
- hydraulic separation of the circuit
- heat recuperation in domestic applications and industrial processes
- functioning with a wide range of compatible fluids
- mechanical and chemical resistance of the materials

Brazed heat exchanger Range

Model	WP4	P4	P7	P15	P30
Plate surface (m²)	0,03	0,02375	0,07	0,15	0,30
Nominal pressure	PN16	PN30	PN30	PN30	PN30
Standard coupling	1"	1"	1"1/4	2"	2"1/2
PP (mm)	13+2,3xN*	9+2,4xN*	9+2,57xN*	10+2,48xN*	11+2,90xN*
Ht (mm)	335	310	526	530	782
Lt (mm)	124	111	120	256	350
Z1 (mm)	281	250	473	439	655
Z2 (mm)	73	50	66	177	220
PC (mm)	20	24	27	27	27

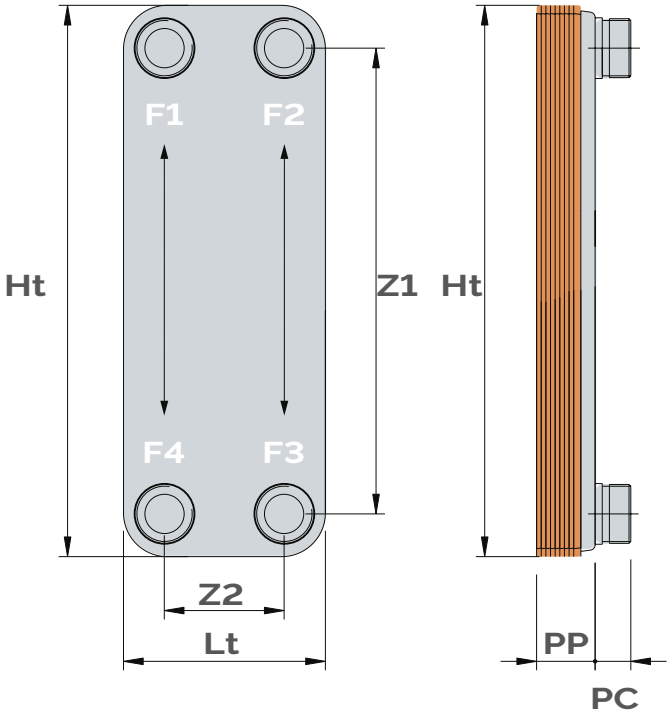
*Plate No.



Legend

1. Front plate
2. Brazing
3. Coupling

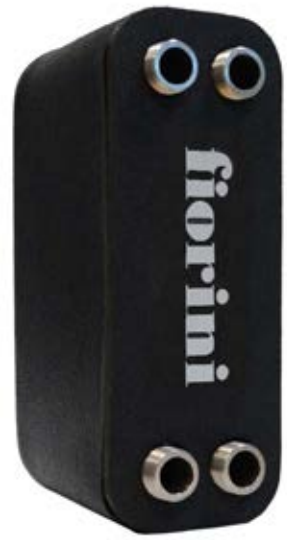
Couplings
Primary: Inlet F1
Primary: Outlet F4
Secondary: Inlet F3
Secondary: Outlet F2



Accessories
Insulation, Couplings

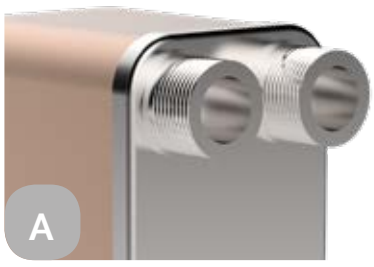
WP4, P4, P7 Serie: PE insulation thermoformed removable with velcro strips.

Model	Plates threshold	Code	Price
WP4	up to 14 plates	843090066X	
	up to 20 plates	843090067X	
	up to 30 plates	843090068X	
	up to 40 plates	843090069X	
	up to 50 plates	843090070X	
P4	up to 14 plates	843090016X	
	up to 20 plates	843090017X	
	up to 30 plates	843090018X	
	up to 40 plates	843090019X	
	up to 50 plates	843090020X	
	up to 60 plates	843090060X	
P7	up to 30 plates	843090050X	
	up to 50 plates	843090051X	
	up to 70 plates	843090052X	



Serie P15 / P30: insulation kit made of sheets of precut adhesive elastomer, finishing tape and assembly instructions.

Model	Plates threshold	Code	Price
P15	from 30 up to 80 plates	843090053X	
	from 81 up to 140 plates	843090054X	
	from 141 up to 200 plates	843090055X	
P30	from 30 up to 80 plates	843090056X	
	from 81 up to 140 plates	843090057X	



threaded standard

free flange upon request

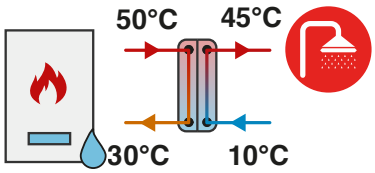
All brazed heat exchangers comes with threaded couplings Upon request, additional couplings and free flange couplings.

Tables for fast selection - BRAZED

INSTANTANEOUS DHW with LOW temperature source

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	50°C	30°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Domestic Hot Water	10°C	45°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	868	1	494	0	WP4	20	821021102X		43x22x24	4
25	1085	2	617	1	WP4	20	821021102X		43x22x24	4
30	1302	1	740	0	WP4	30	821021103X		43x22x24	5
35	1519	2	864	1	WP4	30	821021103X		43x22x24	5
40	1736	1	988	0	WP4	40	821021104X		43x22x24	6
50	2170	2	1235	1	WP4	40	821021104X		43x22x24	6
60	2604	2	1482	1	WP4	50	821021105X		43x22x24	8
75	3260	23	1850	7	P7	30	821020852X		60x80x26	11
85	3690	29	2100	9	P7	30	821020852X		60x80x26	11
100	4340	15	2470	5	P7	50	821020856X		60x80x31	15
120	5210	21	2960	7	P7	50	821020856X		60x80x31	15
150	6510	31	3700	11	P7	50	821020856X		60x80x31	15
180	7810	24	4440	8	P7	70	821020858X		60x80x37	19
210	9120	32	5190	11	P7	70	821020858X		60x80x37	19
240	10420	27	5930	10	P15	40	821020865X		60x80x29	28
270	11720	33	6670	12	P15	40	821020865X		60x80x29	28
300	13020	27	7410	10	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

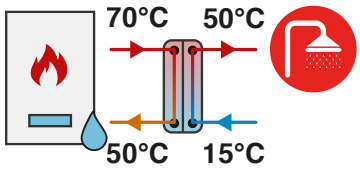
Alternative solution with gasketed heat exchangers: see pag. 38

Tables for fast selection - BRAZED

INSTANTANEOUS DHW with HIGH temperature source

Project conditions

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Domestic Hot Water	15°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	875	3	495	1	WP4	14	821021101X		43x22x24	3
25	1094	2	618	1	WP4	20	821021102X		43x22x24	4
30	1312	1	742	0	WP4	30	821021103X		43x22x24	5
35	1531	2	866	1	WP4	30	821021103X		43x22x24	5
40	1750	1	990	0	WP4	40	821021104X		43x22x24	6
50	2187	2	1237	1	WP4	40	821021104X		43x22x24	6
60	2625	2	1484	1	WP4	50	821021105X		43x22x24	8
75	3280	22	1860	7	P7	30	821020852X		60x80x26	11
85	3720	27	2100	9	P7	30	821020852X		60x80x26	11
100	4370	36	2470	12	P7	30	821020852X		60x80x26	11
120	5250	20	2970	7	P7	50	821020856X		60x80x31	15
150	6560	30	3710	10	P7	50	821020856X		60x80x31	15
180	7870	23	4450	8	P7	70	821020858X		60x80x37	19
210	9190	31	5190	11	P7	70	821020858X		60x80x37	19
240	10500	25	5940	9	P15	40	821020865X		60x80x29	28
270	11810	31	6680	12	P15	40	821020865X		60x80x29	28
300	13120	25	7420	10	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

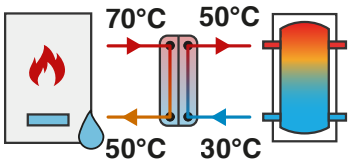
Alternative solution with gasketed heat exchangers: see pag. 39

Tables for fast selection - BRAZED

DHW with STORAGE TANK and HIGH temperature source

Project conditions 1

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Domestic Hot Water	30°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	875	3	868	2	WP4	14	821021101X		43x22x24	3
25	1094	6	1085	4	WP4	14	821021101X		43x22x24	3
30	1312	9	1302	6	WP4	14	821021101X		43x22x24	3
35	1531	5	1519	4	WP4	20	821021102X		43x22x24	4
40	1750	7	1736	5	WP4	20	821021102X		43x22x24	4
50	2187	13	2170	9	WP4	20	821021102X		43x22x24	4
60	2625	20	2604	15	WP4	20	821021102X		43x22x24	4
75	3281	12	3256	10	WP4	30	821021103X		43x22x24	5
85	3719	16	3690	14	WP4	30	821021103X		43x22x24	5
100	4375	12	4341	10	WP4	40	821021104X		43x22x24	6
120	5250	19	5209	17	WP4	40	821021104X		43x22x24	6
150	6560	30	6510	28	P7	50	821020856X		60x80x31	15
180	7870	23	7810	23	P7	70	821020858X		60x80x37	19
210	9190	31	9120	30	P7	70	821020858X		60x80x37	19
240	10500	25	10420	25	P15	40	821020865X		60x80x29	28
270	11810	31	11720	32	P15	40	821020865X		60x80x29	28
300	13120	25	13020	26	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

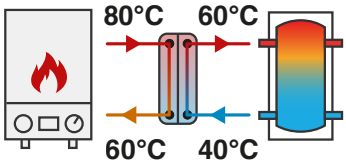
Alternative solution with gasketed heat exchangers: see pag. 40

Tables for fast selection - BRAZED

DHW with STORAGE TANK and HIGH temperature source

Project conditions 2

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	80°C	60°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Domestic Hot Water	40°C	60°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	879	3	871	2	WP4	14	821021101X		43x22x24	3
25	1098	6	1089	4	WP4	14	821021101X		43x22x24	3
30	1318	9	1308	6	WP4	14	821021101X		43x22x24	3
35	1538	14	1525	9	WP4	14	821021101X		43x22x24	3
40	1758	7	1743	5	WP4	20	821021102X		43x22x24	4
50	2197	12	2179	9	WP4	20	821021102X		43x22x24	4
60	2636	20	2614	15	WP4	20	821021102X		43x22x24	4
75	3295	12	3268	10	WP4	30	821021103X		43x22x24	5
85	3735	16	3704	13	WP4	30	821021103X		43x22x24	5
100	4394	25	4357	20	WP4	30	821021103X		43x22x24	5
120	5272	19	5228	16	WP4	40	821021104X		43x22x24	6
150	6590	19	6536	18	WP4	50	821021105X		43x22x24	8
180	7910	23	7840	22	P7	70	821020858X		60x80x37	19
210	9230	30	9150	29	P7	70	821020858X		60x80x37	19
240	10540	25	10460	25	P15	40	821020865X		60x80x29	28
270	11860	31	11760	31	P15	40	821020865X		60x80x29	28
300	13180	25	13070	25	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

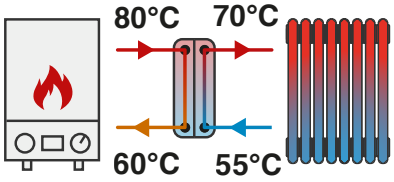
Alternative solution with gasketed heat exchangers: see pag. 41

Tables for fast selection - GASKETED

HEATING with HIGH temperature endpoints

Project conditions 1

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	80°C	60°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Radiators	55°C	70°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O

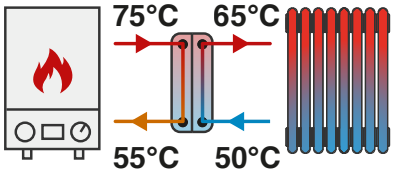


Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	659	2	876	2	WP4	14	821021101X		43x22x24	3
25	1098	6	1460	8	WP4	14	821021101X		43x22x24	3
35	1538	5	2044	8	WP4	20	821021102X		43x22x24	4
50	2197	4	2920	7	WP4	30	821021103X		43x22x24	5
75	3295	5	4379	10	WP4	40	821021104X		43x22x24	6
100	4394	7	5839	13	WP4	50	821021105X		43x22x24	8
115	5050	10	6710	16	P7	70	821020858X		60x80x37	19
130	5710	13	7590	20	P7	70	821020858X		60x80x37	19
150	6590	10	8760	17	P15	40	821020865X		60x80x29	28
180	7910	15	10510	24	P15	40	821020865X		60x80x29	28
200	8790	12	11680	20	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

Project conditions 2

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	75°C	55°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Radiators	50°C	65°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	658	2	874	2	WP4	14	821021101X		43x22x24	3
25	1096	6	1457	8	WP4	14	821021101X		43x22x24	3
35	1534	5	2039	8	WP4	20	821021102X		43x22x24	4
50	2192	4	2913	7	WP4	30	821021103X		43x22x24	5
75	3288	6	4370	10	WP4	40	821021104X		43x22x24	6
100	4384	7	5827	13	WP4	50	821021105X		43x22x24	8
115	5040	10	6700	16	P7	70	821020858X		60x80x37	19
130	5700	13	7570	20	P7	70	821020858X		60x80x37	19
150	6580	11	8740	17	P15	40	821020865X		60x80x29	28
180	7890	15	10490	24	P15	40	821020865X		60x80x29	28
200	8770	12	11650	20	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

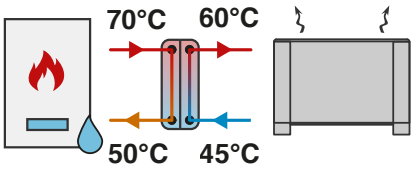
Alternative solution with gasketed heat exchangers: see pag. 42

Tables for fast selection - GASKETED

HEATING with HIGH temperature endpoints

Project conditions 3

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Radiators / Fan Coil	45°C	60°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O

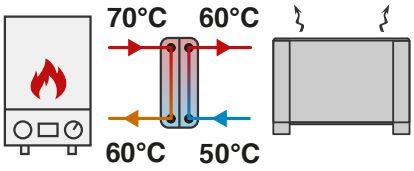


Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	656	2	872	2	WP4	14	821021101X		43x22x24	3
25	1094	6	1454	8	WP4	14	821021101X		43x22x24	3
35	1531	5	2035	8	WP4	20	821021102X		43x22x24	4
50	2187	4	2907,5	7	WP4	30	821021103X		43x22x24	5
75	3281	6	4361	10	WP4	40	821021104X		43x22x24	6
100	4370	14	5820	22	P7	50	821020856X		60x80x31	15
115	5030	10	6690	16	P7	70	821020858X		60x80x37	19
130	5690	13	7560	20	P7	70	821020858X		60x80x37	19
150	6560	10	8720	18	P15	40	821020865X		60x80x29	28
180	7870	10	10470	17	P15	50	821020866X		60x80x31	32
200	8750	12	11630	20	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

Project conditions 4

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	70°C	60°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Radiators / Fan Coil	50°C	60°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	1315	9	1310	6	WP4	14	821021101X		43x22x24	3
25	2192	18	2182	13	WP4	20	821021102X		43x22x24	4
35	3069	10	3056	8	WP4	30	821021103X		43x22x24	5
50	4384	12	4366	10	WP4	40	821021104X		43x22x24	6
75	6580	17	6550	16	P7	70	821020858X		60x80x37	19
100	8770	18	8730	18	P15	40	821020865X		60x80x29	28
115	10080	23	10040	23	P15	40	821020865X		60x80x29	28
130	11400	19	11350	19	P15	50	821020866X		60x80x31	32
150	13150	18	13100	18	P15	60	821020867X		60x80x34	36
180	15780	20	15720	20	P15	70	821020868X		60x80x36	40
200	17540	24	17460	24	P15	70	821020868X		60x80x36	40

*Accessories see pag. 49 (See Model and plates number)

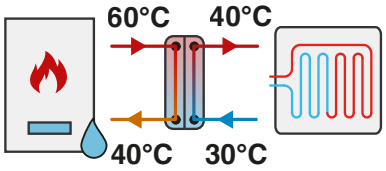
Alternative solution with gasketed heat exchangers: see pag. 43

Tables for fast selection - BRAZED

HEATING with LOW temperature endpoints

Project conditions 1

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	60°C	40°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Radiating floor / Fan Coil	30°C	40°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O

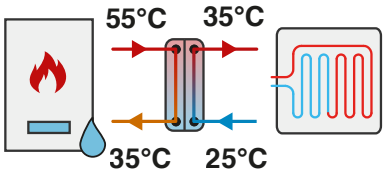


Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	654	2	1300	6	WP4	14	821021101X		43x22x24	3
25	1089	2	2166	10	WP4	20	821021102X		43x22x24	4
35	1525	2	3033	8	WP4	30	821021103X		43x22x24	5
50	2178,5	1	4333	7	WP4	40	821021104X		43x22x24	6
75	3270	5	6500	16	P7	70	821020858X		60x80x37	19
100	4360	5	8670	19	P15	40	821020865X		60x80x29	28
115	5010	5	9970	16	P15	50	821020866X		60x80x31	32
130	5660	6	11270	20	P15	50	821020866X		60x80x31	32
150	6540	5	13000	19	P15	60	821020867X		60x80x34	36
180	7540	6	15600	21	P15	70	821020868X		60x80x36	40
200	8710	7	17330	25	P15	70	821020868X		60x80x36	40

*Accessories see pag. 49 (See Model and plates number)

Project conditions 2

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Water heater	55°C	35°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O
COLD side	Radiating floor	25°C	35°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
15	652	2	1298	6	WP4	14	821021101X		43x22x24	3
25	1087	2	2163	10	WP4	20	821021102X		43x22x24	4
35	1522	2	3028	8	WP4	30	821021103X		43x22x24	5
50	2174	2	4325	11	WP4	40	821021104X		43x22x24	6
75	3260	5	6490	17	P7	70	821020858X		60x80x37	19
100	4350	5	8650	19	P15	40	821020865X		60x80x29	28
115	5000	5	9950	17	P15	50	821020866X		60x80x31	32
130	5650	6	11250	21	P15	50	821020866X		60x80x31	32
150	6520	5	12980	20	P15	60	821020867X		60x80x34	36
180	7830	6	15570	21	P15	70	821020868X		60x80x36	40
200	8700	7	17300	26	P15	70	821020868X		60x80x36	40

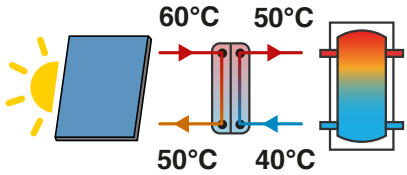
*Accessories see pag. 49 (See Model and plates number)

Alternative solution with gasketed heat exchangers: see pag. 44

Tables for fast selection - GASKETED

HEATING with Thermal Solar

Circuit	Source - endpoint	T_{IN}	T_{OUT}	P_{MAX}	Fluid
HOT side	Solar panel	60°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	Glic. 30%
COLD side	Heating / Domestic Hot Water	40°C	50°C	16 bar (WP4) 30 bar (P4-P7-P15-P30)	H_2O



Power	Hot side		Cold		Model*	Plates number*	Code	Price	Packaging	
									Dimensions	Weight
kW	l/h	kPa	l/h	kPa					cm	kg
20	1807	3	1740	2	WP4	30	821021103X		43x22x24	5
35	3162	6	3044	4	WP4	40	821021104X		43x22x24	6
50	4520	10	4350	8	P7	70	821020858X		60x80x37	19
75	6770	13	6520	11	P15	40	821020865X		60x80x29	28
100	9030	15	8700	12	P15	50	821020866X		60x80x31	32

*Accessories see pag. 49 (See Model and plates number)

The solar thermal makes it roughly 0.8 kW/m^2.
Example 10 Fiorini collectors H2500 (pag. 254) is equal to 25m^2= 20kW

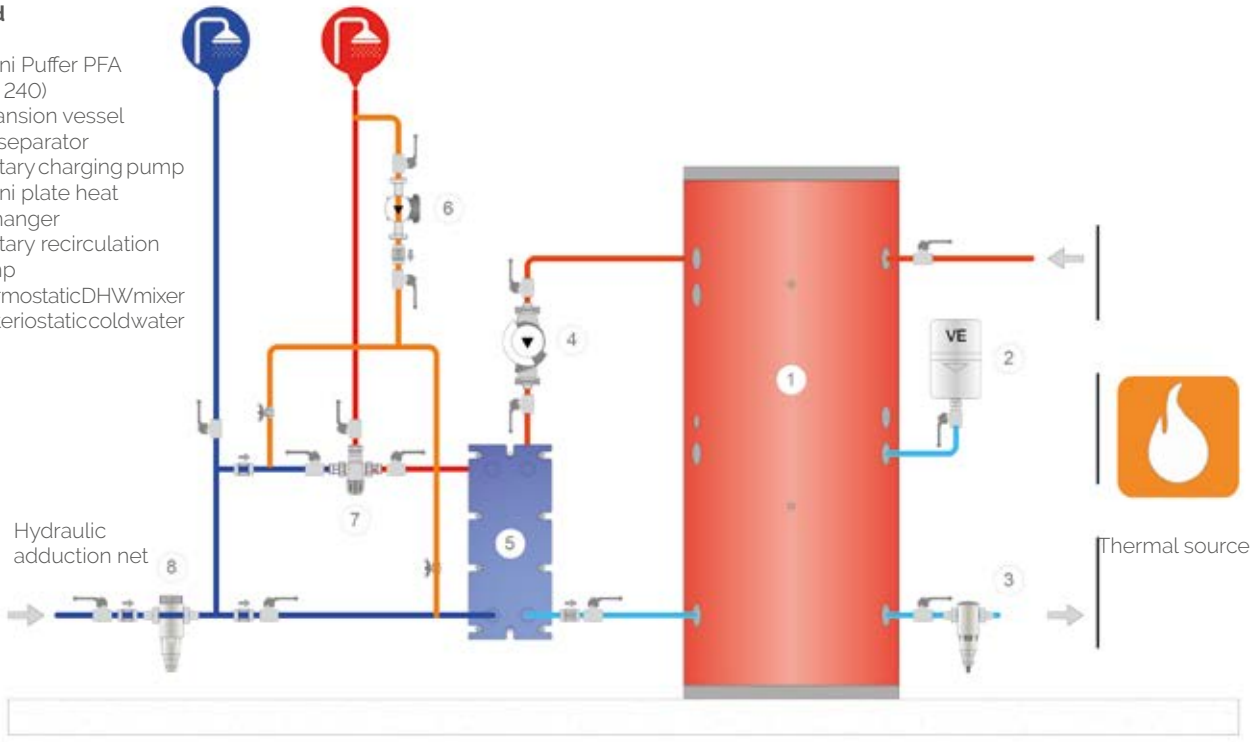
Alternative solution with gasketed heat exchangers: see pag. 46

Plant Solutions

Instantaneous DHW (see SET pag. 218)

Legend

1. Fiorini Puffer PFA (see 240)
2. Expansion vessel
3. Dirt separator
4. Sanitary charging pump
5. Fiorini plate heat exchanger
6. Sanitary recirculation pump
7. ThermostaticDHWmixer
8. Bacteriostaticcoldwater filter

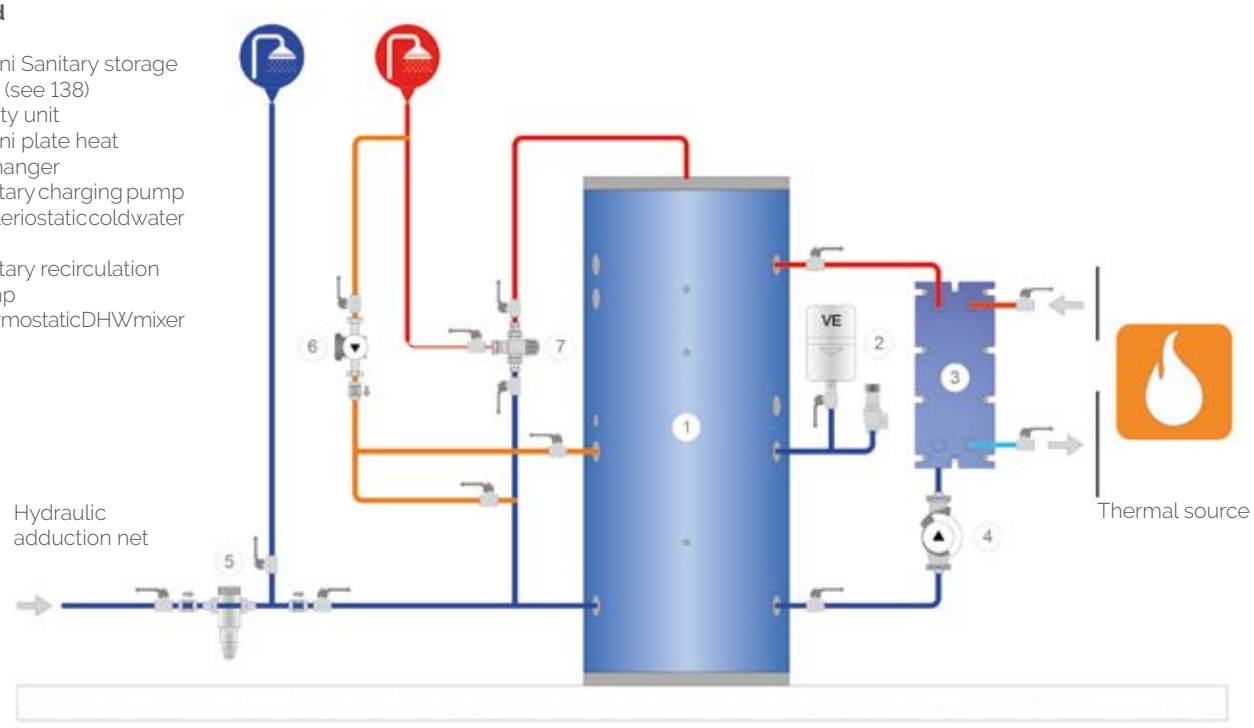


SET fresh water station see pag. 218

DHW with storage tank (see AFK pag. 188)

Legend

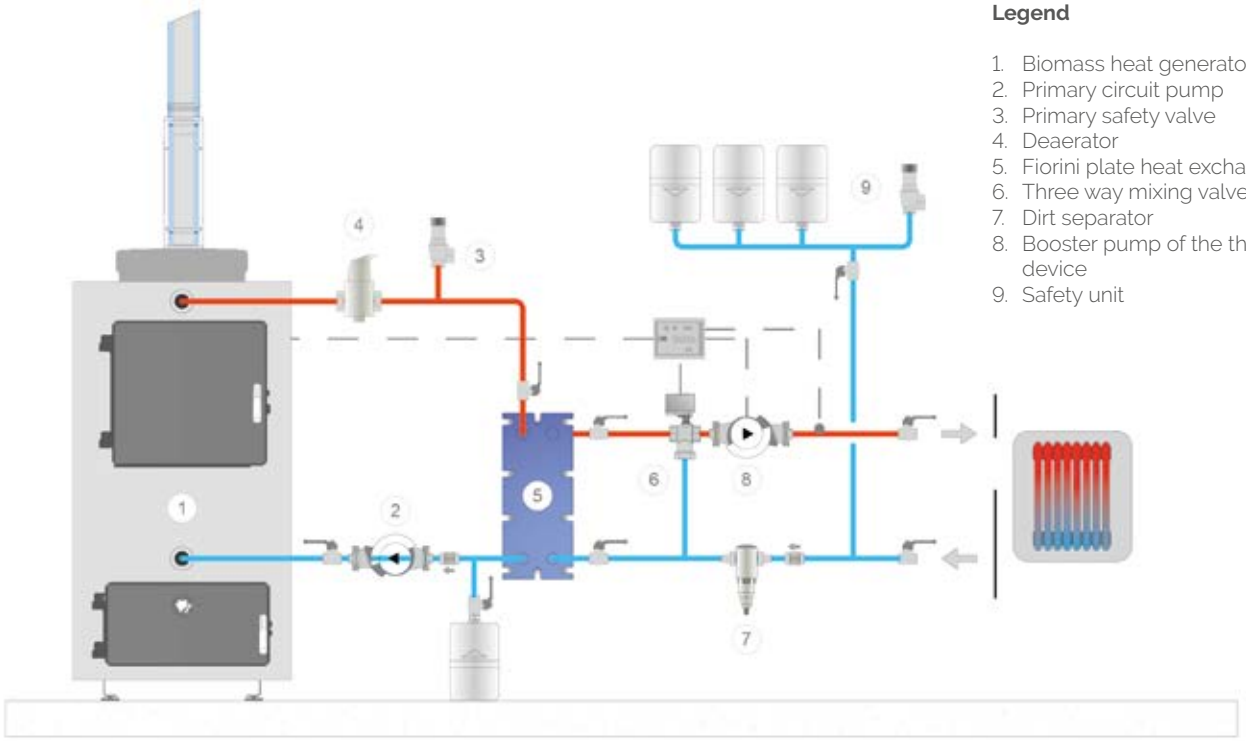
1. Fiorini Sanitary storage tank (see 138)
2. Safety unit
3. Fiorini plate heat exchanger
4. Sanitary charging pump
5. Bacteriostaticcoldwater filter
6. Sanitary recirculation pump
7. ThermostaticDHWmixer



AFK fast heater see pag. 188

Plant Solutions

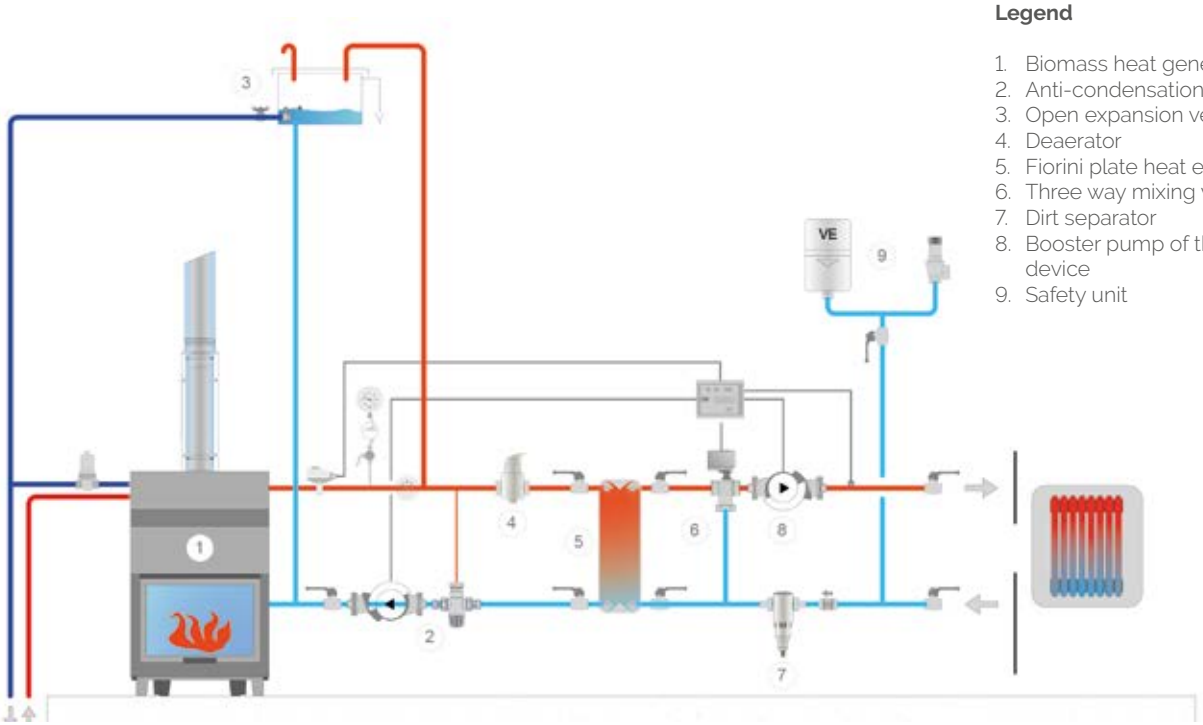
Separation between thermal source and device
(Closed expansion tank)



Legend

1. Biomass heat generator
2. Primary circuit pump
3. Primary safety valve
4. Deaerator
5. Fiorini plate heat exchanger
6. Three way mixing valve
7. Dirt separator
8. Booster pump of the thermal device
9. Safety unit

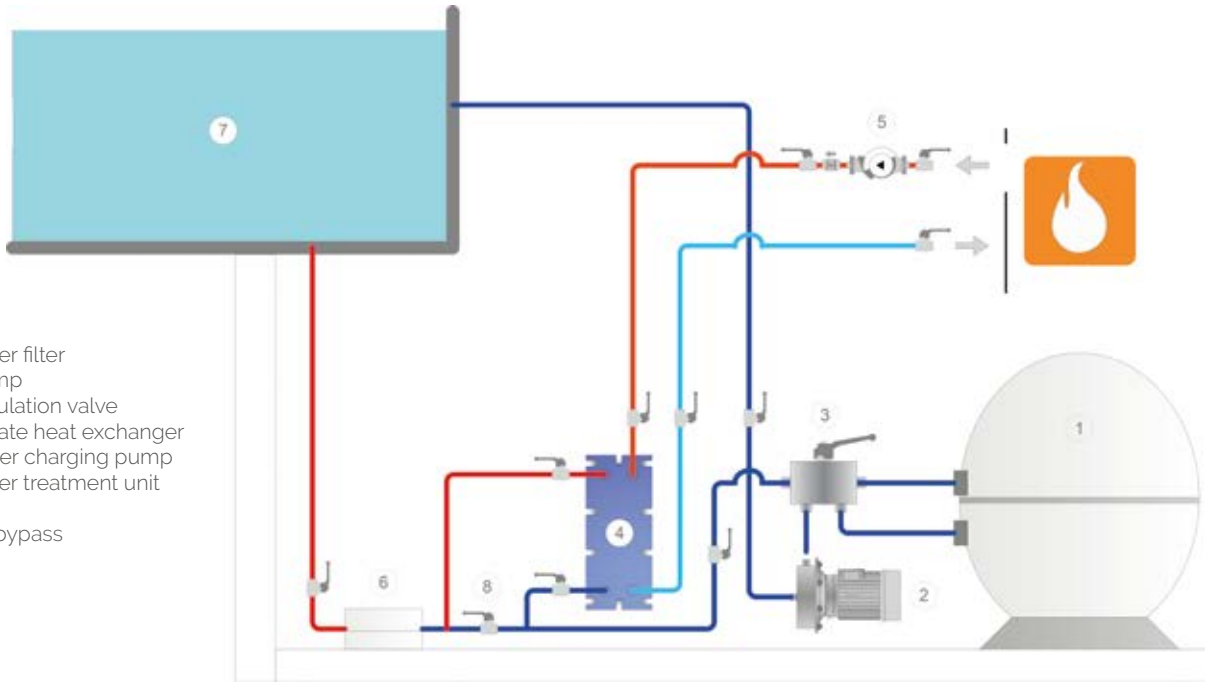
Separation between thermal source and device
(Open expansion tank)



Legend

1. Biomass heat generator
2. Anti-condensation return unit
3. Open expansion vessel
4. Deaerator
5. Fiorini plate heat exchanger
6. Three way mixing valve
7. Dirt separator
8. Booster pump of the thermal device
9. Safety unit

Plant Solutions
Systems for swimming pools



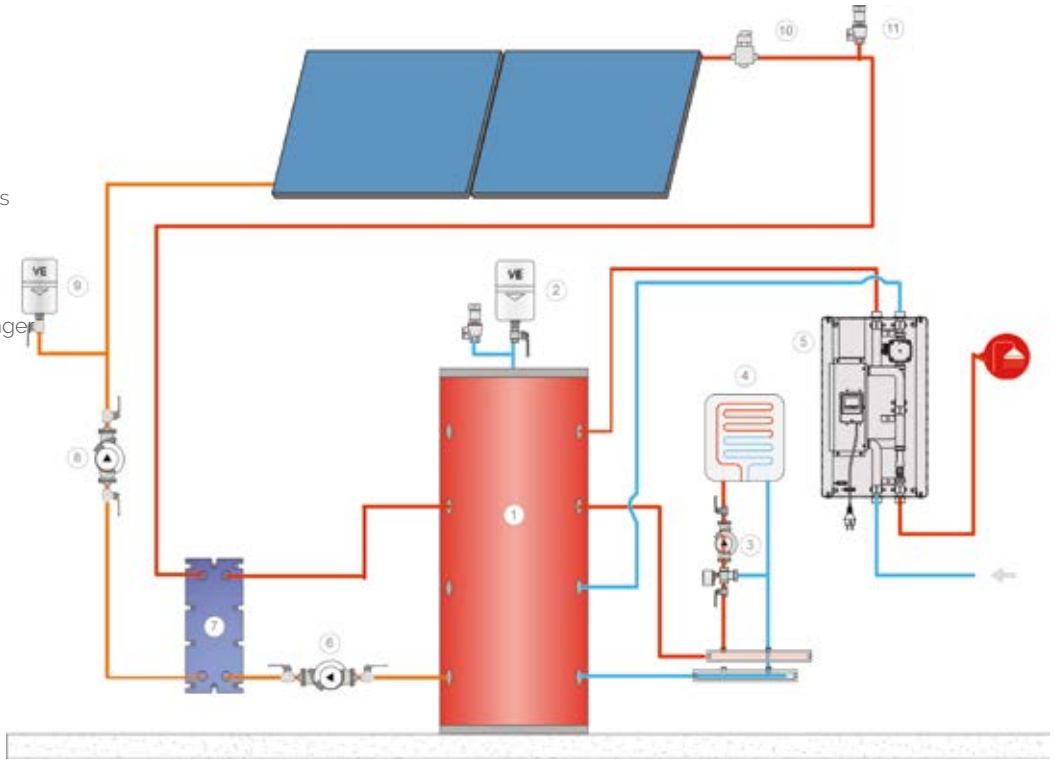
Legend

1. Pool water filter
2. Pool pump
3. Pool regulation valve
4. Fiorini plate heat exchanger
5. Exchanger charging pump
6. Pool water treatment unit
7. Pool
8. Copper bypass

Systems for solar thermal

Legend

1. Fiorini Puffer PFA (see 240)
2. Expansion vessel
3. Heating circuit pump
4. Heating circuit
5. SET DHW Instantaneous production unit (see 218)
6. Exchanger charging pump
7. Fiorini plate heat exchanger
8. Solar circuit pump
9. Expansion vessel
10. Deaerator
11. Safety unit



DATA COLLECTION FOR EXCHANGER SELECTION

For the correct dimensioning of an exchanger, at least 5 data on 7 * are mandatory and meet the following conditions:

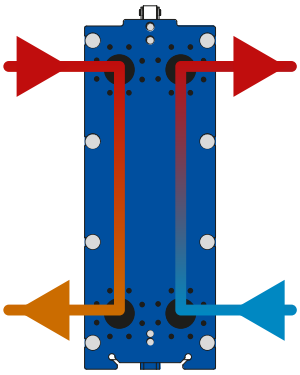
- T.IN HOT > T.OUT COLD
- T.IN COLD < T.OUT HOT
- Temperatures and flow rates consistent with thermal power

If you do not know all the required data, describe the type of application in the appropriate field below.

CONTACT			
Applicant		Data	
Company		Ph.	
Email		Ref.	

GENERAL DATA		
Exchanger type	❑ Gasketed	❑ Brazed
Power*		(specify u.m. kW or kcal/h)
Nominal pressure		(specify u.m. e.g. bar)

HOT SIDE		
Fluid		
T IN* (°C)		
T OUT* (°C)		
FLOW* (specify u.m.)		
MAX loss (kPa)		



COLD SIDE		
Fluid		
T IN* (°C)		
T OUT* (°C)		
FLOW* (specify u.m.)		
MAX loss (kPa)		

ADDITIONAL NOTES			
Type/ Diameter Couplings			
Plates material/ Couplings/Shaft			
Accessories	❑ anti-condensate tub (only for gasketed)	❑ insulation box	❑ feet set (only for gasketed)
Size Limits			
Type of application			

The QR-CODE allows you to access the online form for the dimensioning of exchangers. Following the wizard you can send the completed form directly to our technicians, who will answer you with the sizing required in a short time.

How to use the QR-CODE:

- Use a device like tablet, smartphone, 2 in 1 device.
- Install an application to read QR-CODE (if not already installed)
- Aim the device on QR-CODE
- Access the form online

The personal data included in this form will be processed according to current laws about privacy. Please see the privacy notice, full text is available at
go.fiorinigroup.it/eng/privacy
Filling this form you agree to the privacy notice and allow data processing.

go.fiorinigroup.it/eng/dimensionamentophe

Refrigeration and Heat Pumps Integrated Solutions

Contents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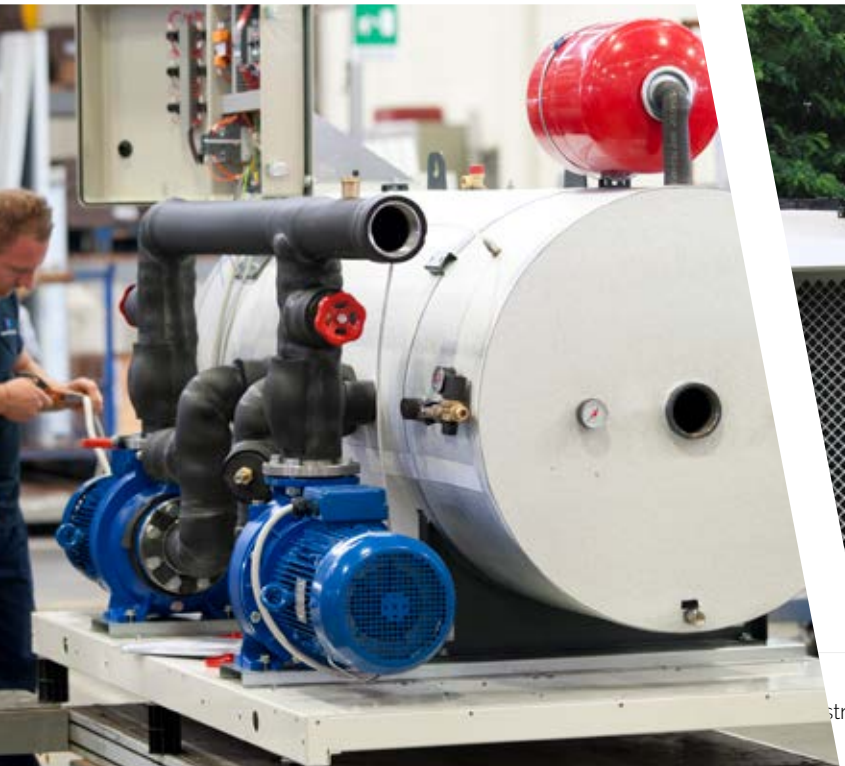


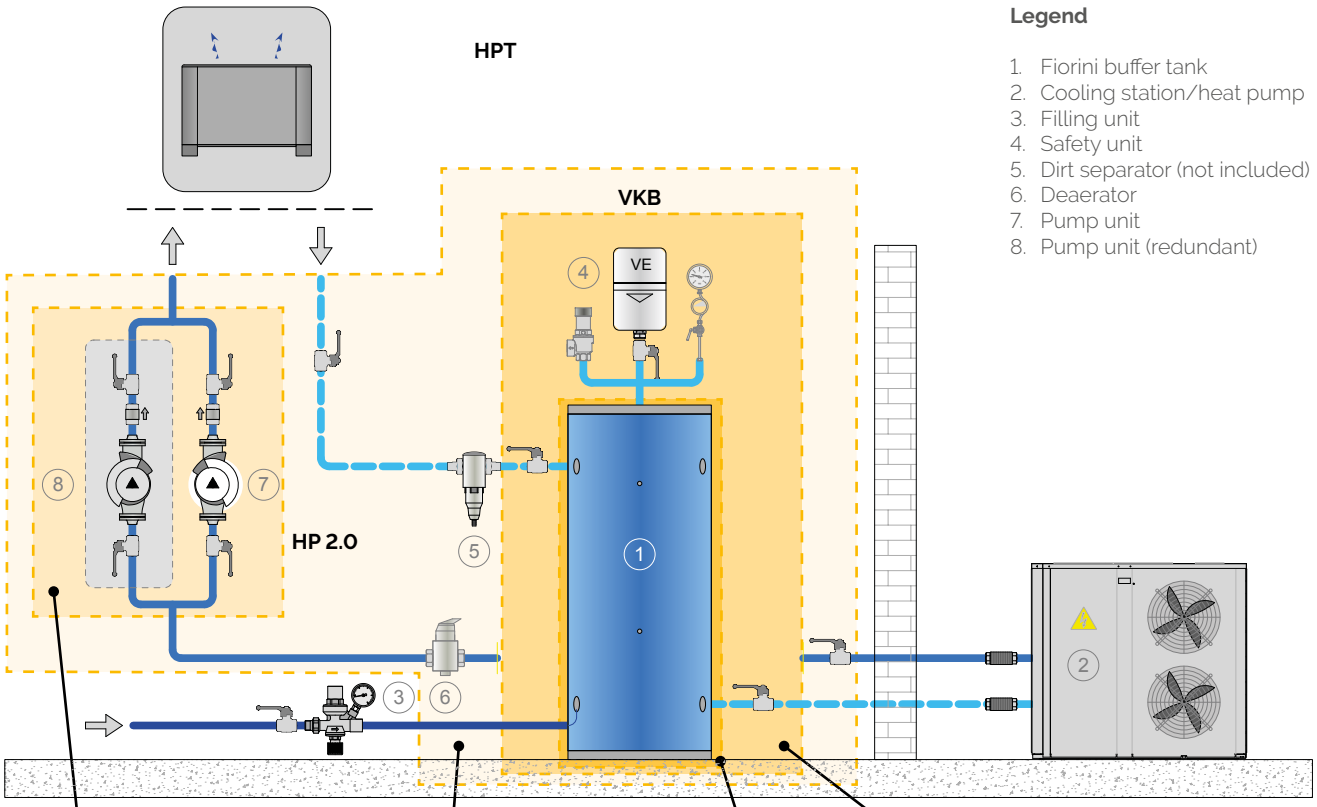

fiorini

Refrigeration and Heat Pumps Integrated Solutions

Efficiency and High-Performance: our goal

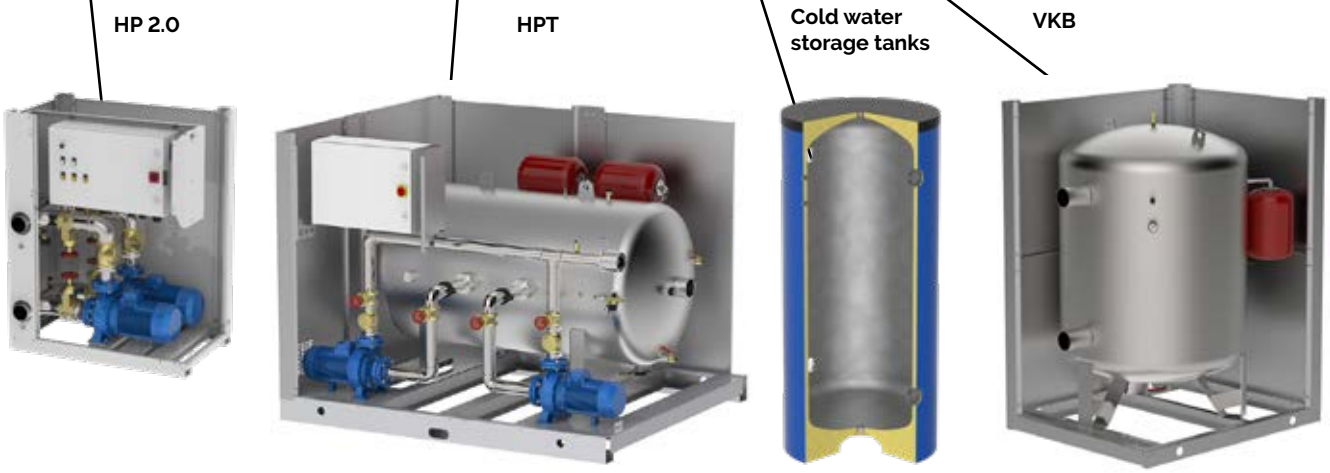
Our line of refrigeration systems contains buffer tanks and hydronic kits, which are designed to improve the functioning and performance of even the most evolutionary air-conditioning systems. We have a broad range of buffer tanks, both horizontal and vertical, and hydraulic stations which can be combined with many pumps and storage tanks. All our products are manufactured, on request, with special and customized details.

Below represented our solutions and a common installation plant. Fiorini can provide either the buffer tank or a complex hydronic kit, which contains a tank, pumps, electric board and accessories.



Legend

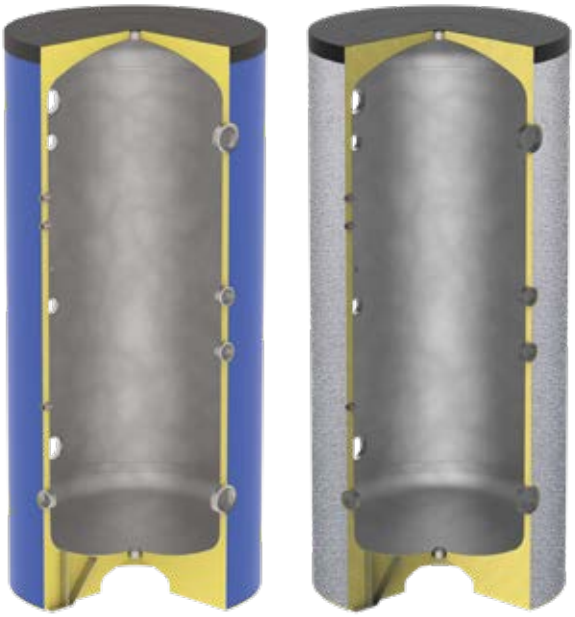
1. Fiorini buffer tank
2. Cooling station/heat pump
3. Filling unit
4. Safety unit
5. Dirt separator (not included)
6. Deaerator
7. Pump unit
8. Pump unit (redundant)



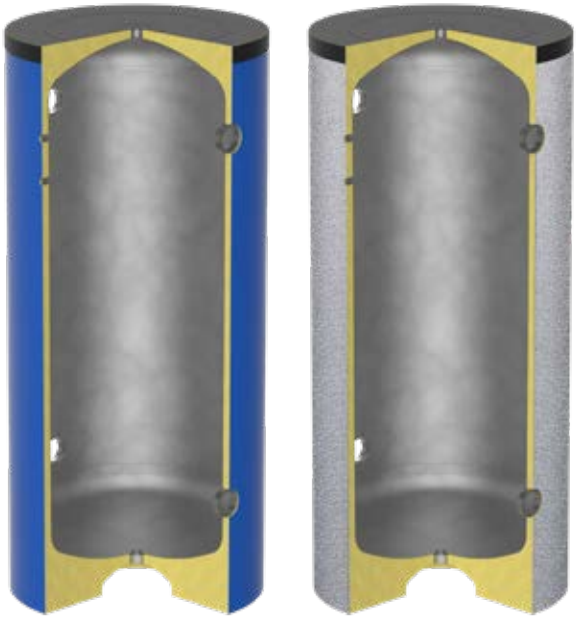
Cold Water Storage Tanks

Because of our broad range of buffer tanks, we can offer the best solution for every possible installation. We offer the following products:

MINI40 - MINI80
Carbon steel
External anti-rust painting
Anti-condensate insulation
Can contain hot and chilled water as well in heating or cooling devices equipped with a heat pump.



VKG-HC (coloured PVC) - VKGE-HC (embossed aluminium sheet)
Carbon steel
External anti-rust painting
Anti-condensate insulation
Can contain hot and chilled water as well in heating or cooling devices equipped with a heat pump. To be used in Layout 1 or Layout 2 (single and double loop) installations. Embossed aluminium sheet for outdoor installations.



VKG (coloured PVC) - VKGE (embossed aluminium sheet)
Carbon steel
External anti-rust painting
Anti-condensate insulation
For devices which do not need internal protection against corrosion. Single or double loop installations. To be used in Layout 1 or Layout 2 (single and double loop) installations. Embossed aluminium sheet for outdoor installations.

VK (coloured PVC) - VKE (embossed aluminium sheet)
Carbon steel
Hot-dip galvanizing
Anti-condensate insulation
For devices which need protection against corrosion. To be used in Layout 1 or Layout 2 (single and double loop) installations. Embossed aluminium sheet for external installations.

Cold Water Storage Tanks

VKT
Carbon steel
Internal enamelling
Anti-condensate insulation
For devices which need anti-corrosive protection and which are also compatible with most antifreeze liquids. To be used in Layout 1 or Layout 2 (single and double loop) installations.

VKX
Stainless steel
Anti-condensate insulation
For devices which need stainless steel in case of contact with the fluid. To be used in Layout 1 or Layout 2 (single and double loop) installations.

VKS
Carbon steel
External anti-rust painting
Anti-condensate insulation
With internal baffles which prevent preferential flow. To be used with Layout 2 (double loop) installations, also with a high flow and multi-circuited.

VKR
Carbon steel
External anti-rust painting
Anti-condensate insulation
Suitable for installation in Layout 2 (double loop). Conveyor pipes favor the flow of chilled water from primary to secondary circuit, recommended for medium / high flow rates.

VKD
Carbon steel
External anti-rust painting
Anti-condensate insulation
Suitable for installation in Layout 2 (double loop). The diffuser tubes evens the temperature inside the tank.

Cold Water Storage Tanks
MINI-HC Serie (Hot & Cold wall-mounted)

The MINI-HC series includes heat sink tanks for "Hot & Cold" plants suitable for use with heat pumps, perform hydraulic circuit breaker functions (making the flows of the two circuits independent) and the thermal flywheel (to minimize the heat pump starts). The MINI-HC has two additional connections dedicated to a supplementary source.

Material: carbon steel
External covering: painted galvanized metal sheet

TESTED

Insulation

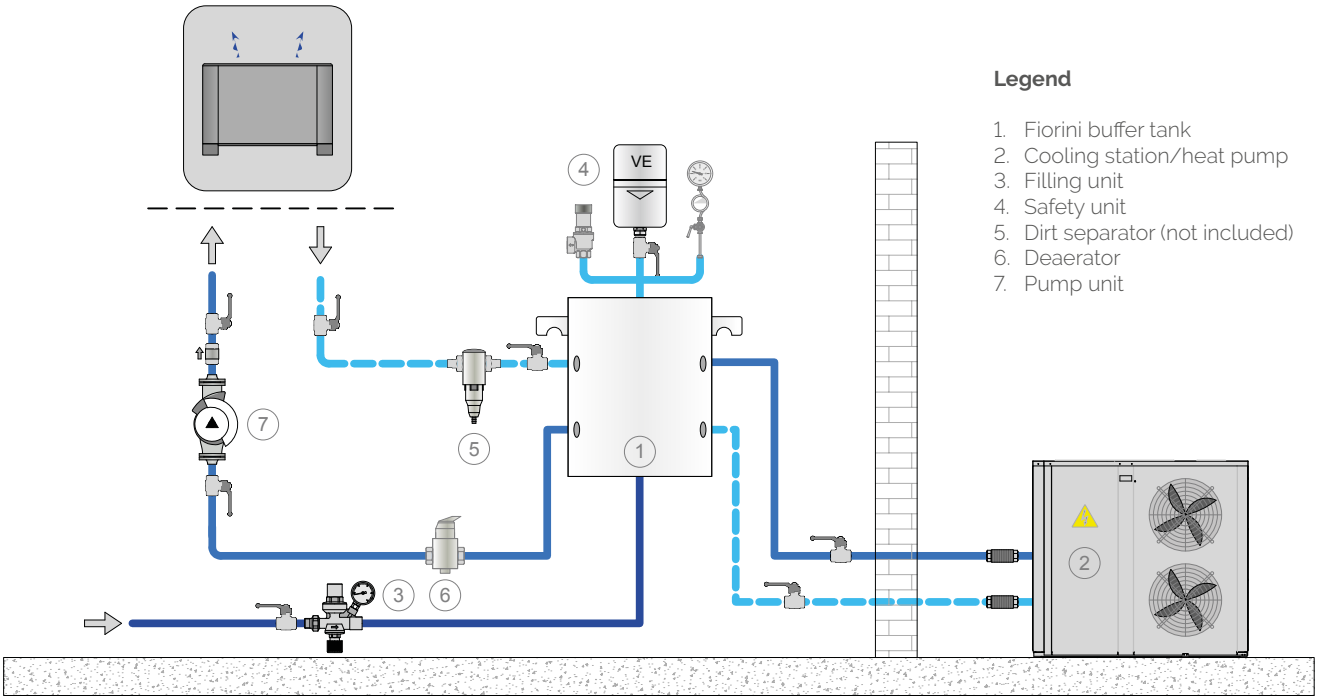
Capacity (l)	Type
40, 80	High density rigid polyurethane foam

Operational limits

Min. temperature	Max. temperature	Max. pressure
-10 °C	90 °C	6 bar

Capacity l	MINI wall-mounted Code	Price	Energy label	Vertical packaging Dimensions cm	Weight kg
40	817010175X		B	50x50x50	25
80	817010176X		B	50x50x100	35

Standard Accessories: see pag. 128 resistor see pag. 276

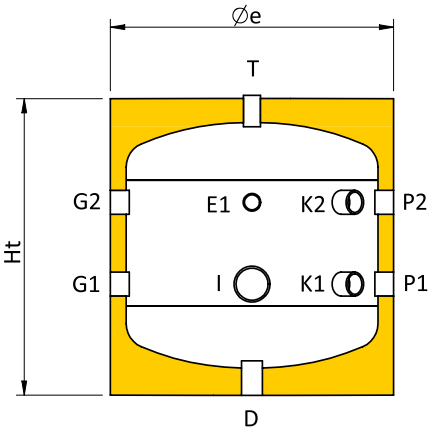


Legend

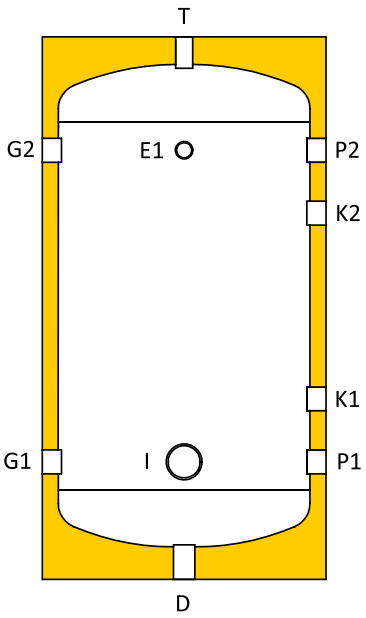
1. Fiorini buffer tank
2. Cooling station/heat pump
3. Filling unit
4. Safety unit
5. Dirt separator (not included)
6. Deaerator
7. Pump unit

Cold Water Storage Tanks: Dimensions MINI-HC series

cap. = 40



cap. = 80



Couplings legend

D	Drain
E1	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Capacity l	D inch	E inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	P1 inch	P2 inch	T inch
40	3/4"	1/2"	1"	1"	1"1/2	1"	1"	1"	1"	1/2"
80	3/4"	1/2"	1"	1"	1"1/2	1"	1"	1"	1"	1/2"

Size chart

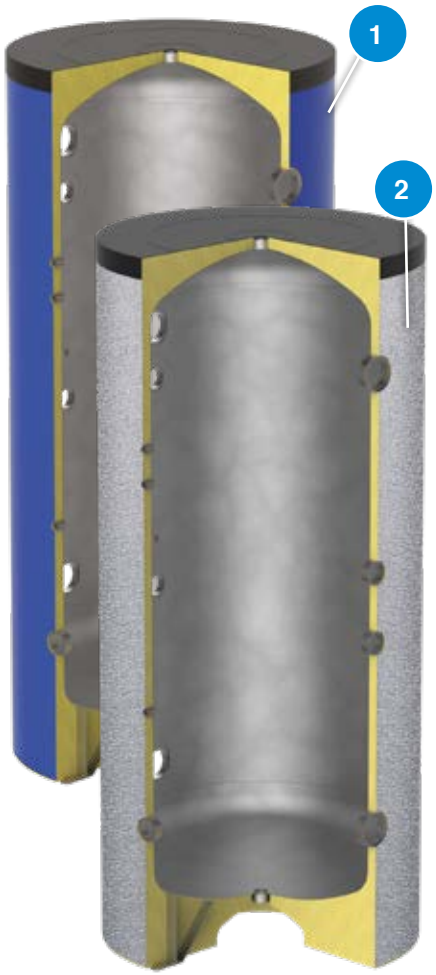
Capacity l	Øe mm	Ht mm	R* mm	E mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	P1 mm	P2 mm
40	460	477	663	307	177	307	177	177	307	177	307
80	460	862	978	682	187	682	187	287	582	187	682

R*: Reversal quota

Cold Water Storage Tanks
VKG-HC, VKGE-HC series (Hot & Cold)

The VKG-HC series contains insulated tanks for "HOT & COLD" applications, which are usually used to increase thermal inertia of the device. Suitable for heat pumps to avoid compressor/generator restarts. VKG-HC have two additional couplings dedicated for an optional additional source.

Material: carbon steel



TESTED

External covering

Model	Type	Usage	
VKG-HC	coloured PVC	indoor	1
VKGE-HC	embossed aluminium sheet	outdoor	2

Insulation

Capacity (l)	Type
from 100 to 1000	High density rigid polyurethane foam
from 1.500	Closed cell polyethylene foam + Polyester Fiber

Operational limits

Min temperature	Max temperature	Max pressure
-10 °C	90 °C	6 bar

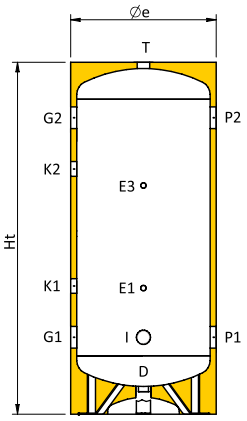
Standard Accessories: see pag. 128

Special versions: see pag. 129

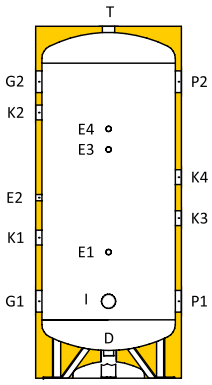
Capacity l	VKG-HC vertical, coloured PVC Code	Price	VKGE-HC vertical, embossed al. sheet Code	Price	Energy label	With packaging, vertical Dimensions cm	Weight kg
100	817010084X		817010168H8X		B	49x49x107	25
200	817010085X		817010169H8X		C	54x54x146,1	36
300	817010086X		817010170H8X		B	64x64x180	48
500	817010087X		817010171H8X		C	74x74x184,1	80
750	817010214X		817010214H8X		C	95x95x178	106
1000	817010089X		817010173H8X		C	105x105x209	130
1500	817010090X				C	130X130X238	218
2000	817010091X				C	140X140X270	260
2500	817010177X					150X150X249	293
3000	817010178X					150X150X299	340
4000	817010179X					170X170X306	490
5000	817010180X					190X190X310	580

Cold Water Storage Tanks: Dimensions VKG-HC, VKGE-HC series

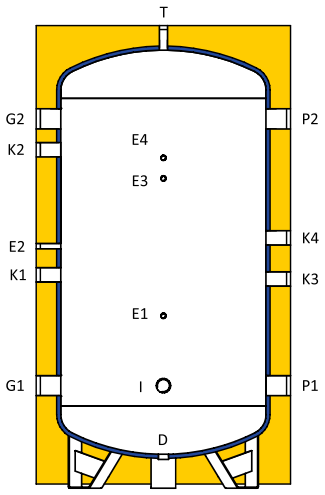
100 ≤ cap. ≤ 200



300 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Cap. l	D inch	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	T inch
100	1"1/4	1/2"	-	1/2"	-	1"1/2	1"1/2	2"	1"1/2	1"1/2	-	-	1"1/2	1"1/2	1"1/4
200	1"1/4	1/2"	-	1/2"	-	1"1/2	1"1/2	2"	1"1/2	1"1/2	-	-	1"1/2	1"1/2	1"1/4
300	1"1/4	1/2"	1/2"	1/2"	1/2"	2"	2"	2"	1"1/2	1"1/2	1"1/2	1"1/2	2"	2"	1"1/4
500	1"1/4	1/2"	1/2"	1/2"	1/2"	3"	3"	2"	2"	2"	2"	2"	3"	3"	1"1/4
750	1"1/2	1/2"	1/2"	1/2"	1/2"	3"	3"	2"	2"	2"	2"	2"	3"	3"	1"1/2
1000	1"1/2	1/2"	1/2"	1/2"	1/2"	3"	3"	2"	2"	2"	2"	2"	3"	3"	1"1/2
1500	2"	1/2"	1/2"	1/2"	1/2"	3"	3"	2"	2"	2"	2"	2"	3"	3"	2"
2000	2"	1/2"	1/2"	1/2"	1/2"	3"	3"	2"	2"	2"	2"	2"	3"	3"	2"
2500	2"	1/2"	1/2"	1/2"	1/2"	4"	4"	2"	2"	2"	2"	2"	4"	4"	2"
3000	2"	1/2"	1/2"	1/2"	1/2"	4"	4"	2"	2"	2"	2"	2"	4"	4"	2"
4000	2"	1/2"	1/2"	1/2"	1/2"	4"	4"	2"	2"	2"	2"	2"	4"	4"	2"
5000	2"	1/2"	1/2"	1/2"	1/2"	4"	4"	2"	2"	2"	2"	2"	4"	4"	2"

Size chart

Cap. l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm
100	460	950	1060	125	395	-	655	-	285	765	285	445	605	-	-	285	765
200	510	1335	1430	125	520	-	920	-	320	1120	320	580	850	-	-	320	1120
300	610	1680	1790	130	555	895	1055	1155	355	1405	355	645	1255	780	980	355	1405
500	760	1735	1895	140	620	885	1120	1220	380	1450	380	690	1300	785	985	380	1450
750	910	1765	1990	125	685	885	1145	1245	395	1445	395	685	1295	820	1020	395	1445
1000	1010	2075	2310	125	755	1095	1405	1505	415	1715	415	955	1565	955	1155	415	1715
1500	1220	2245	2560	165	840	1180	1510	1610	500	1800	500	1040	1650	1020	1220	500	1800
2000	1320	2565	2885	155	885	1450	1815	1915	505	2105	505	1345	1955	1180	1380	505	2105
2500	1470	2360	2785	180	1015	1255	1515	1665	565	1865	565	1005	1615	1115	1315	565	1865
3000	1470	2860	3220	180	1315	1755	1815	1965	565	2365	565	1505	2115	1365	1565	565	2365
4000	1620	2930	3350	160	1340	1780	1840	1990	590	2390	590	1530	2140	1390	1590	590	2390
5000	1820	2970	3485	140	1350	1790	1850	2000	600	2400	600	1540	2150	1400	1600	600	2400

R*: Reversal quota

Cold Water Storage Tanks
VKG, VKGE series (carbon steel)

The VKG series includes insulated tanks for chilled water, normally used to increase the thermal inertia of the conditioning system.

Material: carbon steel

External covering

Model	Type	Usage	
VKG	coloured PVC	indoor	1
VKGE	embossed aluminium sheet	outdoor	2

Insulation

Capacity (l)	Type	Thick. (mm)
from 100 to 1000	High density rigid polyurethane foam	30
from 1500 + horizontal versions	Closed cell polyethylene foam	20

Operational limits

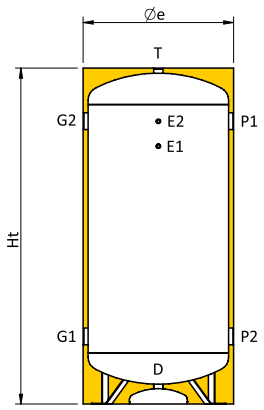
Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

Standard Accessories: see pag. 128
Special versions: see pag. 129

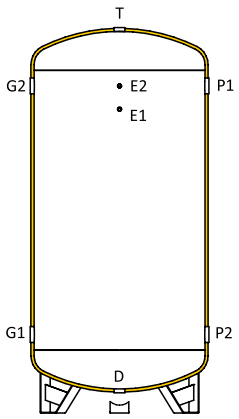
Capacity l	VKG vertical, PVC coloured		VKGE vertical, embossed al. sheet		With vertical packaging		VKG horizontal, PVC coloured	
	Code	Price	Code	Price	Dimensions cm	Weight kg	Code	Price
100	816010130		816011275H8X		49x49x107	24	816010142	
200	816010131		816011276H8X		54x54x145,5	36	816010143	
300	816010132		816011277H8X		64x64x154,5	46	816010144	
500	816010133		816011278H8X		74x74x183,5	78	816010145	
800	816010134		816011279H8X		88x88x186	105	816010146	
1000	816010135		816011280H8X		94x94x214,6	129	816010147	
1500	816010136				107x107x228	182	816010148	
2000	816010137				117x117x260	250	816010149	
2500	816010138				132x132x239,5	267	816010150	
3000	816010139				132x132x289,5	314	816010151	
4000	816010140				147x147x296,5	470	816010152	
5000	816010141				167x167x300,5	557	816010153	
6000	816011186X				282x203x204	647		
8000	816011187X				352x203x204	782		
10000	816011188X				427x203x204	927		

Cold Water Storage Tanks: Dimensions VKG VKGE

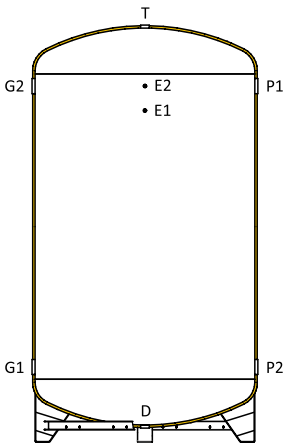
100 ≤ cap. ≤ 1000



1500 ≤ cap. ≤ 5.000



6000 ≤ cap. ≤ 10.000

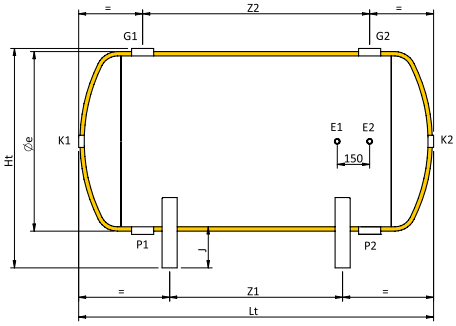


Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

Size and couplings chart for vertical version

Cap. l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	460	950	1060	125	610	760	290	760	760	290	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
200	510	1335	1430	120	990	1140	290	1140	1140	290	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
300	610	1425	1550	130	1015	1165	365	1165	1165	365	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	710	1710	1855	135	1285	1435	385	1435	1435	385	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
800	850	1740	1940	125	1295	1445	395	1445	1445	395	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1000	910	2025	2220	120	1560	1710	410	1710	1710	410	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1500	1040	2160	2400	165	1650	1800	500	1800	1800	500	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2000	1140	2480	2730	155	1955	2105	505	2105	2105	505	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2500	1290	2275	2620	180	1715	1865	565	1865	1865	565	2"	1/2"	1/2"	4"	4"	4"	4"	2"
3000	1290	2775	3060	180	2215	2365	565	2365	2365	565	2"	1/2"	1/2"	4"	4"	4"	4"	2"
4000	1440	2845	3190	160	2240	2390	590	2390	2390	590	2"	1/2"	1/2"	4"	4"	4"	4"	2"
5000	1640	2885	3320	140	2250	2400	600	2400	2400	600	2"	1/2"	1/2"	4"	4"	4"	4"	2"
6000	1840	2715	3280	140	2015	2215	615	2215	2215	615	2"	1/2"	1/2"	4"	4"	4"	4"	2"
8000	1840	3415	3880	140	2715	2915	615	2915	2915	615	2"	1/2"	1/2"	4"	4"	4"	4"	2"
10000	1840	4165	4555	140	3465	3665	615	3665	3665	615	2"	1/2"	1/2"	4"	4"	4"	4"	2"



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
K1	Auxiliary
K2	Auxiliary
P1	To energy source
P2	From energy source

Size and couplings chart for horizontal version

Cap. l	Øe mm	Lt mm	Ht mm	J mm	Z1 mm	Z2 mm	E1 inch	E2 inch	G1 inch	G2 inch	K1 inch	K2 inch	P1 inch	P2 inch
100	440	850	545	120	310	470	1/2"	1/2"	1"1/2	1"1/2	1"1/4	1"1/4	1"1/2	1"1/2
200	490	1240	595	120	700	850	1/2"	1/2"	1"1/2	1"1/2	1"1/4	1"1/4	1"1/2	1"1/2
300	590	1320	715	140	600	800	1/2"	1/2"	2"	2"	1"1/4	1"1/4	2"	2"
500	690	1600	865	190	900	1050	1/2"	1/2"	3"	3"	1"1/4	1"1/4	3"	3"
800	830	1640	1005	190	900	1050	1/2"	1/2"	3"	3"	1"1/2	1"1/2	3"	3"
1000	890	1930	1065	190	1130	1300	1/2"	1/2"	3"	3"	1"1/2	1"1/2	3"	3"
1500	1040	2020	1215	190	950	1300	1/2"	1/2"	3"	3"	2"	2"	3"	3"
2000	1140	2350	1325	200	1320	1600	1/2"	1/2"	3"	3"	2"	2"	3"	3"
2500	1290	2120	1500	225	1020	1300	1/2"	1/2"	4"	4"	2"	2"	4"	4"
3000	1290	2620	1500	225	1390	1800	1/2"	1/2"	4"	4"	2"	2"	4"	4"
4000	1440	2710	1650	225	1380	1800	1/2"	1/2"	4"	4"	2"	2"	4"	4"
5000	1640	2770	1850	225	1380	1800	1/2"	1/2"	4"	4"	2"	2"	4"	4"

R*: Reversal quota

Cold Water Storage Tanks
VK, VKE series (galvanized)

The VK, VKE series has galvanized and insulated tanks for chilled water, which are usually used to increase the thermal inertia of the conditioning device. The galvanization offers protection against corrosion..

TESTED

Material: carbon steel
Treatment: internal and external hot-dip galvanization

External covering

Model	Type	Usage	
VK	coloured PVC	indoor	1
VKE	embossed aluminium sheet	outdoor	2

Insulation

Capacity (l)	Type	Thick. (mm)
from 100 to 1000	High density rigid polyurethane foam	30
from 1500 + horizontal versions	Closed cell polyethylene foam	20

Operational limits

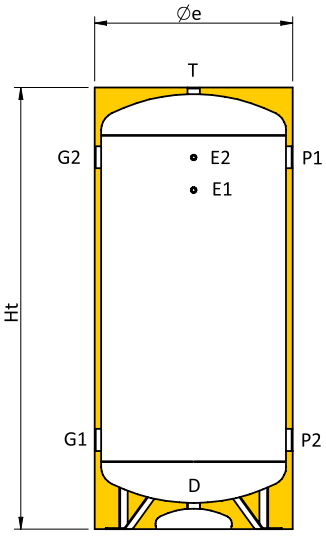
Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

Standard Accessories: see pag. 128
Special versions: see pag. 129

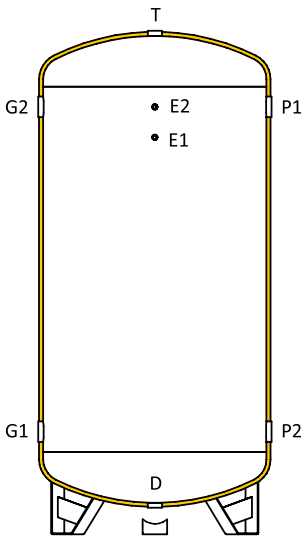
Capacity l	VK vertical, PVC coloured Code	Price	VKE vertical, embossed al. sheet Code	Price	With vertical packaging Dimensions cm	Weight kg	VK horizontal, PVC coloured Code	Price
100	816020064		816020040H8X		49x49x107	25	816020076	
200	816020065		816020041H8X		54x54x145,5	37	816020077	
300	816020066		816020042H8X		64x64x154,5	48	816020078	
500	816020067		816020043H8X		74x74x183,5	81	816020079	
800	816020068		816020044H8X		88x88x186	110	816020080	
1000	816020069		816020045H8X		94x94x214,6	135	816020081	
1500	816020070				107x107x228	192	816020082	
2000	816020071				117x117x260	264	816020083	
2500	816020072				132x132x239,5	281	816020084	
3000	816020073				132x132x289,5	331	816020085	
4000	816020074				147x147x296,5	496	816020086	
5000	816020075				167x167x300,5	587	816020087	

Cold Water Storage Tanks: Dimensions VK VKE

100 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000

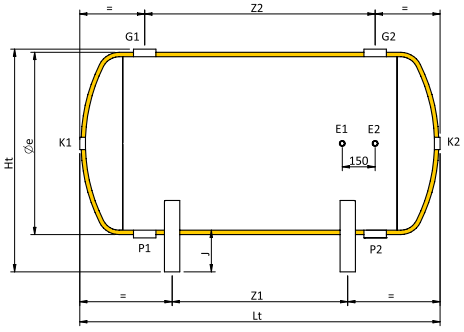


Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

Size and couplings chart for vertical version

Cap. l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	460	950	1060	125	610	760	290	760	760	290	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
200	510	1335	1430	120	990	1140	290	1140	1140	290	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
300	610	1425	1555	130	1015	1165	365	1165	1165	365	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	710	1710	1855	135	1285	1435	385	1435	1435	385	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
800	850	1740	1940	125	1295	1445	395	1445	1445	395	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1000	910	2025	2225	120	1560	1710	410	1710	1710	410	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1500	1040	2160	2400	165	1650	1800	500	1800	1800	500	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2000	1140	2480	2730	155	1955	2105	505	2105	2105	505	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2500	1290	2275	2620	180	1715	1865	565	1865	1865	565	2"	1/2"	1/2"	4"	4"	4"	4"	2"
3000	1290	2775	3060	180	2215	2365	565	2365	2365	565	2"	1/2"	1/2"	4"	4"	4"	4"	2"
4000	1440	2845	3190	160	2240	2390	590	2390	2390	590	2"	1/2"	1/2"	4"	4"	4"	4"	2"
5000	1640	2885	3320	140	2250	2400	600	2400	2400	600	2"	1/2"	1/2"	4"	4"	4"	4"	2"



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
K1	Auxiliary
K2	Auxiliary
P1	To energy source
P2	From energy source

Size and couplings chart for horizontal version

Cap. l	Øe mm	Lt mm	Ht mm	J mm	Z1 mm	Z2 mm	E1 inch	E2 inch	G1 inch	G2 inch	K1 inch	K2 inch	P1 inch	P2 inch
100	440	850	545	120	310	470	1/2"	1/2"	1"1/2	1"1/2	1"1/4	1"1/4	1"1/2	1"1/2
200	490	1240	595	120	700	850	1/2"	1/2"	1"1/2	1"1/2	1"1/4	1"1/4	1"1/2	1"1/2
300	590	1320	715	140	600	800	1/2"	1/2"	2"	2"	1"1/4	1"1/4	2"	2"
500	690	1600	865	190	900	1050	1/2"	1/2"	3"	3"	1"1/4	1"1/4	3"	3"
800	830	1640	1005	190	900	1050	1/2"	1/2"	3"	3"	1"1/2	1"1/2	3"	3"
1000	890	1930	1065	190	1130	1300	1/2"	1/2"	3"	3"	1"1/2	1"1/2	3"	3"
1500	1040	2020	1215	190	950	1300	1/2"	1/2"	3"	3"	2"	2"	3"	3"
2000	1140	2350	1325	200	13320	1600	1/2"	1/2"	3"	3"	2"	2"	3"	3"
2500	1290	2120	1500	225	1020	1300	1/2"	1/2"	4"	4"	2"	2"	4"	4"
3000	1290	2620	1500	225	1390	1800	1/2"	1/2"	4"	4"	2"	2"	4"	4"
4000	1440	2710	1650	225	1380	1800	1/2"	1/2"	4"	4"	2"	2"	4"	4"
5000	1640	2770	1850	225	1380	1800	1/2"	1/2"	4"	4"	2"	2"	4"	4"

R*: Reversal quota

Cold Water Storage Tanks VKT series (enamelled)

The tanks in the VKT series, which are internally enamelled and insulated for use with chilled water, are usually used to increase thermal inertia in Layout 2 plants. The internal enamelling ensures protection against corrosion.

Material: carbon steel
Treatment: Bluetech internal enamelling with thermosetting resins

TESTED

External covering

Model	Type	Usage
VKT	coloured PVC	indoor

Insulation

Capacity (l)	Type	Thick. (mm)
from 100 to 1000	High density rigid polyurethane foam	30
from 1500	Closed cell polyethylene foam	20

Operational limits

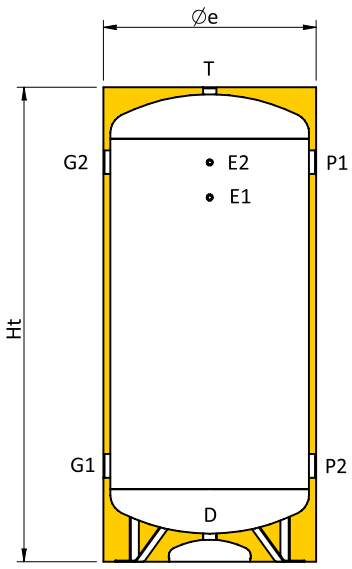
Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

Standard Accessories: see pag. 128
Special versions: see pag. 129

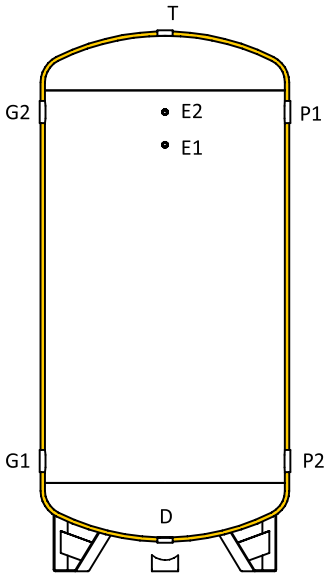
Capacity l	VKT Code	VKT Price	With packaging vertical Dimensions cm	With packaging vertical Weight kg
100	816080001X		49x49x107	24
200	816080002X		54x54x145,5	36
300	816080003X		64x64x154,5	46
500	816080004X		74x74x183,5	78
800	816080005X		88x88x186	105
1000	816080006X		94x94x214,6	129
1500	816080007X		107x107x228	182
2000	816080008X		117x117x260	250
2500	816080009X		132x132x239,5	267
3000	816080010X		132x132x289,5	314
4000	816080011X		147x147x296,5	470
5000	816080012X		167x167x300,5	557

Cold Water Storage Tanks: Dimensions VKT series

100 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Capacity l	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
200	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
300	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
800	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1000	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1500	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2000	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2500	2"	1/2"	1/2"	4"	4"	4"	4"	2"
3000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
4000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
5000	2"	1/2"	1/2"	4"	4"	4"	4"	2"

Size chart

Capacity l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm
100	460	950	1060	125	610	760	290	760	760	290
200	510	1335	1430	120	990	1140	290	1140	1140	290
300	610	1425	1555	130	1015	1165	365	1165	1165	365
500	710	1710	1855	135	1285	1435	385	1435	1435	385
800	850	1740	1940	125	1295	1445	395	1445	1445	395
1000	910	2025	2225	120	1560	1710	410	1710	1710	410
1500	1040	2160	2400	165	1650	1800	500	1800	1800	500
2000	1140	2480	2730	155	1955	2105	505	2105	2105	505
2500	1290	2275	2620	180	1715	1865	565	1865	1865	565
3000	1290	2775	3060	180	2215	2365	565	2365	2365	565
4000	1440	2845	3190	160	2240	2390	590	2390	2390	590
5000	1640	2885	3320	140	2250	2400	600	2400	2400	600

R*: Reversal quota

Cold Water Storage Tanks
VKX series (stainless steel)

The VKX series includes insulated stainless steel tanks for chilled water, which are usually used to increase thermal inertia in single or double loop plants. The stainless steel protects the device against corrosion and makes it possible to use the tank in aggressive environments and in industrial settings.

Material: stainless steel AISI 316
Treatment for internal protection: Pickling and passivation

TESTED

External covering

Model	Type	Usage
VKX	coloured PVC	indoor

Insulation

Capacity (l)	Type	Thick. (mm)
from 100 to 5000	Closed cell polyethylene foam	20

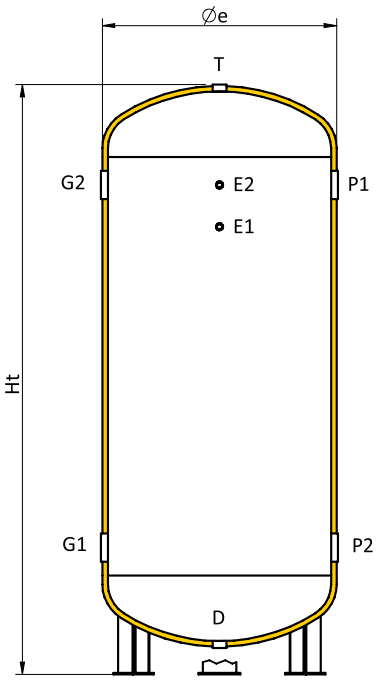
Operational limits

Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

Standard Accessories: see pag. 128
Special versions: see pag. 129

Capacity l	VKX AISI 316 Code	Price	With packaging Dimensions cm
100	816040141X		47x47x105
200	816040142X		52x52x152
300	816040143X		62x62x154,5
500	816040144X		67x67x200
800	816040145X		86x86x197
1000	816040146X		87x87x224
1500	816040147X		107x107x225
2000	816040148X		127x127x233
2500	816040149X		127x127x258
3000	816040150X		132x132x285
4000	816040151X		147x147x293
5000	816040152X		167x167x296

Cold Water Storage Tanks: Dimensions VKX series



Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Capacity l	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
200	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
300	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	1"1/4	1/2"	1/2"	2"1/2	2"1/2	2"1/2	2"1/2	1"1/4
800	1"1/4	1/2"	1/2"	2"1/2	2"1/2	2"1/2	2"1/2	1"1/4
1000	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
1500	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
2000	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
2500	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
3000	1"1/4	1/2"	1/2"	4"	4"	4"	4"	1"1/4
4000	1"1/4	1/2"	1/2"	4"	4"	4"	4"	1"1/4
5000	1"1/4	1/2"	1/2"	4"	4"	4"	4"	1"1/4

Size chart

Capacity l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm
100	440	930	1030	585	735	265	735	735	265
200	490	1400	1485	1000	1150	300	1150	1150	300
300	590	1425	1545	1020	1170	320	1170	1170	320
500	640	1880	2005	1470	1620	320	1620	1620	320
800	830	1850	2030	1345	1495	445	1495	1495	445
1000	840	2120	2300	1605	1755	455	1755	1755	455
1500	1040	2130	2370	1615	1765	465	1765	1765	465
2000	1240	2210	2490	1650	1800	500	1800	1800	500
2500	1240	2460	2780	1900	2050	500	2050	2050	500
3000	1290	2730	3020	2165	2315	515	2315	2315	515
4000	1440	2810	3160	2200	2350	550	2350	2350	550
5000	1640	2840	3280	2200	2350	550	2350	2350	550

R*: Reversal quota

Cold Water Storage Tanks VKS series (internal baffles)

The VKS series includes insulated tanks for chilled water, which are usually used to increase thermal inertia in Layout 2 cooling devices. They are equipped with internal baffles which prevent preferential flow in the tank by creating perfect conditions for temperature distribution. They are especially used with medium and high flows and with special versions in which the tank is to be connected with more than two circuits.

Material: carbon steel

External covering

Model	Type	Usage
VKS	coloured PVC	indoor

Insulation

Capacity (l)	Type	Thick. (mm)
from 100 to 1000	High density rigid polyurethane foam	30
from 1500	Closed cell polyethylene foam	20

Operational limits

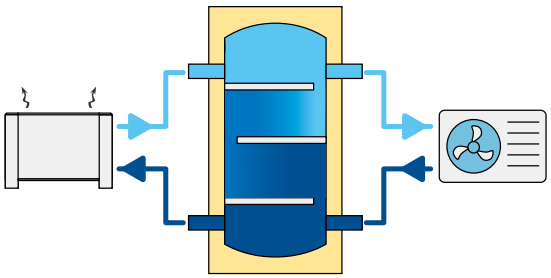
Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

TESTED

Standard Accessories: see pag. 128

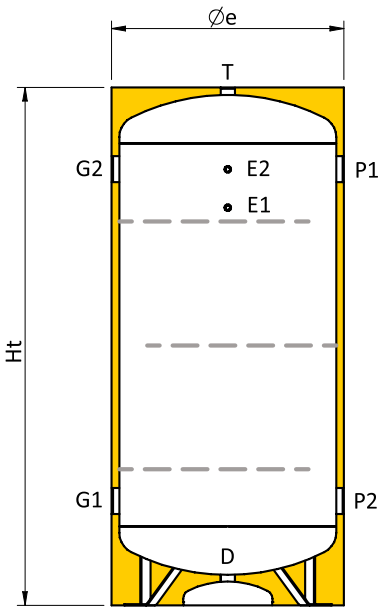
Special versions: see pag. 129

Capacity l	VKS Code	VKS Price	With vertical packaging Dimensions cm	With vertical packaging Weight kg
100	816010166		49x49x107	29
200	816010167		54x54x145,5	41
300	816010168		64x64x154,5	55
500	816010169		74x74x183,5	91
800	816010170		88x88x186	122
1000	816010171		94x94x214,6	149
1500	816010172		107x107x228	208
2000	816010173		117x117x260	282
2500	816010174		132x132x239,5	307
3000	816010175		132x132x289,5	356
4000	816010176		147x147x296,5	519
5000	816010177		167x167x300,5	621

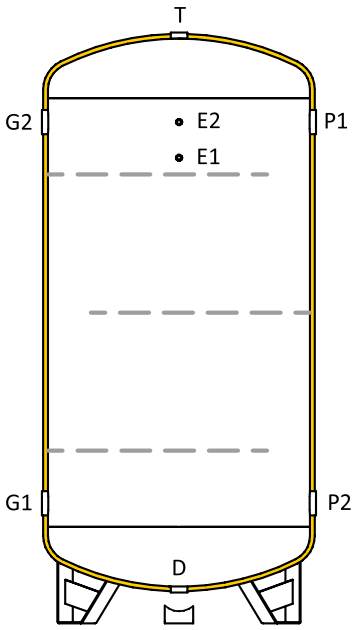


Cold Water Storage Tanks: Dimensions VKS series

100 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Capacity l	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
200	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
300	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
800	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1000	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1500	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2000	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2500	2"	1/2"	1/2"	4"	4"	4"	4"	2"
3000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
4000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
5000	2"	1/2"	1/2"	4"	4"	4"	4"	2"

Size chart

Capacity l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm
100	460	950	1060	125	610	760	290	760	760	290
200	510	1335	1430	120	990	1140	290	1140	1140	290
300	610	1425	1555	130	1015	1165	365	1165	1165	365
500	710	1710	1855	135	1285	1435	385	1435	1435	385
800	850	1740	1940	125	1295	1445	395	1445	1445	395
1000	910	2025	2225	120	1560	1710	410	1710	1710	410
1500	1040	2160	2400	165	1650	1800	500	1800	1800	500
2000	1140	2480	2730	155	1955	2105	505	2105	2105	505
2500	1290	2275	2620	180	1715	1865	565	1865	1865	565
3000	1290	2775	3060	180	2215	2365	565	2365	2365	565
4000	1440	2845	3190	160	2240	2390	590	2390	2390	590
5000	1640	2885	3320	140	2250	2400	600	2400	2400	600

R*: Reversal quota

Cold Water Storage Tanks VKR series (conveyor pipes)

The insulated VKR tanks for chilled water are usually used to increase the thermal inertia of the Layout 2 conditioning device with a medium or high flow. They are equipped with the double loop cooling device which create a preferential circuit inside the tank.

Material: carbon steel

TESTED

External covering

Model	Type	Usage
VKR	coloured PVC	indoor

Insulation

Capacity (l)	Type	Thick. (mm)
from 100 to 1000	High density rigid polyurethane foam	30
from 1500	Closed cell polyethylene foam	20

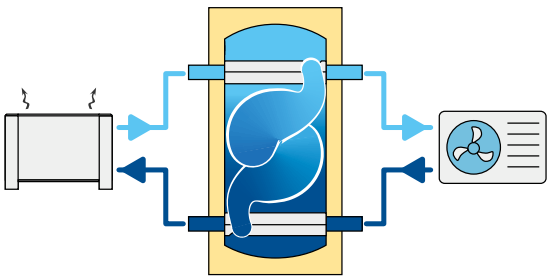
Operational limits

Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

Standard Accessories: see pag. 128

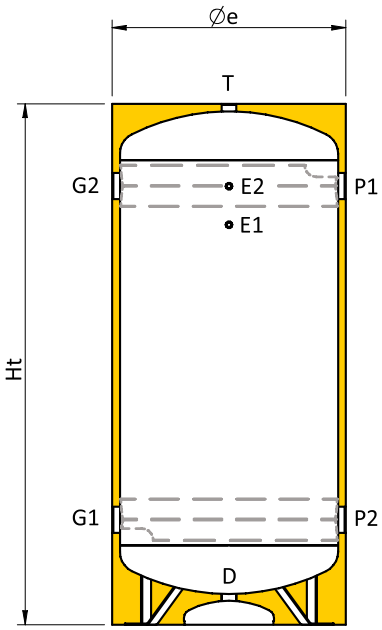
Special versions: see pag. 129

Capacity l	VKR Code	VKR Price	With packaging vertical Dimensions cm	With packaging vertical Weight kg
100	816010154		49x49x107	26
200	816010155		54x54x145,5	37
300	816010156		64x64x154,5	50
500	816010157		74x74x183,5	85
800	816010158		88x88x186	113
1000	816010159		94x94x214,6	137
1500	816010160		107x107x228	193
2000	816010161		117x117x260	262
2500	816010162		132x132x239,5	283
3000	816010163		132x132x289,5	330
4000	816010164		147x147x296,5	487
5000	816010165		167x167x300,5	577

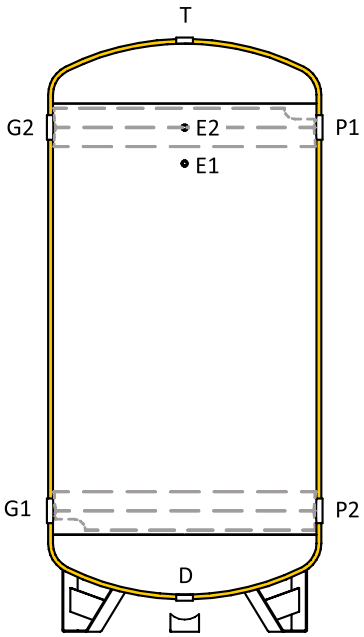


Cold Water Storage Tanks: Dimensions VKR series

100 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Capacity l	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
200	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
300	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
800	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1000	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1500	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2000	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2500	2"	1/2"	1/2"	4"	4"	4"	4"	2"
3000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
4000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
5000	2"	1/2"	1/2"	4"	4"	4"	4"	2"

Size chart

Capacity l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm
100	460	950	1060	125	610	760	290	760	760	290
200	510	1335	1430	120	990	1140	290	1140	1140	290
300	610	1425	1555	130	1015	1165	365	1165	1165	365
500	710	1710	1855	135	1285	1435	385	1435	1435	385
800	850	1740	1940	125	1295	1445	395	1445	1445	395
1000	910	2025	2225	120	1560	1710	410	1710	1710	410
1500	1040	2160	2400	165	1650	1800	500	1800	1800	500
2000	1140	2480	2730	155	1955	2105	505	2105	2105	505
2500	1290	2275	2620	180	1715	1865	565	1865	1865	565
3000	1290	2775	3060	180	2215	2365	565	2365	2365	565
4000	1440	2845	3190	160	2240	2390	590	2390	2390	590
5000	1640	2885	3320	140	2250	2400	600	2400	2400	600

R*: Reversal quota

Cold Water Storage Tanks VKD series (diffusing pipes)

The insulated VKD tanks for chilled water are usually used to increase thermal inertia of the Layout 2 conditioning device. They are equipped with diffuser pipes which connect the two circuits linked to the tank. Energy is supplied or subtracted through the diffuser's circumferential probes. In this way the mixing of fluids is significantly reduced.

TESTED

Material: carbon steel

External covering

Model	Type	Usage
VKD	coloured PVC	indoor

Insulation

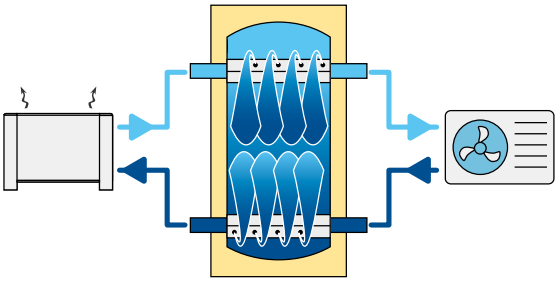
Capacity (l)	Type	Thick. (mm)
from 100 to 1000	High density rigid polyurethane foam	30
from 1500	Closed cell polyethylene foam	20

Operational limits

Min temperature	Max temperature	Max pressure
-10 °C	60 °C	6 bar

Standard Accessories: see pag. 128

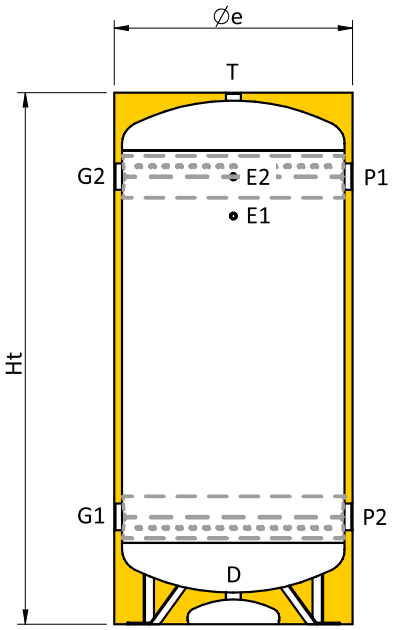
Special versions: see pag. 129



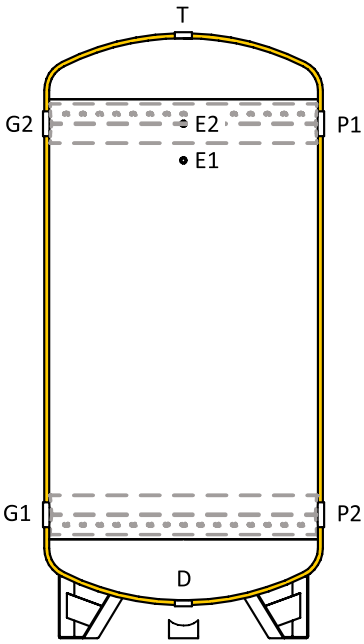
Capacity l	VKD Code	VKD Price	With packaging vertical Dimensions cm	With packaging vertical Weight kg
100	816010417		49x49x107	26
200	816010418		54x54x145,5	37
300	816010419		64x64x154,5	50
500	816010420		74x74x183,5	85
800	816010421		88x88x186	113
1000	816010422		94x94x214,6	138
1500	816010423		107x107x228	193
2000	816010424		117x117x260	262
2500	816010425		132x132x239,5	283
3000	816010426		132x132x289,5	330
4000	816010427		147x147x296,5	487
5000	816010428		167x167x300,5	577

Cold Water Storage Tanks: Dimensions VKD series

100 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
G1	From plant
G2	To plant
P1	To energy source
P2	From energy source
T	Vent

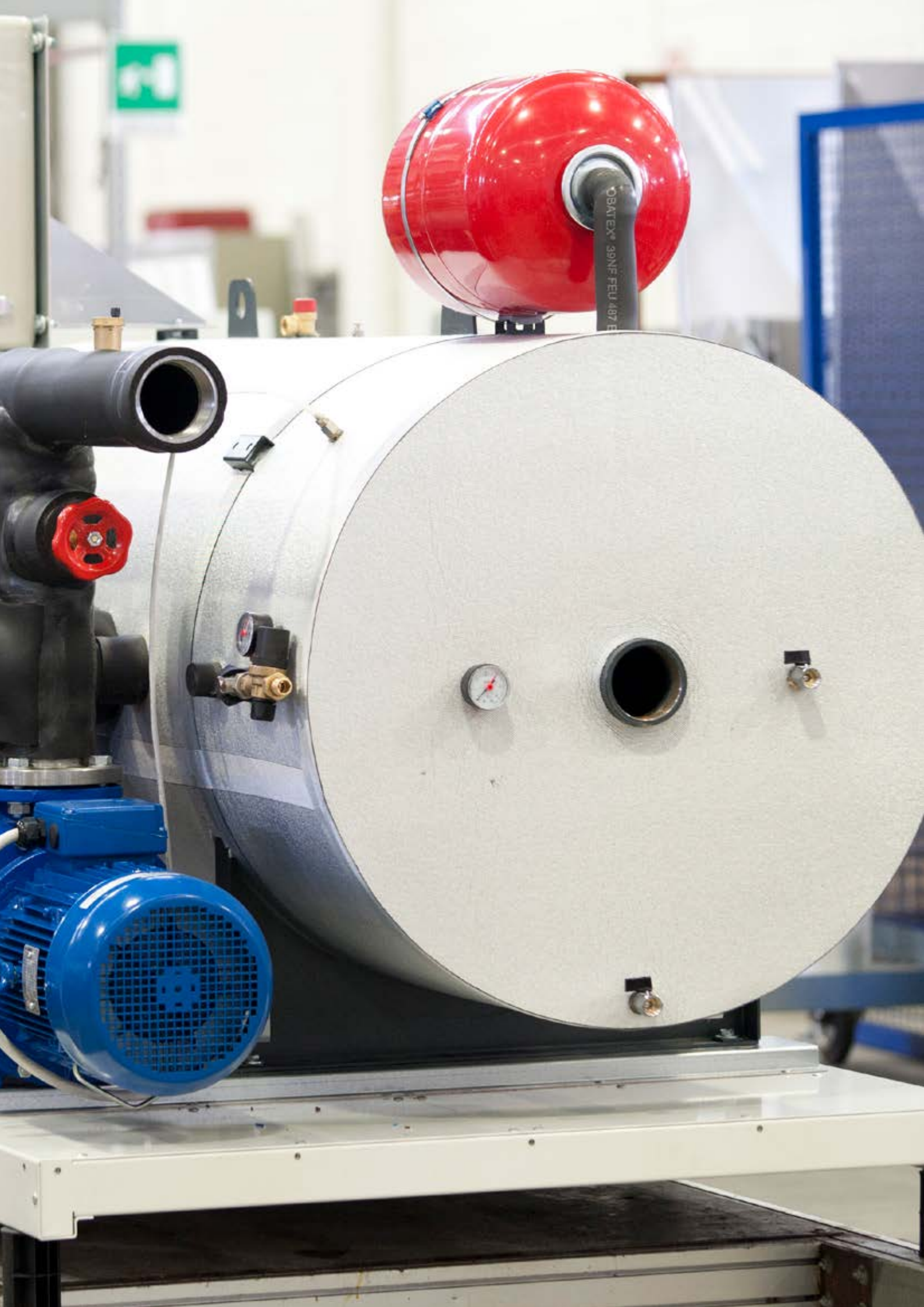
Couplings chart

Capacity l	D inch	E1 inch	E2 inch	G1 inch	G2 inch	P1 inch	P2 inch	T inch
100	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
200	1"1/4	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/4
300	1"1/4	1/2"	1/2"	2"	2"	2"	2"	1"1/4
500	1"1/4	1/2"	1/2"	3"	3"	3"	3"	1"1/4
800	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1000	1"1/2	1/2"	1/2"	3"	3"	3"	3"	1"1/2
1500	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2000	2"	1/2"	1/2"	3"	3"	3"	3"	2"
2500	2"	1/2"	1/2"	4"	4"	4"	4"	2"
3000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
4000	2"	1/2"	1/2"	4"	4"	4"	4"	2"
5000	2"	1/2"	1/2"	4"	4"	4"	4"	2"

Size chart

Capacity l	Øe mm	Ht mm	R* mm	D mm	E1 mm	E2 mm	G1 mm	G2 mm	P1 mm	P2 mm
100	460	950	1060	125	610	760	290	760	760	290
200	510	1335	1430	120	990	1140	290	1140	1140	290
300	610	1425	1555	130	1015	1165	365	1165	1165	365
500	710	1710	1855	135	1285	1435	385	1435	1435	385
800	850	1740	1940	125	1295	1445	395	1445	1445	395
1000	910	2025	2225	120	1560	1710	410	1710	1710	410
1500	1040	2160	2400	165	1650	1800	500	1800	1800	500
2000	1140	2480	2730	155	1955	2105	505	2105	2105	505
2500	1290	2275	2620	180	1715	1865	565	1865	1865	565
3000	1290	2775	3060	180	2215	2365	565	2365	2365	565
4000	1440	2845	3190	160	2240	2390	590	2390	2390	590
5000	1640	2885	3320	140	2250	2400	600	2400	2400	600

R*: Reversal quota


OBATEX® 39NF FEU 487

Hydronic Kits

Contents

HPT
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HP 2.0
pag. 106

VKB 2.0
pag. 118

Hydronic kit

The VKB 2.0, HPT and HP 2.0 units are meant to optimize the performance of heating and cooling installations and to reduce the installation time.

The units have an integrated system, which contains all the needed components for an efficient functioning of the hydraulic circuit (or for the distribution of chilled water).

They are designed, pre-assembled and every unit is tested in our factory. In this way we guarantee quality in our products and a fast and simple installation. The kits are available with a broad range of Pump/Tank combinations which can be used with any kind of cooling device or heat pump.

The units are made of materials and finished in a certain way which makes it possible to install outdoor. They can be customized according to the client's specific requirements.

Advantages

- ✔ Easy installation
- ✔ All units are tested
- ✔ Pre-assembled system
- ✔ Fast installation
- ✔ Excellent dimensions
- ✔ Low energy consumption

HPT
Unit with tank, pump and accessories

VKB 2.0
Unit with tank and accessories

HP 2.0
Unit with pump and accessories

The units are in accordance with the directives emitted by the European Union and labelled with the CE mark.

In accordance with the ErP directive
Efficient usage of energy

Pre-assembled accessories and tested for a fast and secure installation

Tank units for chilled water Hydronic systems: HPT

Carbon steel tank and tubes insulated with anti-condensate elastomer

The HPT units are hydraulic units with buffer tanks designed to reduce the production time of conditioning and cooling systems. They can be equipped with all different kinds of water coolers.

The HPT units are made of:

- carbon steel tank and tubes insulated with anti-condensate elastomer
- Centrifugal single or double pump with a shut-off valve
- Switchboard with possibility to alternate the pumps with every start-up (2 pump version), to start-up the backup pump in case of breakdown (2 pump version), magnetothermic protection, cleaned contact to signalise the distance between the pumps, protection category IP55
- Expansion vessel
- Safety valve
- Deaerator
- Manometer
- Fill-up/drain valve
- Base and self-supporting panels made of galvanized and coated steel sheets, suitable for outdoor installations.

Available versions

The broad range of pump-tank combinations makes it possible to meet all requirements. Numerous versions are available: with a single or a double pump and with tanks with a capacity of 100, 200, 300, 500, 750, 1000, 1500 and 2500 litres.

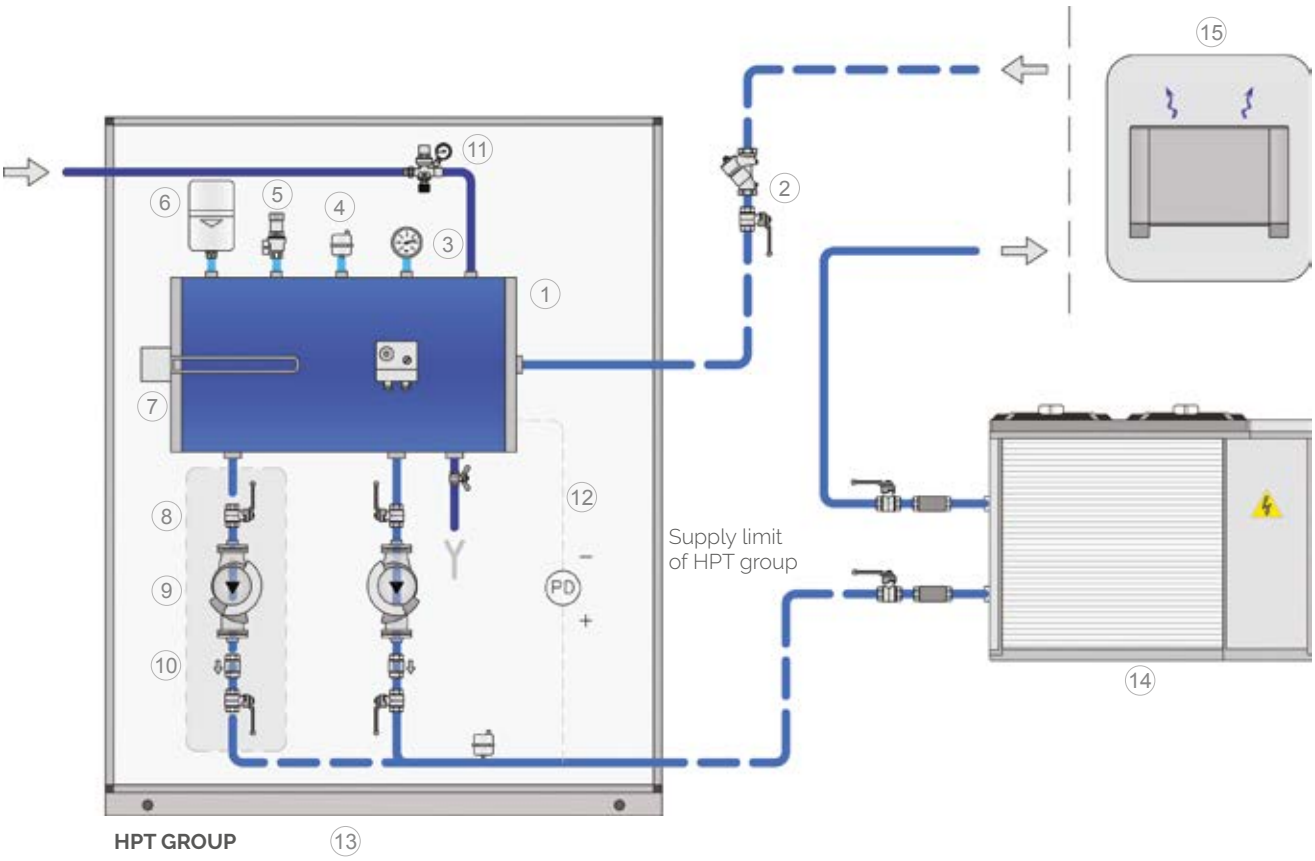
Accessories

For the accessories list see pag. 104

HPT hydronic systems
Layout 1 - STANDARD

Layout 1 Features: Hydronic kit, chiller and system connected in series, hence the water flow is constant throughout the plant.

NOTE: All HPT Fiorini standard kit kits are Layout 1



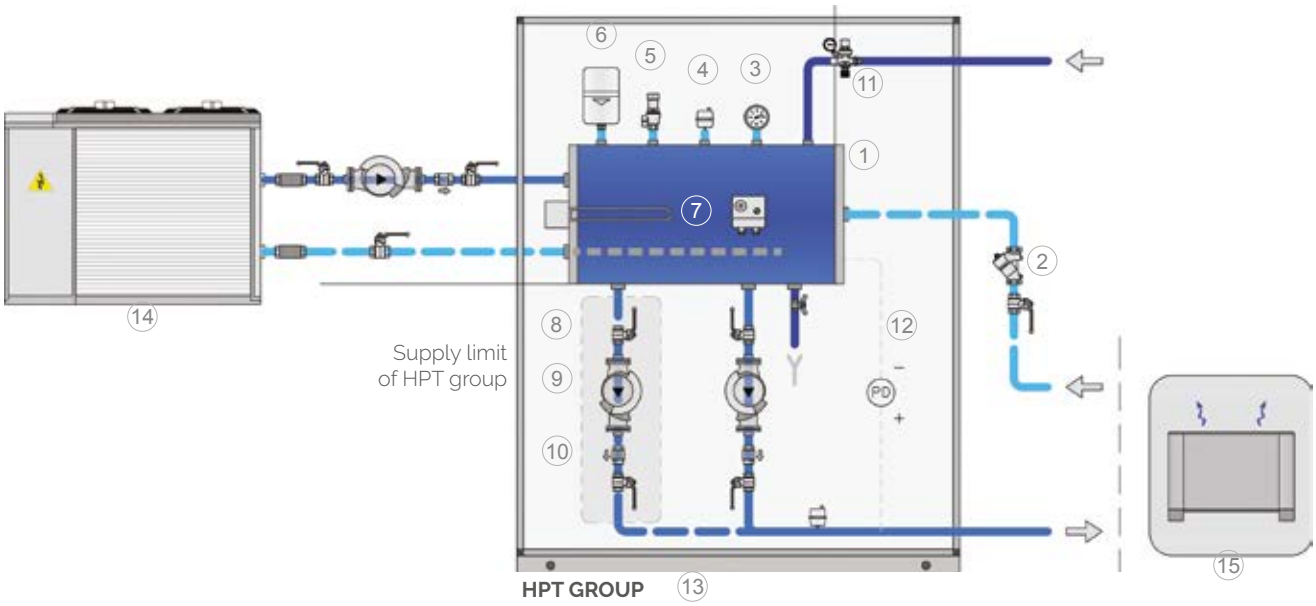
Legend

1. Storage tank
2. Y filter. Optional, supplied non-assembled
3. Manometer
4. Deaerator
5. Safety valve
6. Expansion vessel
7. Kit with electric anti-freeze resistance and anti-freeze thermostat (optional)
8. On-off valve
9. Circulator
10. Check valve (only version with 2 pumps)
11. Automatic filling unit
12. Differential pressure switch (optional)
13. Self-supporting wooden structure for outside placement
14. Chiller
15. Device

HPT hydronic system
Layout 2 - SPECIAL VERSION

Layout 2 Features: Hydronic Kit and Chiller create the primary circuit, Hydronic Kit and Plant create the secondary circuit. Hence, the two circuits have independent flow rates.

NOTE: Pump unit supplied only on one of the two circuits.



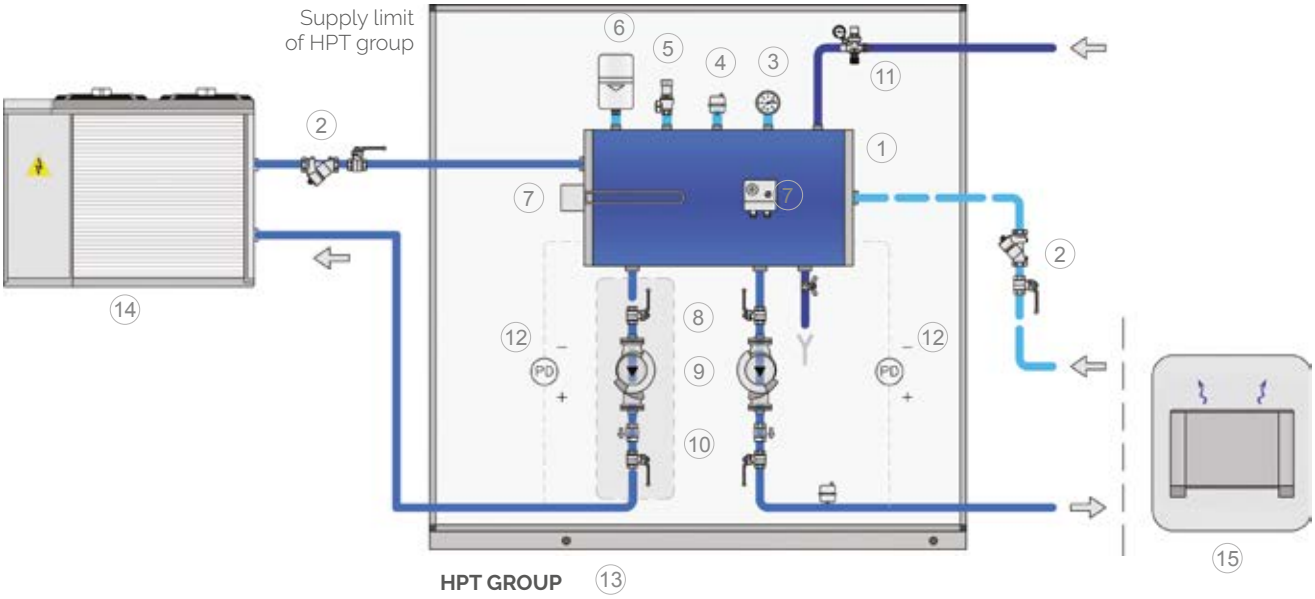
Legend

1. Storage tank
2. Y filter. Optional, supplied non-assembled
3. Manometer
4. Deaerator
5. Safety valve
6. Expansion vessel
7. Kit with electric anti-freeze resistance and anti-freeze thermostat (optional)
8. On-off valve
9. Circulator
10. Check valve (only version with 2 pumps)
11. Automatic filling unit
12. Differential pressure switch (optional)
13. Self-supporting wooden structure for outdoor placement
14. Chiller
15. Device

HPT hydronic system
Layout 3 - SPECIAL VERSION

Layout 3 features: Hydronic Kit and Chiller create the primary circuit, Hydronic Kit and the system create the independent secondary circuit. Then the two circuits have independent flow rates.

NOTE: Pump assembly supplied on both circuits.

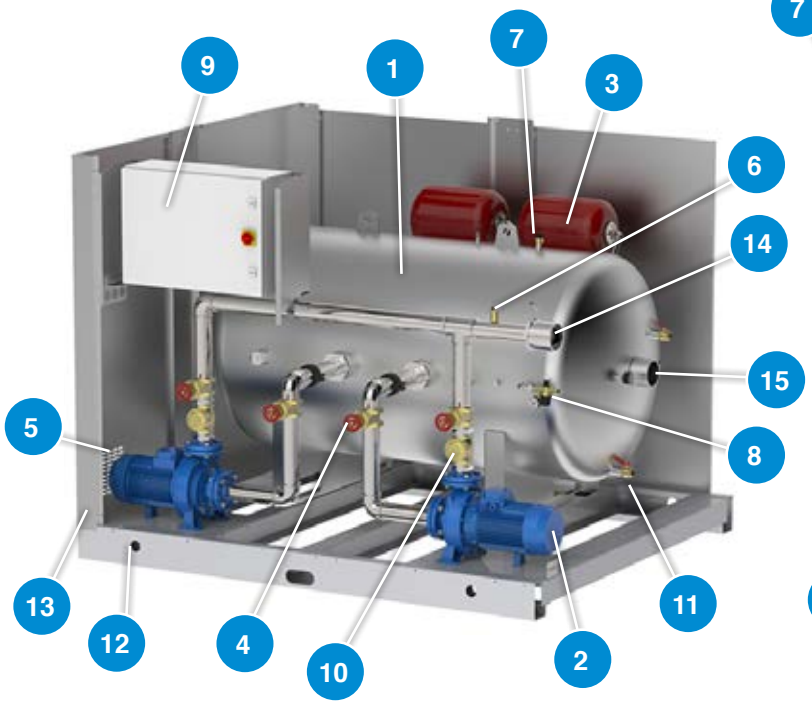


Legend

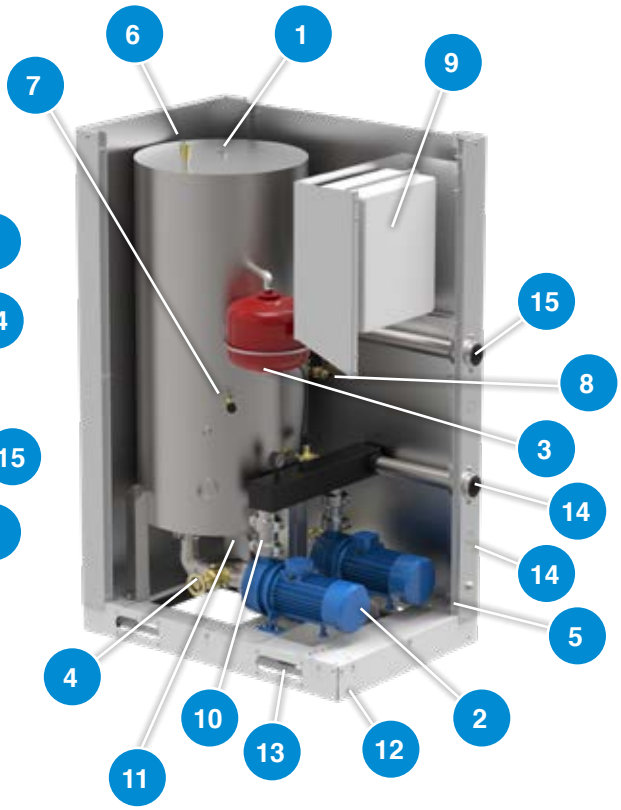
1. Storage tank
2. Y filter. Optional, supplied non-assembled
3. Manometer
4. Deaerator
5. Safety valve
6. Expansion vessel
7. Kit with electric anti-freeze resistance and anti-freeze thermostat (optional)
8. On-off valve
9. Circulator
10. Check valve (only version with 2 pumps)
11. Automatic filling unit
12. Differential pressure switch (optional)
13. Self-supporting wooden structure for outside placement
14. Chiller
15. Device

Hydronic systems
HPT: components

Horizontal HPT



Vertical HPT

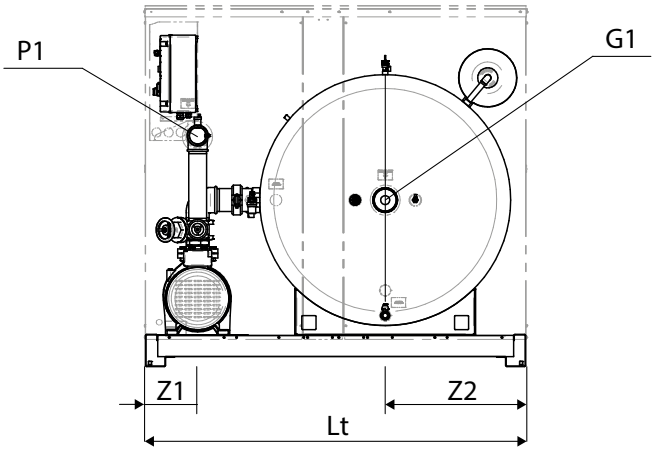


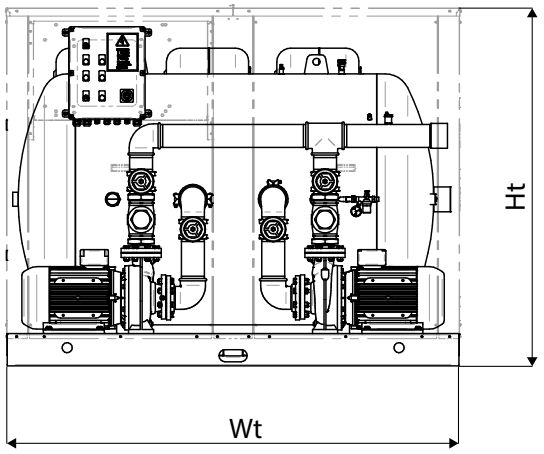
	Components
1	Tank
2	Circulator
3	Expansion vessel
4	On-off valve
5	Automatic ventilation system
6	Pressure relief valve
7	Safety valve
8	Automatic filling unit
9	Switchboard
10	Control valve (version with 2 pumps)
11	Drain
12	Anchoring point (4-6 holes m12/ ø14)
13	Inlet power grid
14	Water outlet
15	Water inlet

	Components
1	Tank
2	Circulator
3	Expansion vessel
4	On-off valve
5	Automatic ventilation system
6	Pressure relief valve
7	Safety valve
8	Automatic filling unit
9	Switchboard
10	Control valve (version with 2 pumps)
11	Drain
12	Inlet power grid
13	Jacking points
14	Water outlet
15	Water inlet

Hydronic systems
HPT: dimensions and connections

Horizontal version





Horizontal HPT dimensions

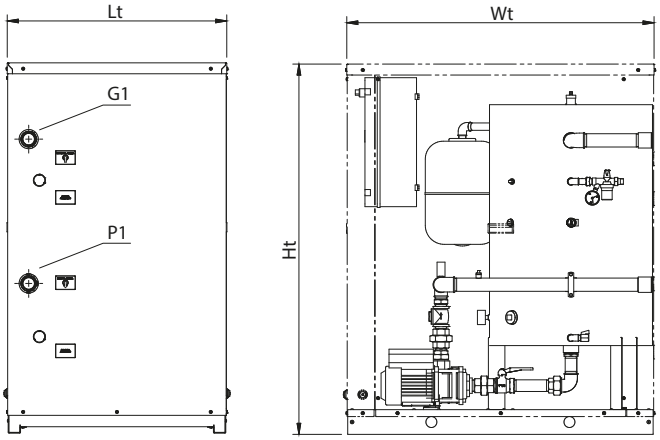
Capacity l	Wt mm	Lt mm	Ht mm	P1 mm	G1 mm	Z1 mm	Z2 mm	G1 inch	P1 inch
300	1504	1120	1265	738	490	212	388	2"1/2	2"1/2
500	1504	1120	1265	738	490	212	388	2"1/2	2"1/2
750	2044	1200	1510	940	604	185	440	3"	3"
1000	2044	1200	1510	940	604	185	440	3"	3"
1500	2260	1900	1782	1145	829	262	703	4"	4"
2500	2260	1900	1782	1145	829	262	703	4"	4"

Couplings legend

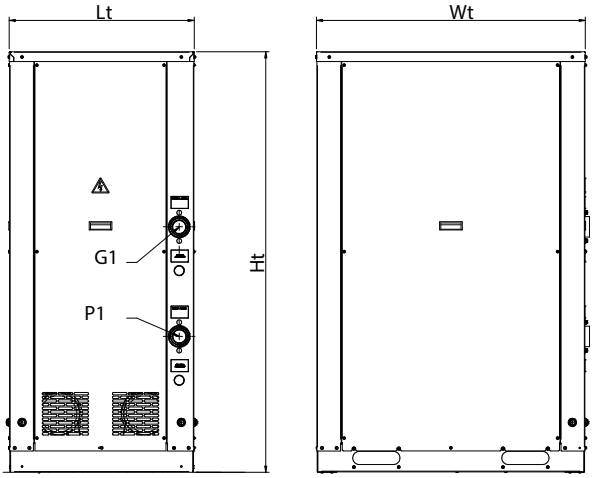
G1	From plant threaded connection
P1	To energy source threaded connection

Vertical version

HPT 100-200



HPT 300



Vertical HPT dimensions

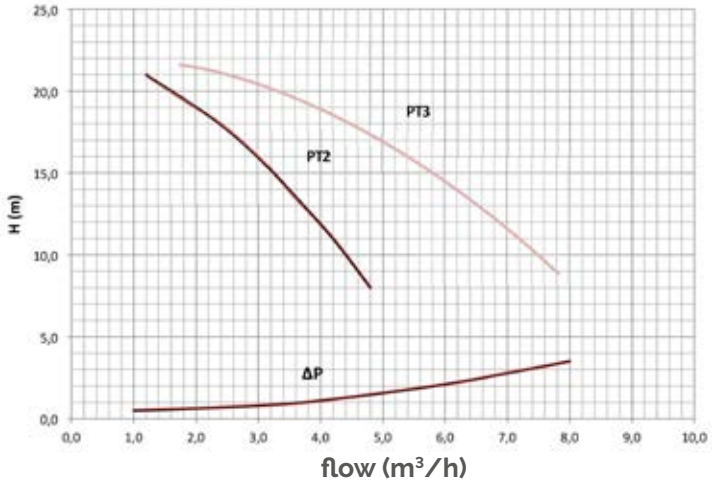
Capacity l	Wt mm	Lt mm	Ht mm	P1 mm	G1 mm	P1 inch	G1 inch
100	1120	800	1350	546	1002	1" 1/2	1" 1/2
200	1120	800	1350	546	1072	1" 1/2	1" 1/2
300	1100	760	1726	558	1008	2" 1/2	2" 1/2

Couplings legend

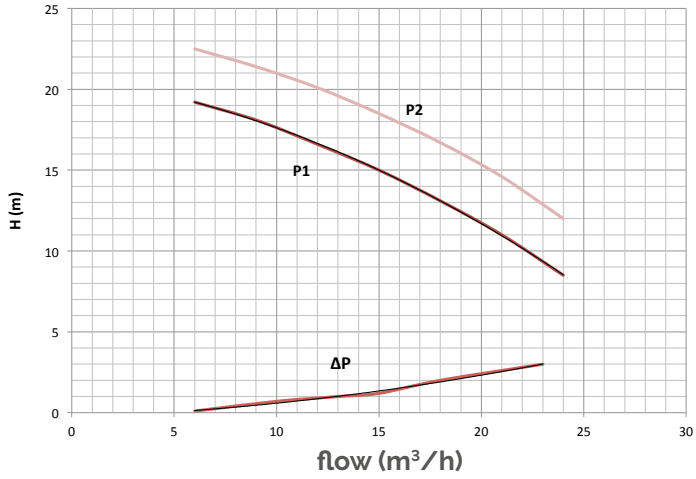
G1	From plant threaded connection
P1	To energy source threaded connection

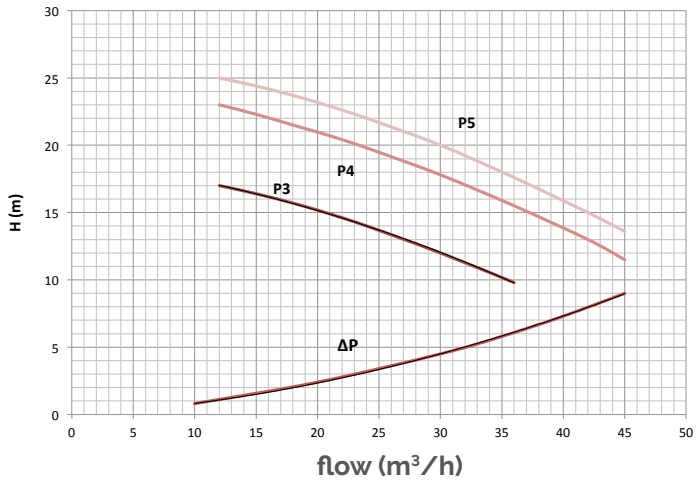
HPT hydronic systems
Prevalence and pressure loss curve

HPT-V 100-200



HPT 300-500

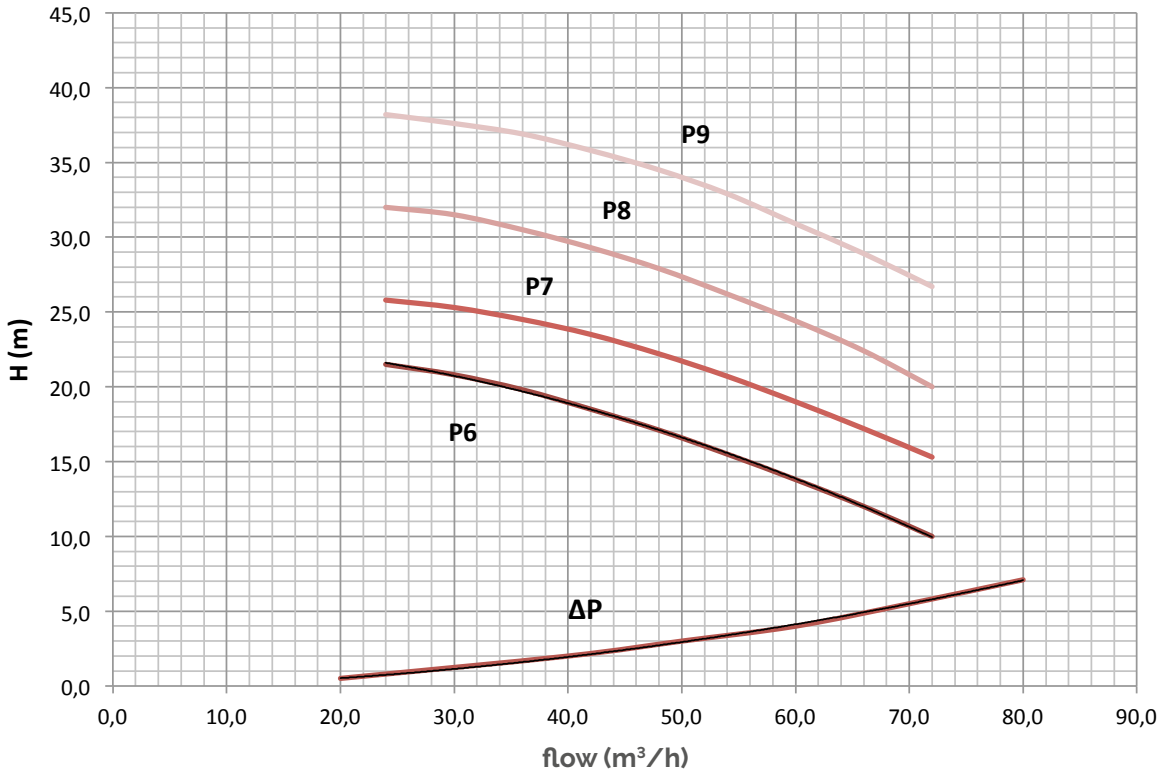


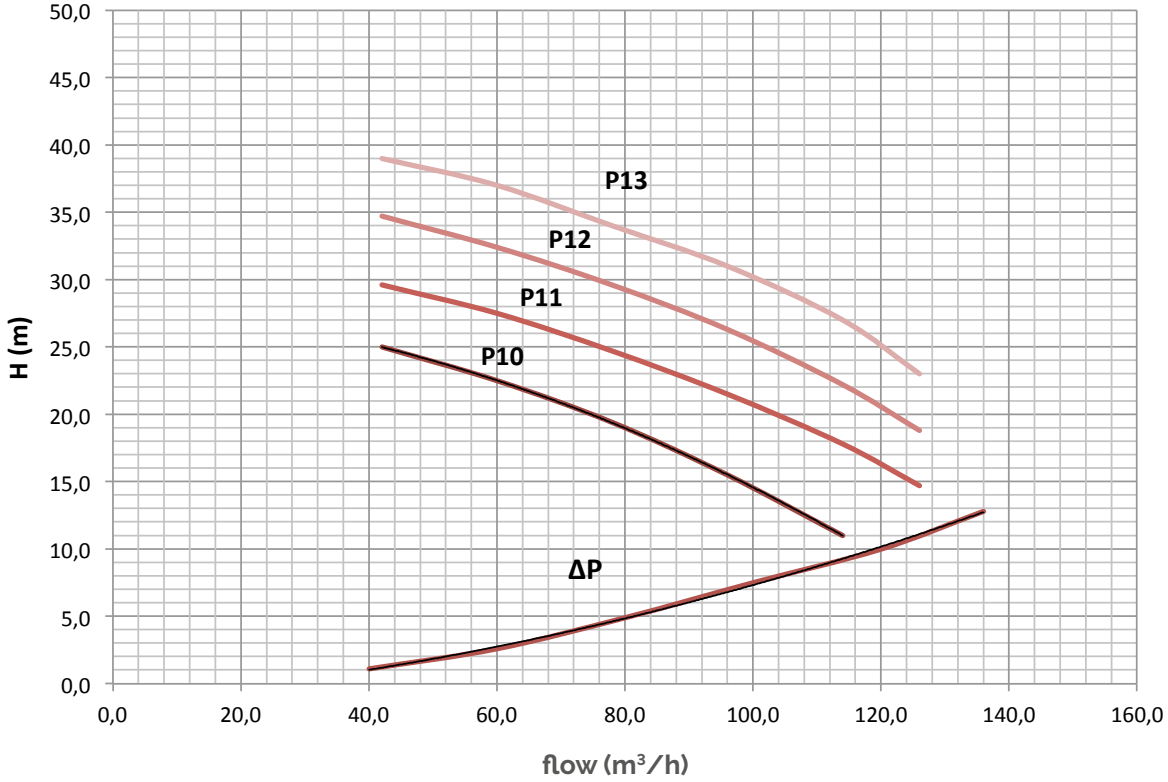


ΔP: pressure loss of the HPT unit

HPT hydronic systems
Prevalence and pressure loss curve

HPT 750-1000

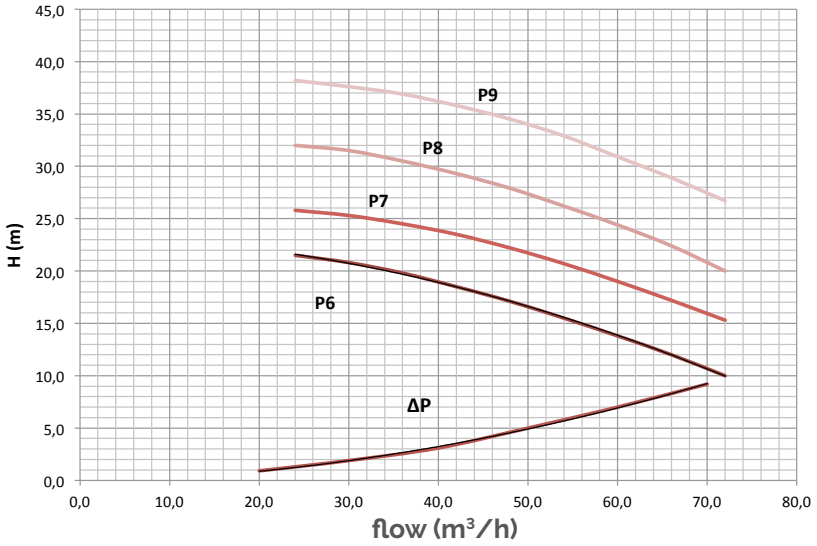


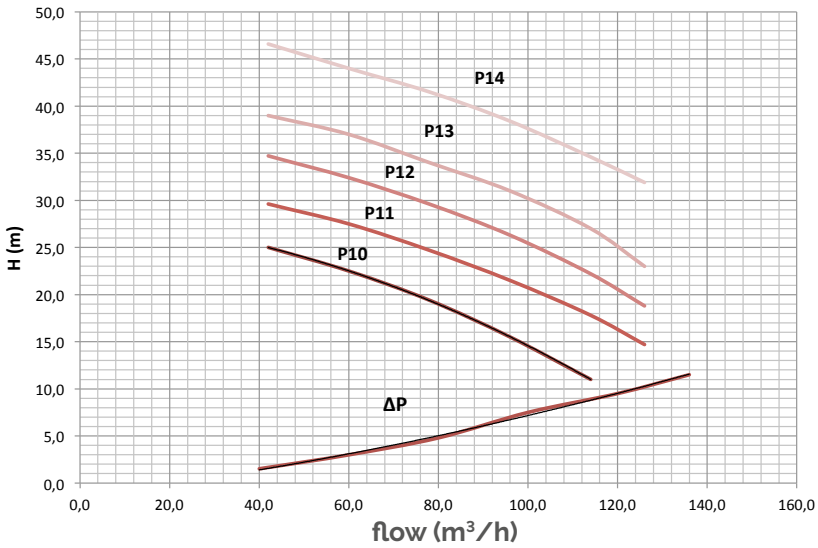


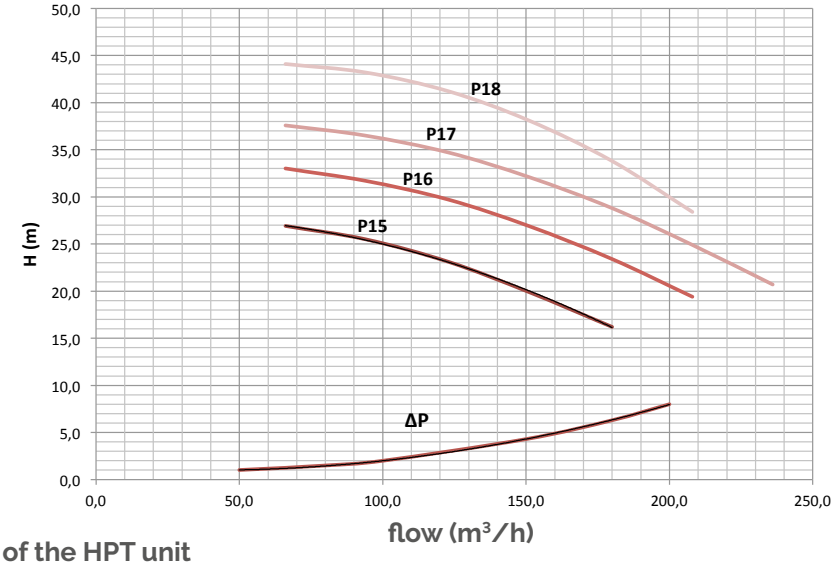
ΔP: pressure loss of the HPT unit

HPT hydronic systems
Prevalence and pressure loss curve

HPT 1500-2500

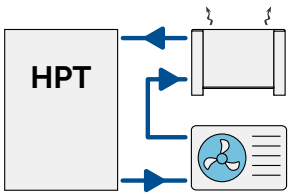






ΔP: pressure loss of the HPT unit

Hydronic systems
HPT Layout 1 Codes



HPT	1 pump				2 pumps (1 redundant)						
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg	F.L.I kW	F.L.A. (400/3/50) A	Ve l
100 vertical	PT2*	838011493X		171	PT2*	838011494X		176	0,72	1,3	18
	PT3*	838011495X		172	PT3*	838011496X		176	0,72	1,3	18
200 vertical	PT2*	838011497X		193	PT2*	838011498X		198	0,72	1,3	18
	PT3*	838011499X		194	PT3*	838011500X		198	0,72	1,3	18
300 vertical	P1	838010891X		231	P1	838010896X		251	1,1	2,5	25
	P2	838010892X		233	P2	838010897X		254	1,5	3,2	25
	P3	838010893X		233	P3	838010898X		255	1,5	3,4	25
	P4	838010894X		237	P4	838010899X		262	2,2	4,8	25
	P5	838010895X		239	P5	838010900X		266	3	5,6	25
300 horizontal	P1	838010349		260	P1	838010354		305	1,1	2,5	25
	P2	838010350		262	P2	838010355		308	1,5	3,2	25
	P3	838010351		262	P3	838010356		309	1,5	3,4	25
	P4	838010352		266	P4	838010357		316	2,2	4,8	25
	P5	838010353		297	P5	838010358		320	3	5,6	25
500 horizontal	P1	838010359		283	P1	838010364		318	1,1	2,5	25
	P2	838010360		285	P2	838010365		321	1,5	3,2	25
	P3	838010361		285	P3	838010366		322	1,5	3,4	25
	P4	838010362		289	P4	838010367		330	2,2	4,8	25
	P5	838010363		320	P5	838010368		334	3	5,6	25
	P6	838010879X		313	P6	838011056X		369	3	6,1	25
750 horizontal	P6	838010374		425	P6	838010379		476	3	6,1	25
	P7	838011384X		428	P7	838011385X		481	4	8,7	25
	P8	838010375		442	P8	838010380		542	5,5	10,4	25
	P9	838011392X		446	P9	838011393X		550	7,5	13,6	25
	P10	838010376		460	P10	838010381		559	5,5	10,4	25
	P11	838010377		464	P11	838010382		568	7,5	13,6	25
	P12	838011400X		477	P12	838011401X		605	9,2	17,2	25
	P13	838010378		477	P13	838010383		605	11	21,3	25
1000 horizontal	P6	838010384		445	P6	838010389		531	3	6,1	25
	P7	838011386X		447	P7	838011387X		536	4	8,7	25
	P8	838010385		461	P8	838010390		598	5,5	10,4	25
	P9	838011394X		465	P9	838011395X		606	7,5	13,6	25
	P10	838010386		479	P10	838010391		615	5,5	10,4	25
	P11	838010387		484	P11	838010392		624	7,5	13,6	25
	P12	838011402X		496	P12	838011403X		661	9,2	17,2	25
	P13	838010388		496	P13	838010393		661	11	21,3	25

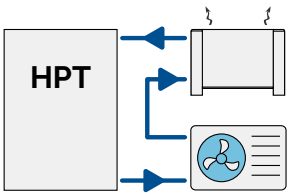
Pve (bar) 1,5 Ps (bar) 3 T min (°C) -10
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Prices for Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

Hydronic systems
HPT Layout 1 Codes



HPT	1 pump				2 pumps (1 redundant)						
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg	F.L.I kW	F.L.A. (400/3/50) A	Ve l
1500 horizontal	P6	838010705		653	P6	838010458		716	3	6,1	2x25
	P7	838011388X		656	P7	838011389X		721	4	8,7	2x25
	P8	838010704		670	P8	838010630		783	5,5	10,4	2x25
	P9	838011396X		674	P9	838011397X		791	7,5	13,6	2x25
	P10	838010703		688	P10	838010696		803	5,5	10,4	2x25
	P11	838010702		692	P11	838010695		812	7,5	13,6	2x25
	P12	838011404X		705	P12	838011405X		846	9,2	17,2	2x25
	P13	838010701		705	P13	838010694		849	11	21,3	2x25
	P14	838010700		749	P14	838010693		939	15	27,7	2x25
	P15	838011380X		739	P15	838011381X		921	11	20,2	2x25
	P16	838010699		776	P16	838010692		995	15	26,6	2x25
	P17	838010698		786	P17	838010691		1015	18,5	33	2x25
	P18	838010697		795	P18	838010690		1033	22	40,4	2x25
2500 horizontal	P6	838010689		706	P6	838010682		763	3	6,1	3x25
	P7	838011390X		708	P7	838011391X		768	4	8,7	3x25
	P8	838010688		722	P8	838010681		830	5,5	10,4	3x25
	P9	838011398X		726	P9	838011399X		838	7,5	13,6	3x25
	P10	838010687		740	P10	838010680		843	5,5	10,4	3x25
	P11	838010686		745	P11	838010679		852	7,5	13,6	3x25
	P12	838011406X		757	P12	838011407X		889	9,2	17,2	3x25
	P13	838010685		757	P13	838010678		889	11	21,3	3x25
	P14	838010684		801	P14	838010677		980	15	27,7	3x25
	P15	838011382X		791	P15	838011383X		967	11	20,2	3x25
	P16	838010707		828	P16	838010459		1041	15	26,6	3x25
	P17	838010683		838	P17	838010676		1061	18,5	33	3x25
	P18	838010706		847	P18	838010633		1079	22	40,4	3x25

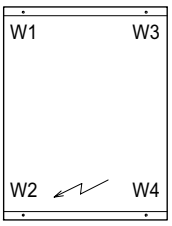
Pve (bar) 1,5 Ps (bar) 3 T min (°C) -10
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Prices for Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

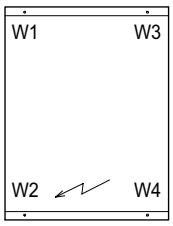
HPT hydronic systems: vertical distribution of the weight



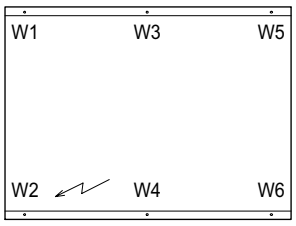
Unit top view

Pump model	Tank capacity l	1 pump				2 pumps (1 redundant)			
		W1 kg	W2 kg	W3 kg	W4 kg	W1 kg	W2 kg	W3 kg	W4 kg
PT2	100	31	70	52	120	31	71	53	123
	200	44	101	75	175	44	103	76	177
PT3	100	31	70	52	121	31	71	53	123
	200	44	101	76	175	45	102	76	177
P1	300	191	100	160	82	138	138	138	138
P2	300	194	100	160	81	140	140	138	138
P3	300	193	99	159	84	139	139	139	139
P4	300	194	101	161	83	141	141	141	141
P5	300	196	101	162	83	143	143	141	141

HPT hydronic systems: horizontal distribution of the weight



Unit top view up to P6 500



Unit top view from P6 750

Pump model	Tank capacity l	1 pump						2 pumps (1 redundant)					
		W1 kg	W2 kg	W3 kg	W4 kg	W5 kg	W6 kg	W1 kg	W2 kg	W3 kg	W4 kg	W5 kg	W6 kg
P1	300	166	108	173	115	-	-	174	128	175	129	-	-
	500	239	146	246	154	-	-	245	165	245	165	-	-
P2	300	167	108	174	115	-	-	175	129	176	130	-	-
	500	239	147	247	154	-	-	246	166	246	166	-	-
P3	300	167	108	174	115	-	-	175	129	176	130	-	-
	500	239	147	247	154	-	-	246	166	246	166	-	-
P4	300	168	109	175	116	-	-	177	131	178	132	-	-
	500	240	147	248	155	-	-	248	168	248	168	-	-
P5	300	177	115	184	122	-	-	178	132	179	133	-	-
	500	250	153	258	161	-	-	250	168	250	168	-	-
P6	500	248	152	256	160	-	-	260	175	260	175	-	-
	750	248	132	254	138	261	145	255	158	253	156	251	155
	1000	314	156	320	163	326	169	325	190	323	188	321	186
	1500	394	311	400	318	408	326	402	341	400	339	399	338
	2500	593	463	600	469	606	477	602	473	610	479	616	486
P7	750	249	132	255	139	262	145	256	159	254	157	252	156
	1000	314	157	320	163	327	169	326	191	324	189	322	187
	1500	394	311	401	319	408	326	403	342	401	339	400	338
	2500	593	464	601	470	607	477	603	474	611	480	617	487
P8	750	243	136	253	145	263	156	254	178	254	178	254	178
	1000	307	160	318	170	328	181	327	209	326	207	325	206
	1500	386	320	395	330	404	338	398	366	397	365	396	364
	2500	595	466	603	472	609	480	606	511	603	508	600	505
P9	750	244	136	253	146	264	156	255	179	255	179	255	179
	1000	308	160	318	171	329	181	329	210	328	209	327	207
	1500	387	321	395	330	405	339	399	368	398	367	397	366
	2500	596	467	603	473	610	480	607	513	604	509	601	506
P10	750	247	138	256	147	267	158	257	180	257	180	257	180
	1000	311	162	321	173	332	183	331	211	330	210	329	209
	1500	389	323	398	332	407	341	401	370	400	369	399	368
	2500	599	469	606	475	612	482	608	513	605	510	602	507
P11	750	248	138	257	148	268	158	259	182	259	182	259	182
	1000	312	163	323	173	333	184	333	212	331	211	330	210
	1500	390	323	399	333	408	341	403	371	402	370	401	369
	2500	600	470	607	476	613	483	610	515	607	512	604	508
P12	750	250	139	260	149	271	160	266	187	266	187	266	187
	1000	314	164	325	175	336	185	340	217	339	216	338	215
	1500	392	325	401	335	411	343	409	377	407	376	406	374
	2500	602	471	609	478	615	485	617	520	613	517	610	514
P13	750	249	141	259	151	269	161	264	189	264	189	264	189
	1000	306	167	319	180	333	194	331	227	330	225	328	223
	1500	382	330	394	342	407	354	396	390	395	389	394	388
	2500	591	475	601	485	612	496	603	533	600	530	597	527
P14	1500	386	336	401	350	414	365	408	408	407	407	406	406
	2500	589	486	601	498	613	516	605	563	602	560	599	555
P15	1500	384	335	399	348	413	363	405	405	404	404	403	403
	2500	588	485	599	497	611	514	603	561	600	557	596	553
P16	1500	391	340	405	354	419	369	417	417	416	416	415	415
	2500	594	490	606	503	618	520	615	573	612	569	609	565
P17	1500	392	342	407	356	421	371	421	421	420	420	419	419
	2500	596	492	607	504	620	522	619	576	616	573	612	569
P18	1500	394	344	408	357	422	372	424	424	423	423	422	422
	2500	597	493	609	506	621	524	622	579	619	576	615	572

HPT hydronic systems capacity of the expansion vessel

Max water content in the device and the dimensions of the expansion vessel

On the first chart, the max water content in the hydraulic device which is compatible with the capacity of the expansion vessel (supplied with every HPT model) and with the start-up value of the safety valve (3 bar for all models) is indicated. If the actual water volume in the device, the storage tank included, is more than the operative conditions on the chart, more expansion vessels need to be installed.

Tav. 1

	Hydraulic height H Preload of the expansion vessel	m bar	15 1,80	10 1,50
HPT 100	Max water capacity in the circuit in litres (1)		708	885
	Max water capacity in the circuit in litres (2)		453	567
HPT 200	Max water capacity in the circuit in litres (1)		708	885
	Max water capacity in the circuit in litres (2)		453	567
HPT 300	Max water capacity in the circuit in litres (1)		984	1230
	Max water capacity in the circuit in litres (2)		630	788
HPT 500	Max water capacity in the circuit in litres (1)		984	1230
	Max water capacity in the circuit in litres (2)		630	788
HPT 750	Max water capacity in the circuit in litres (1)		984	1230
	Max water capacity in the circuit in litres (2)		630	788
HPT 1000	Max water capacity in the circuit in litres (1)		984	1230
	Max water capacity in the circuit in litres (2)		630	788
HPT 1500	Max water capacity in the circuit in litres (1)		1964	2461
	Max water capacity in the circuit in litres (2)		1261	1576
HPT 2500	Max water capacity in the circuit in litres (1)		2953	3691
	Max water capacity in the circuit in litres (2)		1891	2363

Operative conditions
(1) cooling
Min temp of fluid = 4°C
Max temp of fluid = 40°C
(2) heating (heat pump)
Min temp of fluid = 4°C
Max temp of fluid = 50°C

Tav. 2

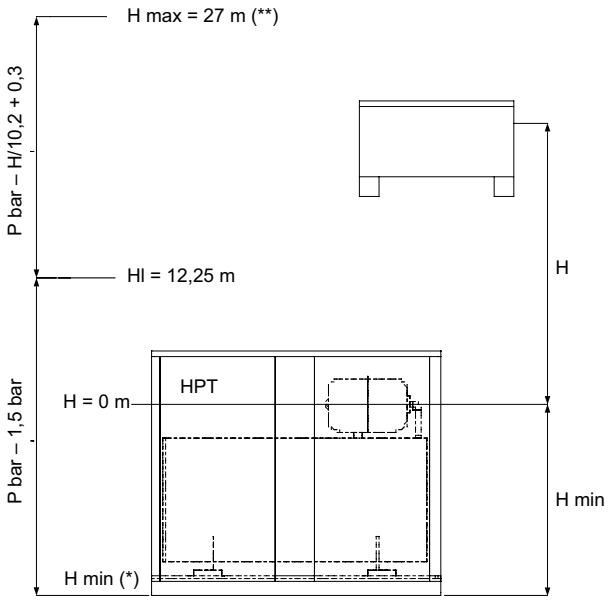
	Water temperature			
Water/glycol mix.	max.	min.	Correction factor	Reference
10%	40	-2	0. 507	(1)
10%	5	-2	0. 686	(2)
20%	40	-4	0. 434	(1)
20%	50	-4	0. 604	(2)
30%	40	-6	0. 393	(1)
30%	50	-6	0. 555	(2)

HPT hydronic systems
Preload of the expansion vessel

The expansion vessel, of all models, is preloaded with a standard value of 1.5 bar. However, the value has to be adjusted to the height of the device H.

The formula used to calculate the preload value of the expansion vessel is:
P = (H /10.2)+0.3

Legend
H: height of the device in meters
P: preload of the expansion vessel in bar
If the result of the preload value is less than the standard value, no steps should be taken. This means that for every installation with a height below 12.25 m, the preload of the expansion vessel should be 1.5 bar. In these cases the operator should only check the pressure value without carrying out any intervention.



Example:
You take a height H of 15.3 m. The preload value is:
P = (15,3/10,2)+0,3= 1,8 bar

H height of the device
Hmax: max height of the device
H1: height when the preload of the expansion vessel is the same as the standard value
* verify that the lowest point of the device can support the device's pressure
** verify that the highest point of the device is not higher than H max = 27 m

HPT hydronic system user's conditions

Normal user conditions

The HPT Hydronic Group is designed to be placed in air conditioning systems, usually coupled with a chiller or a heat pump.

The groups are designed to work with water or ethylene glycol and water mixtures up to a maximum of 30%. For operation with percentages of higher glycols or with different fluids, you must consult our technical support.

The minimum operating temperature of the fluid is -10 ° C, of course with a mixture of water and glycol, while the maximum is 60 ° C. Special versions for operation with lower or higher temperature fluids are available on request.

The outdoor air temperature range is -20 ° C + 40 ° C. Again, special versions are available for operation outside the standard range.

The maximum working pressure of the group is 3 bars. Versions with maximum operating pressure are available on request. Also versions for open vessel operation (atmospheric pressure) can be made on request.

Hydronic systems
HPT accessories

1 **Programmable timer for alternating pumps**
In the dual pump configuration, the timer can be used to handle alternating pump operation at specified time intervals. Without the timer, the alternating pump operation occurs at each startup of the group. Default alternation every 48 hours programmable.

*** WARNING:** If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory.

Code	Description	Price
838081104X	TIMER OPTION 48H	

2 **Differential pressure switch**
Security device that allows you to verify that there is flow inside the system. The device generates an alarm signal but does not automatically stop the machine.

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	

3 **Anti-vibrating feet**
Set of anti-vibrating feet to be placed on the machine's support points. The feet are supplied disassembled.

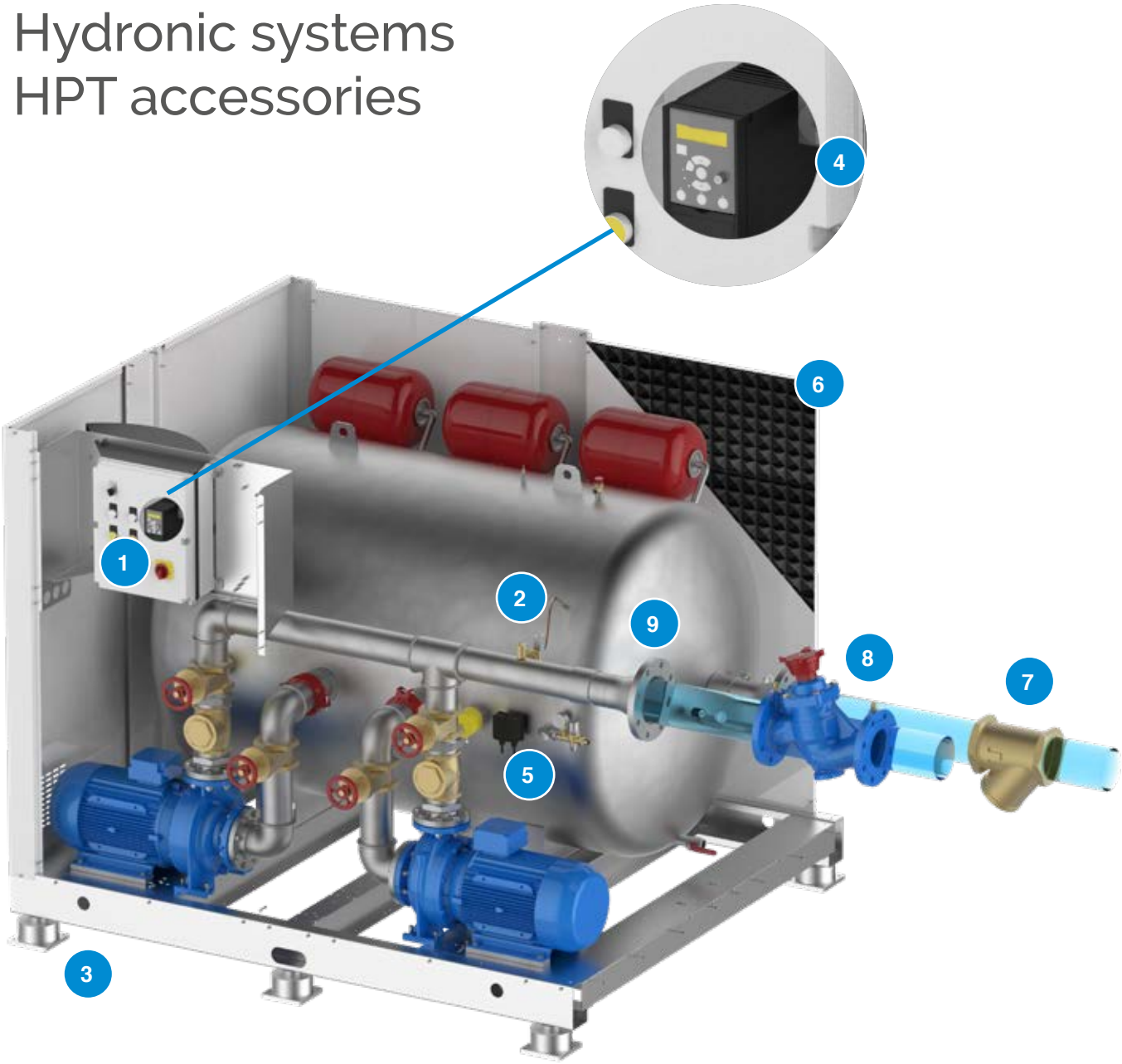
Code	Description	Price
838080917X	ANTIVIBRATION FOR HPT 300/500	
838080936X	ANTIVIBRATION FOR HPT 750/1000	
838080938X	ANTIVIBRATION FOR HPT 1500/2500L	

4 **Inverter (special version)**
Each pump can be operated by an inverter. The units equipped with inverters have a pressure sensor, 0-10 bar, which communicates with the inverter with 4-20 mA signal. All adjustment parameters are pre-loaded during the test run at the company. The user must choose only the desired set point pressure value.
see page: 133

5 **Antifreeze electric resistance kit (special version)**
The kit, mounted inside the tank, consists of an electrical resistance of 1300 W for dimensions up to 1000 l and two 1300 W electric resistors for larger dimensions. The kit also includes a bi-thermostatic antifreeze adjustment (-35 / + 35 ° C) and is supplied assembled, wired and tested.
see page: 133

6 **Soundproof coating (special version)**
The soundproofing is available, which attenuates the sound level of the machine significantly.
see page: 133

Hydronic systems
HPT accessories



7 **Filter (special version)**
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.
see page: 133

8 **Balancing valves (special version)**
Valve can be connected externally to balance the flow within the circuit.
see page: 133

Wooden box packing (special version)
Extra protective packing suitable for risky and long-distance transport.
see page: 133

9 **Tailored connections**
From Threaded to Flanged/Victaulic Standard **see page: 132**
Special version for larger size, flanged victaulic in various materials **see page: 133**

HP 2.0
Hydronic system

Piping insulated with anti-condensate elastomer

The HP 2.0 units are hydraulic stations meant to reduce the set-up time of the conditioning and cooling devices. They can be linked to any kind of water cooler.

The HP unit has:

- piping insulated with anti-condensate elastomere
- Single or double centrifugal pump with shut-off valve
- Power switchboard with device to alternate pumps with every start-up (version with two pumps), start-up of the back-up pump in case of breakdown (version with two pumps), magnetothermal protection, contacts to command the pumps from a distance, protection category IP55.
- Safety valve
- Deaerator
- Manometer
- Fill-up/drain valve
- Base and self-supporting panels made of galvanized and coated steel sheets, suitable for outdoor installations
- Panels that can be quickly and easily removed
- Easy and quick access to the switchboard

The broad range of combinations offers a solution for every single type of installation.

Expansion vessel available on request.

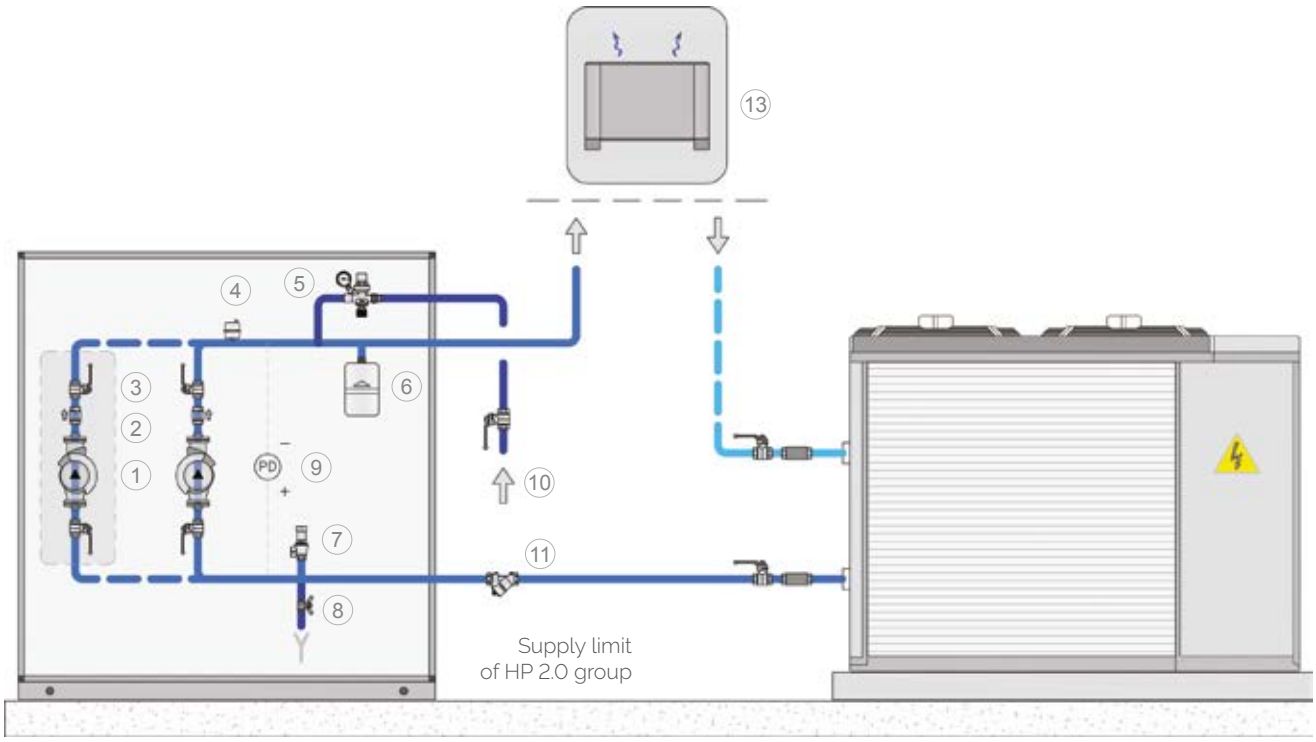
Accessories

See pag. 116 for the list of available accessories

HP 2.0 hydronic systems: hydraulic chart

Features: Hydronic kit, chiller and plant connected in series, hence the water flow is constant throughout the plant.

NOTE: All HPT Fiorini standard kit kits are designed according to the following chart.

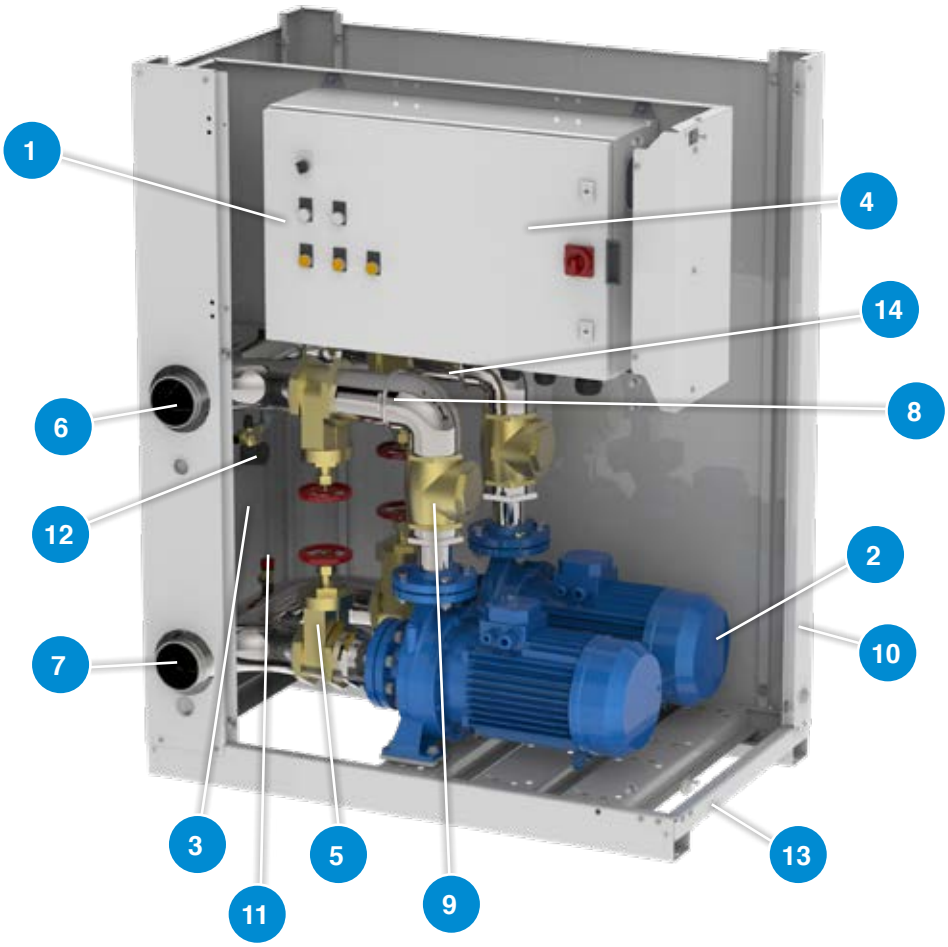


HP 2.0 Group

Legend

1. Circulator
2. Shut-off valve (only version with 2 pumps)
3. On-off valve
4. Deaerator
5. Automatic filling unit
6. Expansion vessel (optional)
7. Safety valve
8. Drain
9. Differential pressure switch (optional)
10. Inlet returning fluid
11. Y filter. Optional, supplied non-assembled
12. Chiller
13. Device

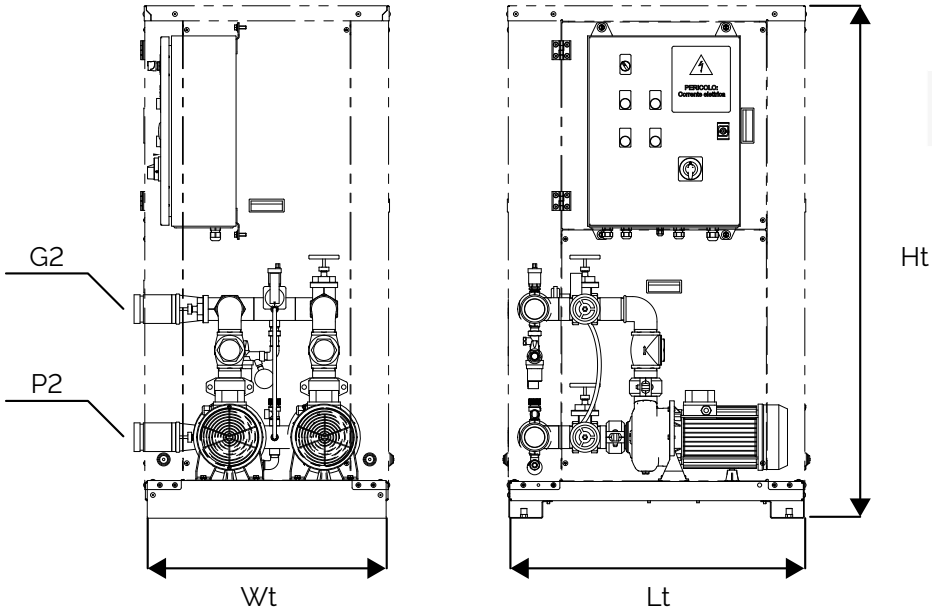
HP 2.0 hydronic system: components



	Components
1	Switchboard
2	Circulation pump (version with double pump, optional)
3	Removable bolted panel
4	Hinged panel
5	Shut-off valve
6	Water outlet
7	Water inlet
8	Pressure transmitter (only version with inverter)
9	Check valve (only version with double pump)
10	Ventilation grid
11	Safety valve
12	Automatic filling unit
13	Base
14	Automatic pressure relief

HP 2.0 hydronic system: dimensions

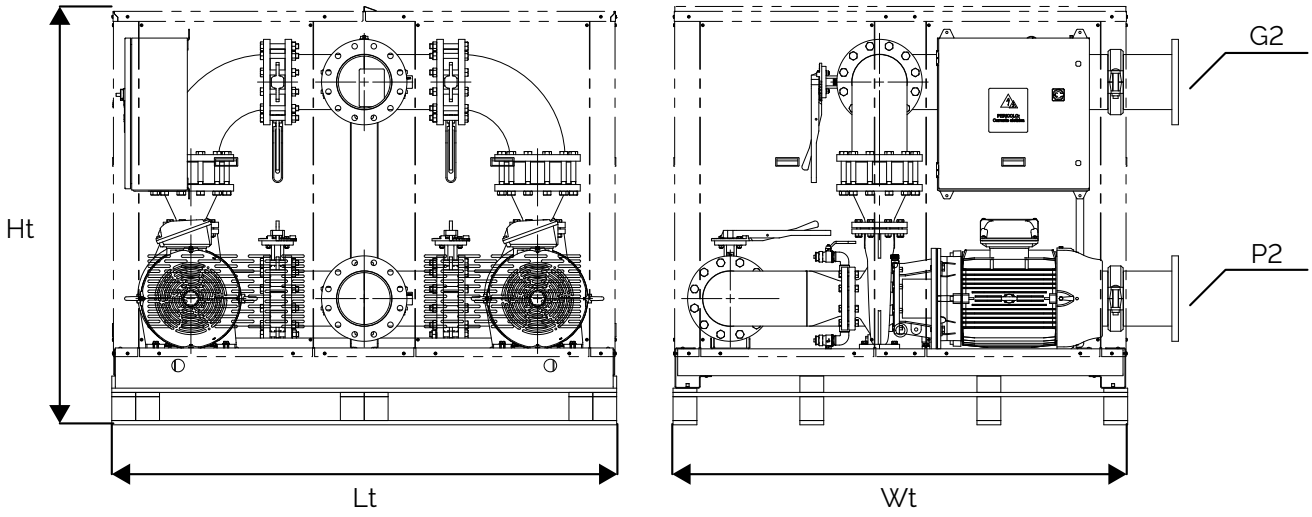
Layout of pump models PT2, PT3, from P1 to P18



Couplings legend

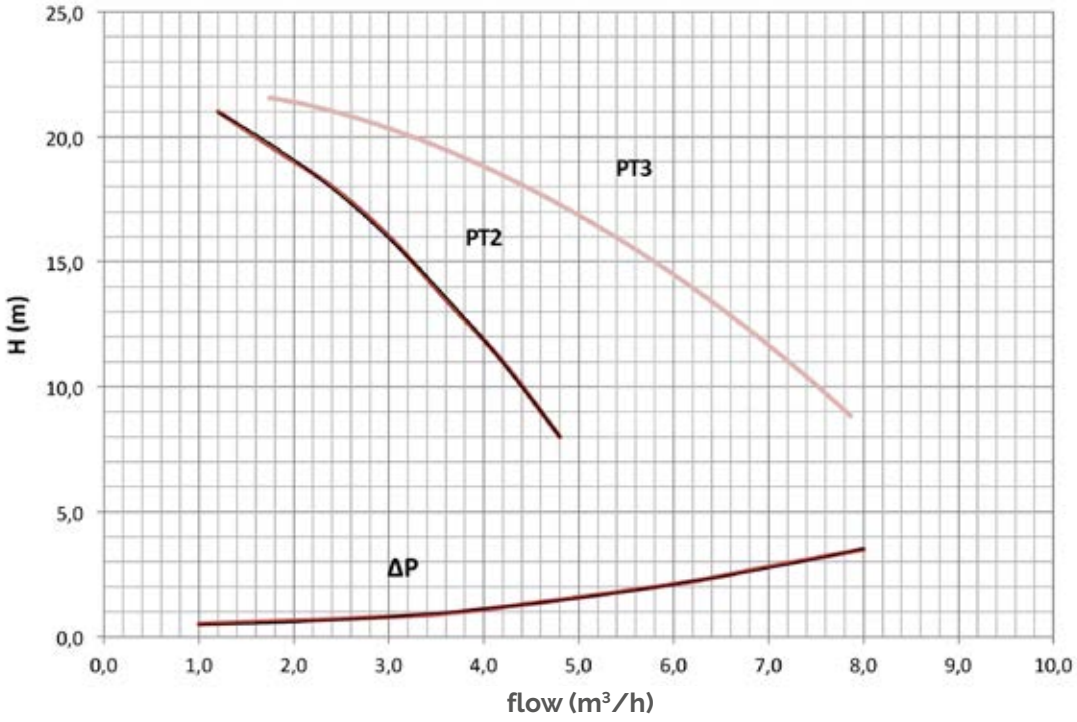
G2	To plant Victaulic connection
P2	From energy source Victaulic connection

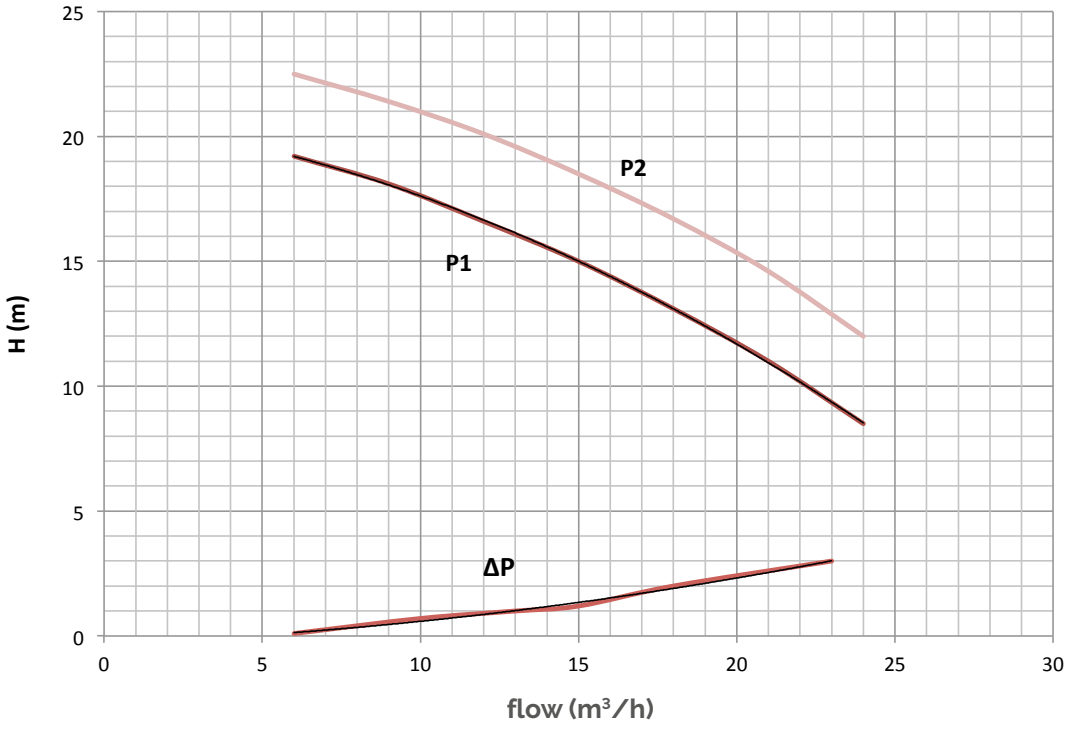
Layout of pump models from P19 to P21



Pump model	1 pump Dimensions Lt mm	Wt mm	Ht mm	2 pumps (1 redundant) Dimensions Lt mm	Wt mm	Ht mm	G2 inch	P2 inch
PT2-PT3	790	650	1360	790	650	1360	1"1/2	1"1/2
P1-P2-P3-P4-P5	790	650	1360	790	650	1360	2"1/2	2"1/2
P6-P7-P8-P9	1200	790	1360	1200	790	1360	3"	3"
P10-P11-P12-P13-P14-P15-P16-P17-P18	1200	790	1360	1280	790	1600	4"	4"
P19-P20-P21	2000	1800	1575	2000	1800	1575	DN 200 UNI PN16	DN 200 UNI PN16

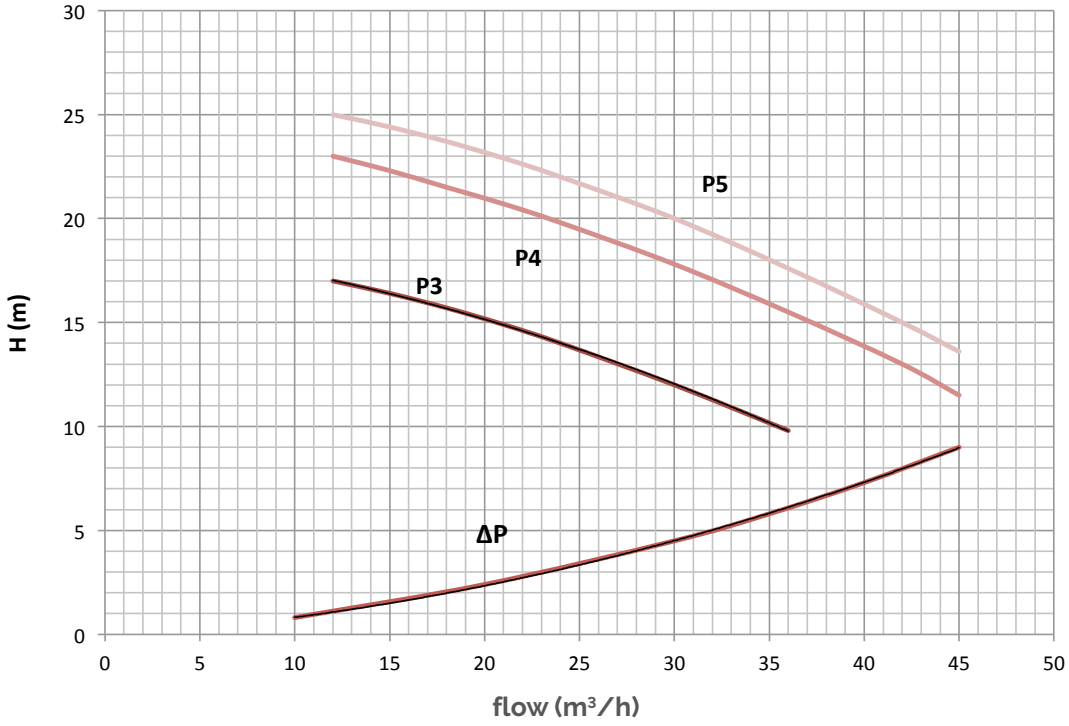
HP 2.0 Hydronic systems
Prevalence and pressure loss curve

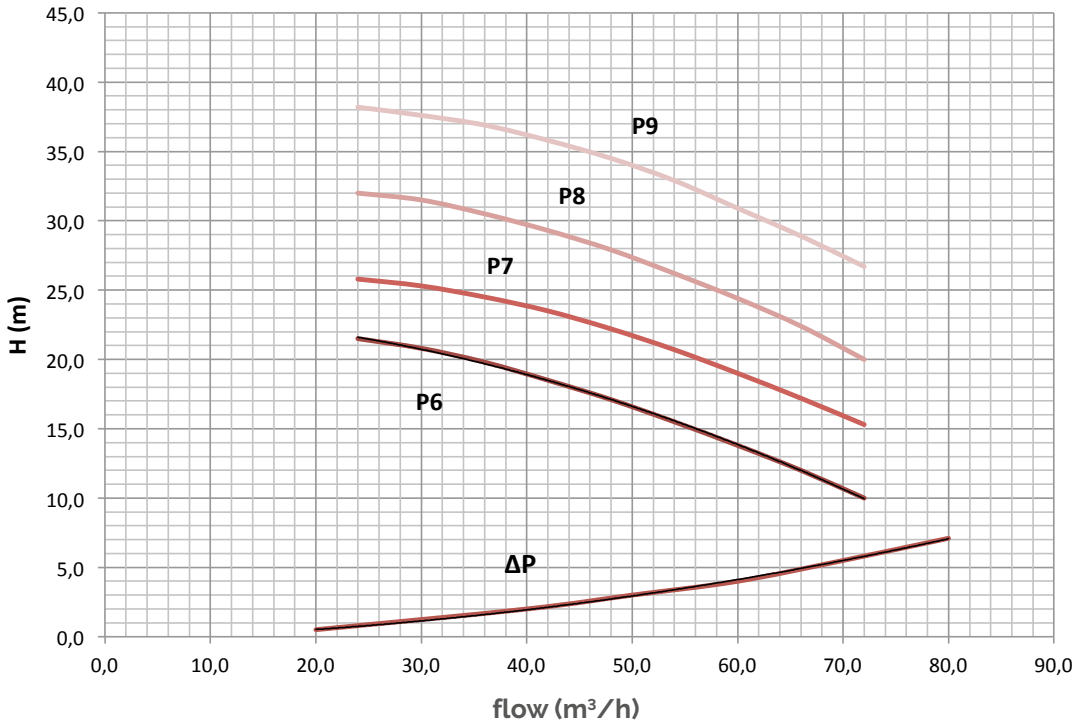




ΔP: Pressure drop HP unit

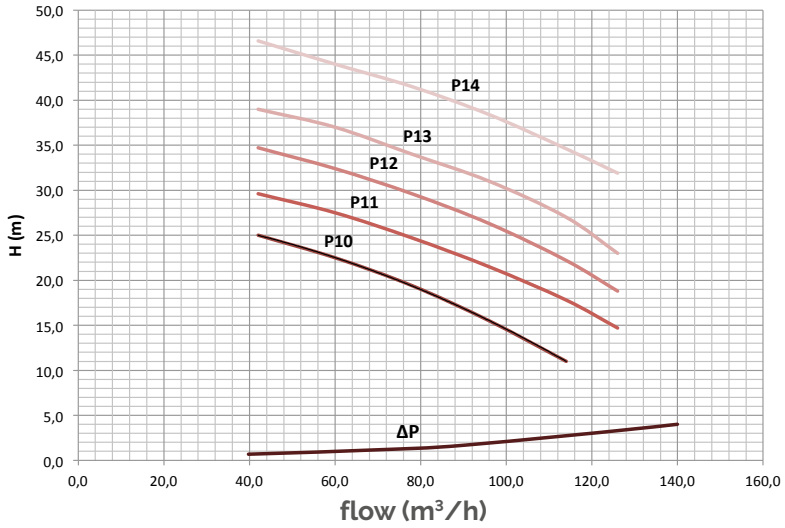
HP 2.0 Hydronic systems
Prevalence and pressure loss curve

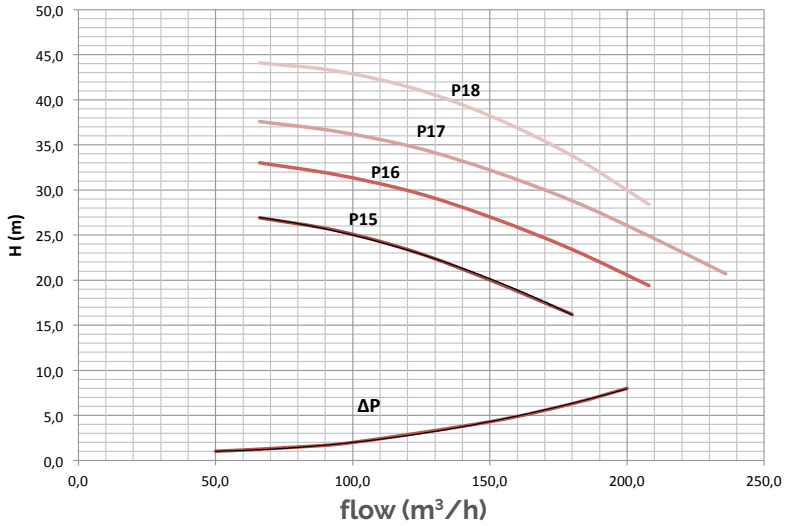


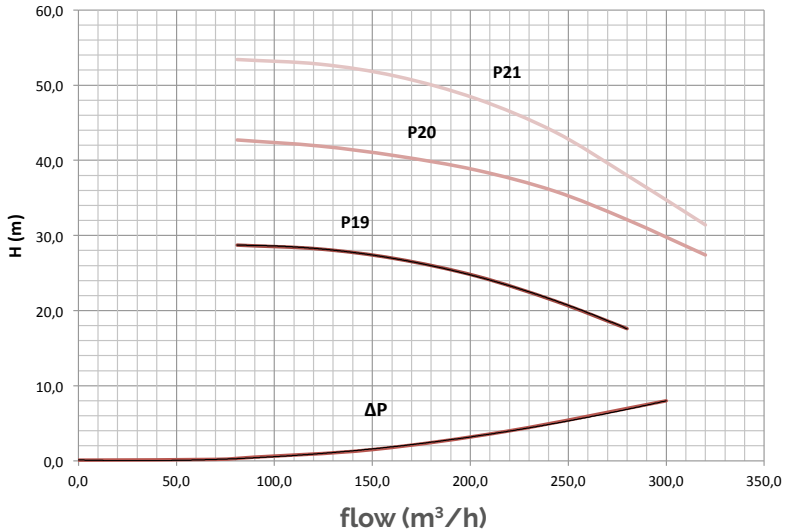


ΔP: Pressure drop HP unit

HP 2.0 Hydronic systems
Prevalence and pressure loss curve







ΔP: Pressure drop HP unit

HP 2.0 hydronic systems: technical information

Pump model	F.L.I kW	F.L.A. (400/3/50) A	1 pump			2 pumps (1 redundant)		
			Code	Price	Weight kg	Code	Price	Weight kg
PT2*	0,72	1,3	838060261X		100	838060262X		114
PT3*	0,72	1,3	838060263X		100	838060264X		114
P1	1,1	2,5	838060129X		129	838060119X		150
P2	1,5	3,2	838060130X		130	838060120X		151
P3	1,5	3,4	838060131X		131	838060121X		153
P4	2,2	4,8	838060132X		135	838060122X		157
P5	3	5,6	838060133X		137	838060123X		163
P6	3	6,1	838060107X		183	838060193X		256
P7	4	8,7	838060108X		190	838060194X		272
P8	5,5	10,4	838060109X		208	838060195X		311
P9	7,5	13,6	838060110X		224	838060196X		343
P10	5,5	10,4	838060111X		215	838060197X		323
P11	7,5	13,6	838060112X		231	838060198X		355
P12	9,2	17,2	838060235X		284	838060236X		407
P13	11	21,3	838060183X		284	838060217X		412
P14	15	27,7	838060184X		309	838060218X		503
P15	11	20,2	838060227X		279	838060228X		460
P16	15	26,6	838060185X		316	838060219X		549
P17	18,5	33	838060186X		319	838060220X		569
P18	22	40,4	838060187X		340	838060221X		587
P19	18,5	33	838060229X		703	838060230X		1265
P20	30	53,5	838060231X		844	838060232X		1519
P21	37	65,6	838060233X		865	838060234X		1557

Pve (bar) 1,5 Ps (bar) 3 T min (°C) -10
*** PT2 and PT3 available in single-phase version on request**

Legend

F.L.I. Max absorbed power
F.L.A. Max absorbed current
Pve Preload of expansion vessel
Ps Max operating pressure
Tmin Min temperature of the liquid

HP 2.0 hydronic systems: Capacity of the circuit and the expansion vessel

Max water content in the device and dimensions of the expansion vessel

On chart 1 the max water volume in the hydraulic installation is indicated, compatible with the capacity of the expansion vessel and applicable to al HP 2.0 models. The safety valve also has a start-up value (3 bar for all models). If the effective water content in the device, as well as in the storage tank, exceeds the operating conditions in the chart, another/second expansion vessel should be installed to take the added water volume.

Tav. 1

Pump model	Hydraulic height	m	15	10
	Preload of the expansion vessel	**bar**	**1,80**	**1,50**
PT2 PT3 P1 P2 P3 P4 P5	Circuit's max water content (1)	l	492	615
	Circuit's max water content (2)	l	315	394
P6 - P18	Circuit's max water content (1)	l	984	1230
	Circuit's max water content (2)	l	630	788
P19 - P21	Circuit's max water content (1)	l	1968	2460
	Circuit's max water content (2)	l	1260	1576

Note: the expansion vessel is optional and should be ordered separately.

Operative conditions
(1) cooling
Min temp of fluid = 4°C
Max temp of fluid = 40°C
(2) heating (heat pump)
Min temp of fluid = 4°C
Max temp of fluid = 50°C

Tav. 2

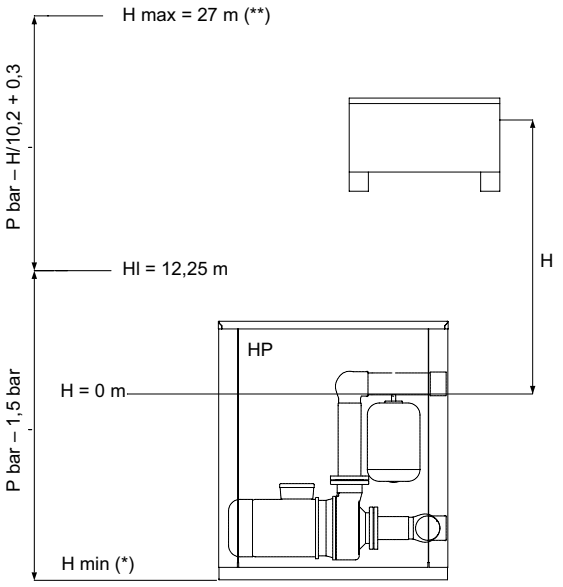
	Water temperature		Correction factors	Reference value
Water/ glycol mix.	max °C	min °C		
10%	40	-2	0.507	(1)
10%	5	-2	0.686	(2)
20%	40	-4	0.434	(1)
20%	50	-4	0.604	(2)
30%	40	-6	0.393	(1)
30%	50	-6	0.555	(2)

Hydronic systems
HP 2.0 preload of the expansion vessel

The expansion vessel, of all models, is preloaded with a standard value of 1.5 bar.
The value has to be adapted though to the height H of the device.

The formula used to calculate the preload value of the expansion vessel is:
P = (H /10.2)+0.3

Legend
H: height of the device in meters
P: preload of the expansion vessel in bar
Should the preload value be less than the standard value, no intervention has to be carried out. This means that an installation with a height of less than 12.25 meters has a preload of 1.5 bar. In this case the operator should only check the pressure value and not intervene.



Example
We take a height H of 15.3. The preload value is:
P = (15,3/10,2)+0,3= 1,8 bar

H: height of the device
Hmax: max height of the device
H1: height when the preload of the expansion vessel is the same as the standard value
* verify that the lowest point of the device can support the pressure
** verify that the highest point of the device does not exceed the max height H max=27 m.

HP 2.0 hydronic system user's conditions

Normal user conditions

The HP 2.0 hydronic group is designed to fit into air conditioning systems, normally coupled with a chiller or a heat pump.
The groups are designed to work with water or ethylene glycol and water mixtures up to a maximum of 30%. For operation with percentages of higher glycols or with different fluids, you must consult our technical service.

The minimum operating temperature of the fluid is -10°C, of course with a mixture of water and glycol, while the maximum is 60°C. Special executions for operation with lower or higher temperature fluids are available on request.

The outdoor air temperature range is -20°C + 40°C. Again, special versions are available for operation outside the standard range.

The maximum working pressure of the group is 3 bars. Versions with maximum operating pressure are available on request. Also versions for open vessel operation (atmospheric pressure) can be made on request.

Hydronic systems
HP 2.0: accessories

1 Programmable timer for alternating pumps

In the dual pump configuration, the timer can be used to handle alternating pump operation at specified time intervals. Without the timer, the alternating pump operation occurs at each startup of the group. Default alternation every 48 hours programmable.

* **WARNING:** If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory.

Code	Description	Price
838081104X	TIMER OPTION 48H	

2 Differential pressure switch

Security device that allows you to verify that there is flow inside the system. The device generates an alarm signal but does not automatically stop the machine.

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	

3 Anti-vibrating feet

Set of anti-vibrating feet to be placed on the machine's support points. The feet are supplied disassembled.

Code	Description	Price
838080861X	ANTI-VIBRATING FOR HP PT2/PT3 AND FOR P1 A P18	
838081286X	ANTI-VIBRATING FOR HP P19/P20/P21	

4 Expansion vessel kit

Code	Description	Compatible with	Price
838081187X	EXPANSION VESSEL 12L INNER	HP 2.0 UP TO P18	
838081195X	EXPANSION VESSEL 25L INNER	HP 2.0 UP TO P18	
838081480X	EXPANSION VESSEL 2x25L INNER	HP 2.0 UP TO P18	
838081616X	EXPANSION VESSEL 3x25L INNER	HP 2.0 UP TO P18	
838081234X	EXPANSION VESSEL 2x25L INNER	HP 2.0 FOR P19/P20/P21 VERSIONS	

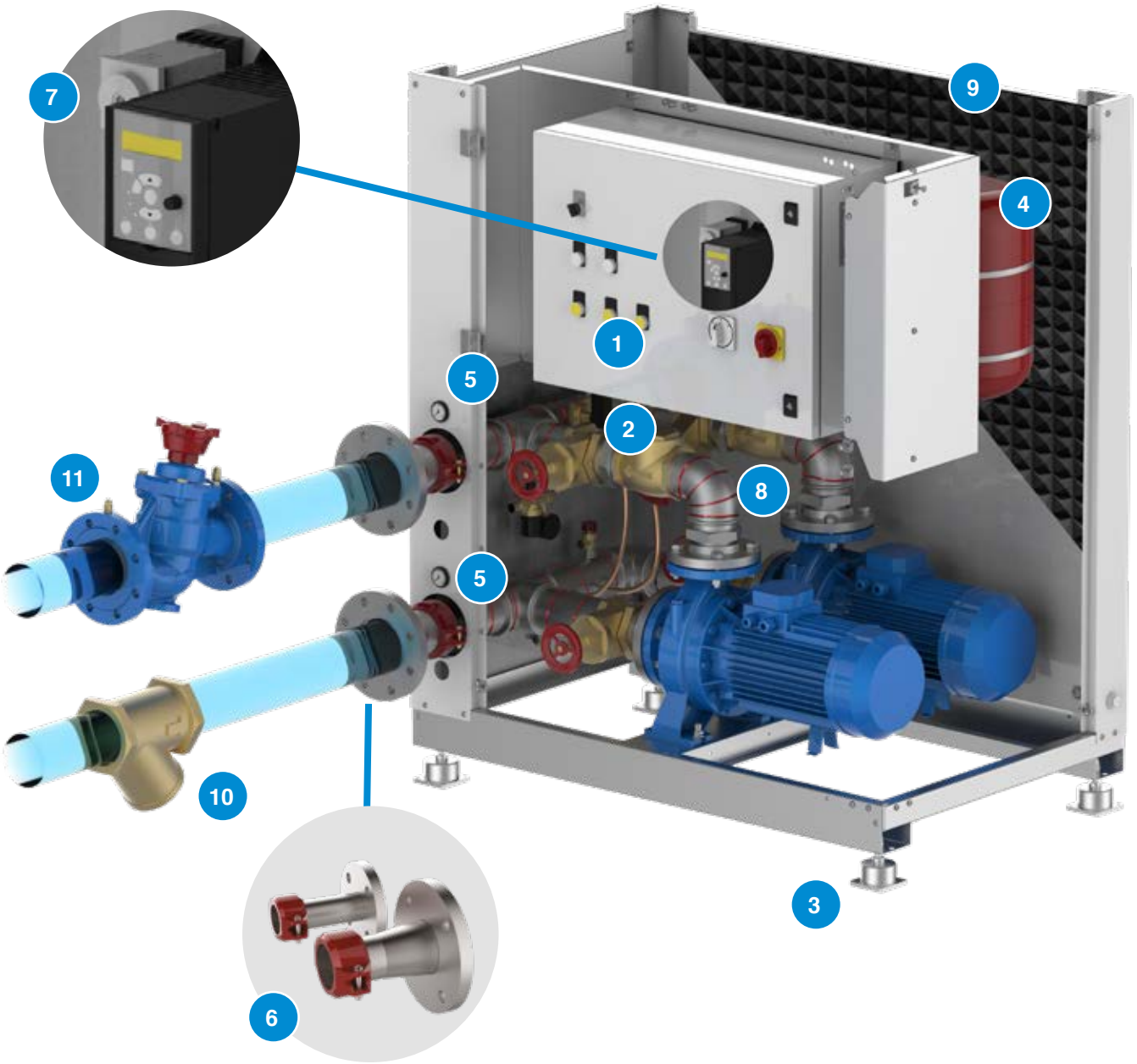
5 Manometer kit

Code	Description	Price
838081583X	MANOMETER KIT	

6 Galvanized Transformation in Victaulic connections

They transform the victaulic connections into UNI-EN PN 16 flanged connections. A version with the same diameter and one with a larger diameter is available. The codes and prices below are for single piece.

Original conncetion Victaulic	Transformed connection UNI-EN PN 16	Code	Price
1"1/2	DN40	838081247X	
	DN50	838081248X	
2"	DN50	838081249X	
	DN65	838081250X	
2"1/2	DN65	838081251X	
	DN80	838081252X	
3"	DN80	838081253X	
	DN100	838081254X	
4"	DN100	838081255X	
	DN125	838081256X	



7 **Inverter (special version)** Each pump can be operated by an inverter. The units equipped with inverters have a pressure sensor, 0-10 bar, which communicates with the inverter with 4-20 mA signal. All adjustment parameters are pre-loaded during the test run at the company. The user must choose only the desired set point pressure value.
see page: 133

8 **Antifreeze electric resistance kit (special version)** The kit provides protection against freezing by means of a heating cable wound around piping. The kit also includes a bi-thermostatic antifreeze adjustment (-35 / + 35 ° C) and is supplied assembled, wired and tested.
see page: 133

9 **Soundproof coating (special version)**
The soundproofing is available, which attenuates the sound level of the machine significantly.
see page: 133

10 **Filter (special version)**
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.
see page: 133

11 **Balancing valves (special version)**
Valve can be connected externally to balance the flow within the circuit.
see page: 133

Wooden box packing (special version)
Extra protective packing suitable for risky and long-distance transport.
see page: 133

Hydronic systems
VKB 2.0

The VKB 2.0 units are buffer storage tanks with accessories (without circulation pump) designed in order to significantly reduce the set-up time for the conditioning and cooling devices.

With all hydraulic components which are indispensable for the correct functioning of the hydraulic circuit for the distribution of chilled water. The components can be coupled with all kind of water coolers. The units consist of an insulated buffer tank, an expansion vessel, a safety valve, a deaerator, a fill/drain valve and a manometer.

The VKB 2.0 units are enveloped in a supporting structure in a galvanized steel and powder coated panels and base. They are designed to guarantee an easy inspection and maintenance of the components. The tank, which is hydraulically inserted between the cooling station and the fan-coils, makes the water content in the entire installation increase, by increasing the pause between the shutdown of the compressor and the next start-up. In this way, the number of start-ups is significantly reduced, which improves the life span and performance of the compressor. The broad range of storage tanks makes it possible to meet every requirement. Every unit is assembled in our factory and tested to guarantee our trustworthiness.

Tank insulated with anti-condensate elastomer

Available versions

VKB 2.0 is available in the following sizes: 250, 500, 1000 and 1500 litres.

Accessories

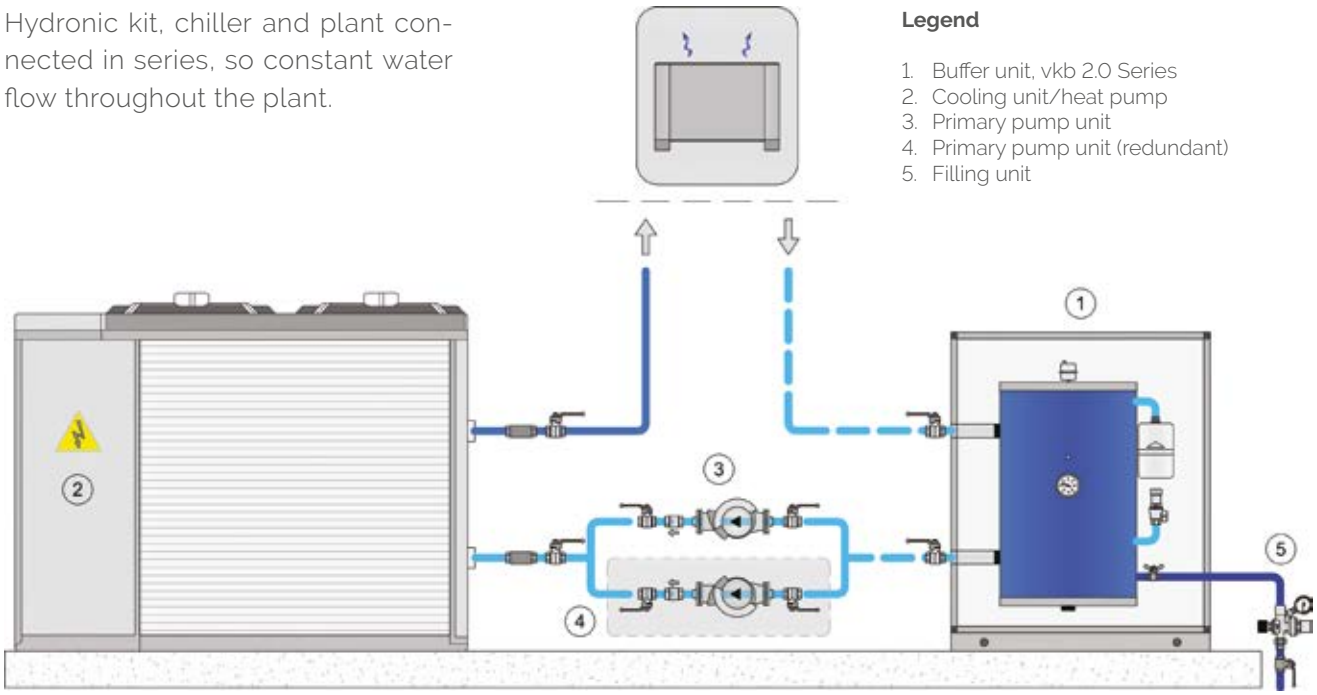
See pag. 116 for the list of available accessories

Hydronic systems
VKB 2.0 Layout 1 STANDARD

Hydronic kit, chiller and plant connected in series, so constant water flow throughout the plant.

Legend

1. Buffer unit, vkb 2.0 Series
2. Cooling unit/heat pump
3. Primary pump unit
4. Primary pump unit (redundant)
5. Filling unit

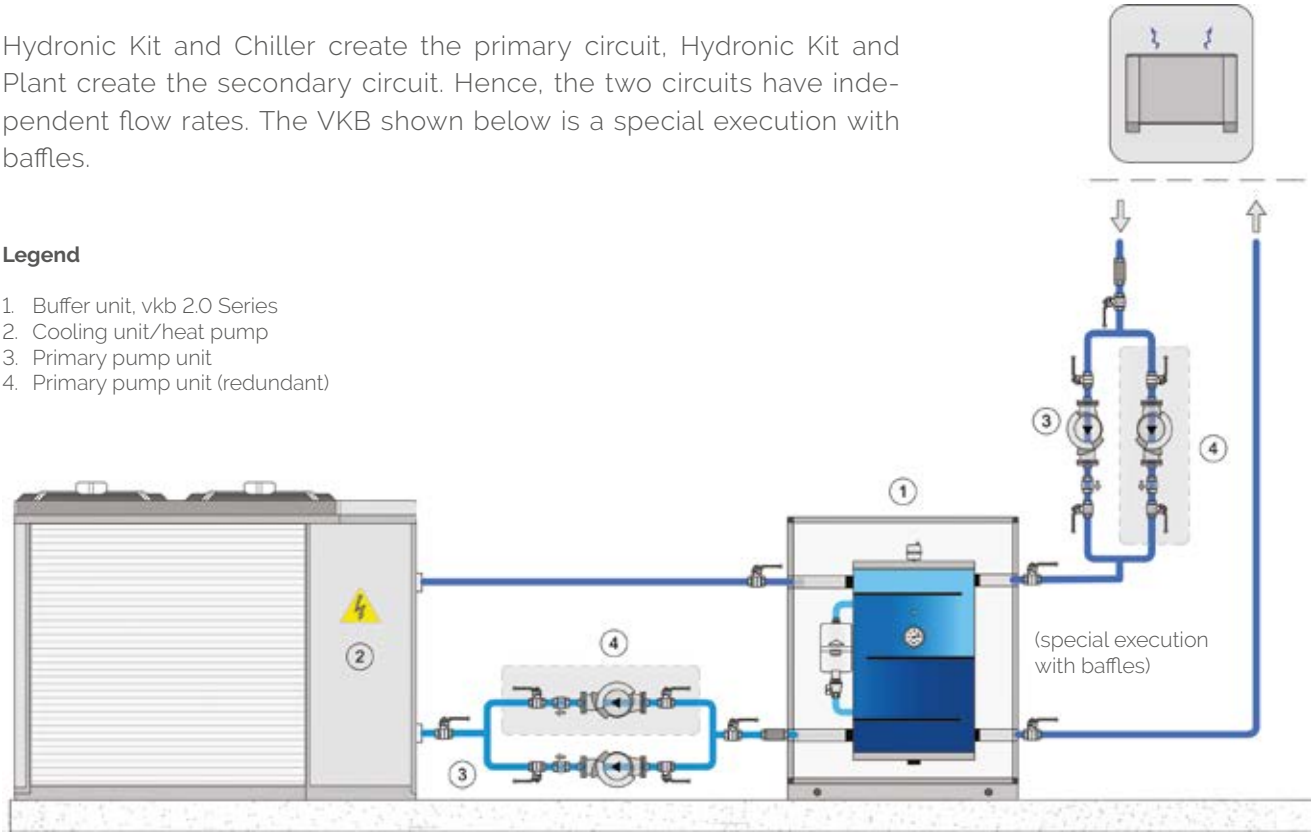


Hydronic systems
VKB 2.0 Layout 2 SPECIAL VERSION

Hydronic Kit and Chiller create the primary circuit, Hydronic Kit and Plant create the secondary circuit. Hence, the two circuits have independent flow rates. The VKB shown below is a special execution with baffles.

Legend

1. Buffer unit, vkb 2.0 Series
2. Cooling unit/heat pump
3. Primary pump unit
4. Primary pump unit (redundant)



Hydronic systems
VKB 2.0

VKB 2.0 Description of the main components

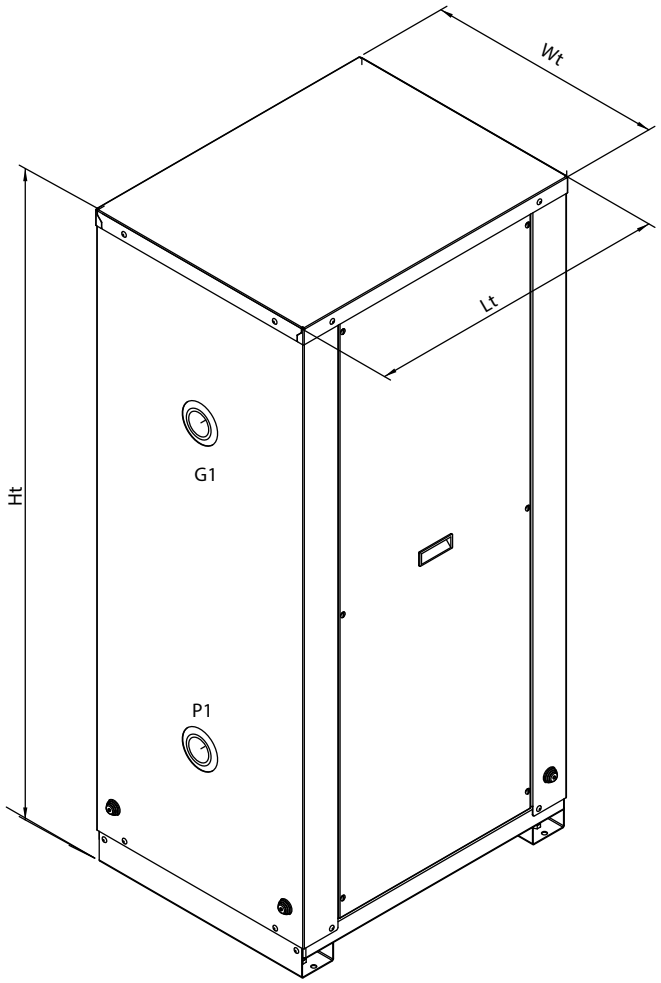
- **Storage tank**
  The storage tank is made of varnished carbon steel plates and is insulated with closed cell elastomer . This type of insulation, guarantees an excellent resistance to condensate formation.
- **Fill up valve**
  This valve refills the hydraulic circuit in the demand peak phase as well as during normal functioning.
- **Safety valve**
  Calibrated at 3 bar and with canalised drain. It protects the unit from possible overpressure.
- **Automatic valve for air drain**
  Placed on the upper part of the unit, it drains air from the unit.
- **Drain valve**
  It drains air from the lowest point of the tank to make drainage possible.
- **Supporting structure**
  The base is made of thick steel plates varnished. Thebasement and panels are made in galvanized steel and powder coated which are resistant to atmospheric agents. All this makes it possible for the VKB 2.0 to be installed in non-technical spaces and in places exposed to atmospheric agents.
- **Expansion vessel**
  Supplied with a membrane, preloaded nitrogen and with dimensions that can absorb varying volumes of liquid derived from the various temperatures.
- **Manometer**
  This device is placed on the tank and indicates the internal pressure.

	Components
1	Storage tank
2	Fill-up valve
3	Automatic safety valve
4	Drain
5	Supporting structure
6	Expansion vessel
7	Manometer
8	Predisposition for electrical resistance
9	Predisposition for thermostat

Hydronic systems
VKB 2.0

Capacity l	Vessel l	Vessel calibration bar	Safety valve bar	Couplings inch	Wt mm	Lt mm	Ht mm	P1 mm	G1 mm
250	12	1	3	2"	590	750	1600	420	1220
500	18	1,5	3	3"	750	1000	1850	420	1470
1000	25	1,5	3	4"	1100	1100	1850	610	1410
1500	2x25	1,5	3	4"	1200	1200	1950	650	1450

Capacity l	Code	Price	Dimensions with packaging mm	Weight kg
250	838050090X		625x785x1670	95
500	838050091X		800x1050x1920	155
1000	838050092X		1150x1150x1920	255
1500	838050016		1250X1250X2020	313



Couplings legend

G1	From plant Threaded connection
P1	To energy source Threaded connection

VKB 2.0 hydronic systems: Capacity of the circuit and the expansion vessel

Max water content in the device and dimensions of the expansion vessel

On chart 1 the max water volume in the hydraulic installation is indicated, compatible with the capacity of the expansion vessel and applicable to all VKB 2.0 models. The safety valve also has a start-up value (3 bar for all models). If the effective water content in the device, as well as in the storage tank, exceeds the operating conditions in the chart, another/second expansion vessel should be installed to take the added water volume.

Tav. 1

Model	Hydraulic height H	m	15	10
	Expansion vessel preload	bar	1,8	1,5
VKB 2,0 250 l	Circuit's max water content (1)	l	492	615
	Circuit's max water content (2)	l	315	394
VKB 2,0 500 l	Circuit's max water content (1)	l	708	885
	Circuit's max water content (2)	l	453	567
VKB 2,0 1000 l	Circuit's max water content (1)	l	984	1230
	Circuit's max water content (2)	l	630	788
VKB 2,0 1500 l	Circuit's max water content (1)	l	1968	2460
	Circuit's max water content (2)	l	1260	1576

Note: the expansion vessel is optional and should be ordered separately.

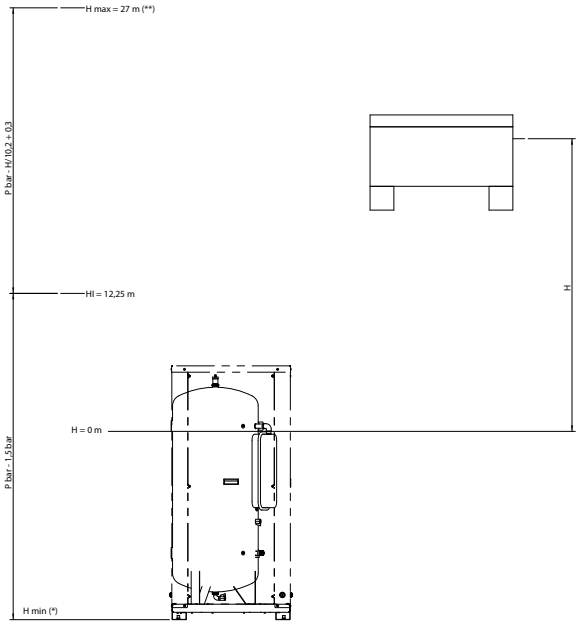
Condizioni operative:
(1) cooling
Min temp of fluid = 4°C
Max temp of fluid = 40°C
(2) heating (heat pump)
Min temp of fluid = 4°C
Max temp of fluid = 50°C

Tav. 2

	Water temperature		Correction factors	Reference value
Water/ glycol mix.	max °C	min °C		
10%	40	-2	0.507	(1)
10%	5	-2	0.686	(2)
20%	40	-4	0.434	(1)
20%	50	-4	0.604	(2)
30%	40	-6	0.393	(1)
30%	50	-6	0.555	(2)

Hydronic systems
VKB 2.0 preload of the expansion vessel

The expansion vessel, of all models, is preloaded with a standard value of 1.5 bar.
The value has to be adapted though to the height H of the device.
The formula used to calculate the preload value of the expansion vessel is:
P = (H /10.2)+0.3



Legend
H: height of the device in meters
P: preload of the expansion vessel in bar
Should the preload value be less than the standard value, no intervention has to be carried out. This means
that an installation with a height of less than 12.25 meters has a preload of 1.5 bar. In this case the operator
should only check the pressure value and not intervene.

Example
We take a height H of 15.3. The preload value is:
P = (15,3/10,2)+0,3= 1,8 bar

H: height of the device
Hmax: max height of the device
H1: height when the preload of the expansion vessel is the same as the standard value
* verify that the lowest point of the device can support the pressure
** verify that the highest point of the device does not exceed the max height H max=27 m.

Normal user's conditions

The VKB 2.0 hydronic group is designed to be incorporated into conditioning systems, normally coupled with a chiller or a heat pump.
The units are designed to work with water or ethylene glycol and water mixtures up to a maximum of 50%. For operation with percentages of higher glycols or with different fluids, you must consult our technical service.

The minimum operating temperature of the fluid is -10 ° C, of course with a mixture of water and glycol, while the maximum is 60 ° C. Special executions for operation with lower or higher temperature fluids are available on request.

The outdoor air temperature range is -20 ° C + 40 ° C. Again, special versions are available for operation outside the standard range.

The maximum working pressure of the group is 3 bars. Versions with maximum operating pressure are available on request. Also versions for open vessel operation (atmospheric pressure) can be made on request.

Hydronic systems
VKB 2.0 accessories

1 From threaded to flanged galvanized connections

The codes and prices below are for single piece.

Original connection	Transformed connection uni-en pn 16	Code	Price
1"1/2	DN 40	838081200X	
	DN 50	838081201X	
2"	DN 50	838081202X	
	DN 65	838081203X	
2"1/2	DN 65	838081204X	
	DN 80	838081205X	
3"	DN 80	838081206X	
	DN 100	838081207X	
4"	DN 100	838081208X	
	DN 125	838081209X	

2 From threaded to Victaulic galvanized connections

The codes and prices below are for single piece.

Original connection	Transformed connection	Code	Price
1"1/2	1"1/2	838081211X	
	2"	838081212X	
2"	2"	838081213X	
	2"1/2	838081214X	
2"1/2	2"1/2	838081215X	
	3"	838081216X	
3"	3"	838081217X	
	4"	838081218X	
4"	4"	838081219X	
	5"	838081220X	

3 Electrical resistor

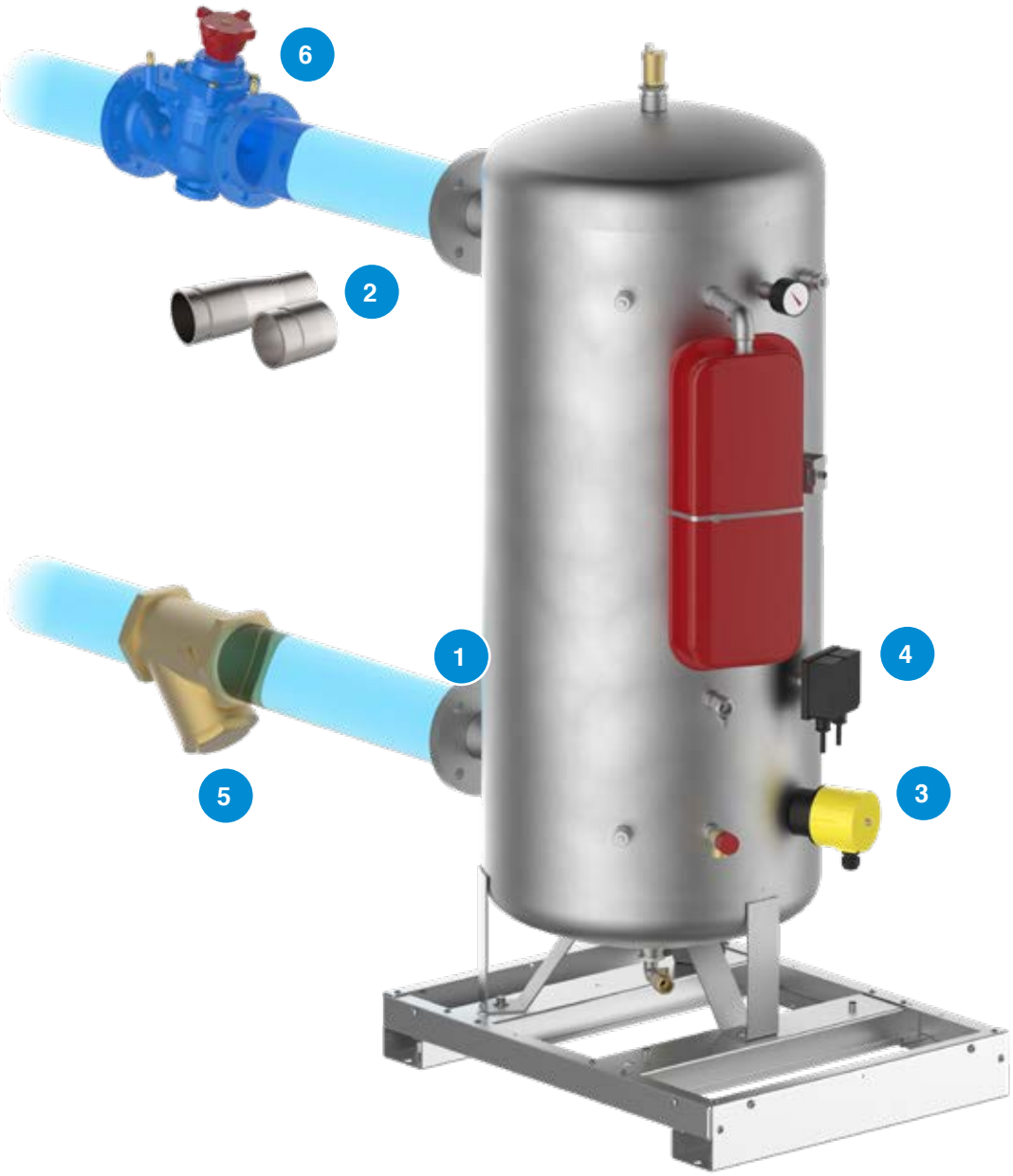
IP 65 Protection

Power W	Voltage V	Element number	Connection diameter inch	Length mm	Code	Price
1300	230/380	3	2"	220	824100008	
2000	230/380	3	2"	290	824100009	
3000	230/380	3	2"	340	824100010	
4000	230/380	3	2"	390	824100012	

4 Temperature controls

Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	822010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	822010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	822010007	

Hydronic systems
VKB 2.0 accessories



5 **Filter (special version)**
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.
see page: 133

6 **Balancing valves (special version)**
Valve can be connected externally to balance the flow within the circuit.
see page: 133

Tailored connections (special version)
Flangiate (in various materials), Victaulic (in various materials), Larger
see page: 133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1/4
T. 1 1/2
1
3/4
3
2 1/2
2 1/2

Accessories

Contents

Cold Water Storage Tanks
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Standard Accessories for Cold Water Storage Tanks

Galvanized Connections Adapters from threaded to flanged type

The codes and prices below are for single item.
The adapter must be screwed onto the existing connection.

Original connection	Transformed connection uni-en pn 16	Code	Price
1"1/2	DN 40	838081200X	
	DN 50	838081201X	
2"	DN 50	838081202X	
	DN 65	838081203X	
2"1/2	DN 65	838081204X	
	DN 80	838081205X	
3"	DN 80	838081206X	
	DN 100	838081207X	
4"	DN 100	838081208X	
	DN 125	838081209X	

Galvanized Connections Adapters from threaded to Victaulic type

The codes and prices below are for single item.
The adapter must be screwed onto the existing connection

Original connection	Transformed connection	Code	Price
1"1/2	1"1/2	838081211X	
	2"	838081212X	
2"	2"	838081213X	
	2"1/2	838081214X	
2"1/2	2"1/2	838081215X	
	3"	838081216X	
3"	3"	838081217X	
	4"	838081218X	
4"	4"	838081219X	
	5"	838081220X	

Electric single-phase resistors with built-in thermostat

IP 40 protection with visible contacts

Power W	Voltage V	Element number	Connection Diameter inch	Length mm	Code	Price
1200	230	1	1" 1/4	220	824100003	
1500	230	1	1" 1/4	290	824100004	
2000	230	1	1" 1/4	330	824100005	

Electric single-phase resistors

IP 55 protection.

Power W	Voltage V	Element number	Connection Diameter inch	Length mm	Code	Price
200	230	1	1/2"	300	824100001	

Electric resistors

IP 65 protection.

Power W	Voltage V	Element number	Connection Diameter inch	Length mm	Code	Price
1300	230/380	3	2"	220	824100008	
2000	230/380	3	2"	290	824100009	
2000	230/380	3	1" 1/4	300	824100053	
3000	230/380	3	2"	340	824100010	
3000	230/380	3	1" 1/4	300	824100011	
4000	230/380	3	2"	390	824100012	
4000	230/380	3	1" 1/4	400	824100072	
5000	230/380	3	2"	500	824100013	
5000	230/380	3	1" 1/4	450	824100073	
6000	230/380	3	2"	600	824100014	
7000	230/380	3	2"	580	824100015	
8000	230/380	3	2"	620	824100016	
10000	230/380	3	2"	770	824100017	

Thermometers

Description	Code	Price
Thermometer for cold water	822050004	
Thermometer for hot water	822050001	

Temperature controls

Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	822010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	822010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	822010007	

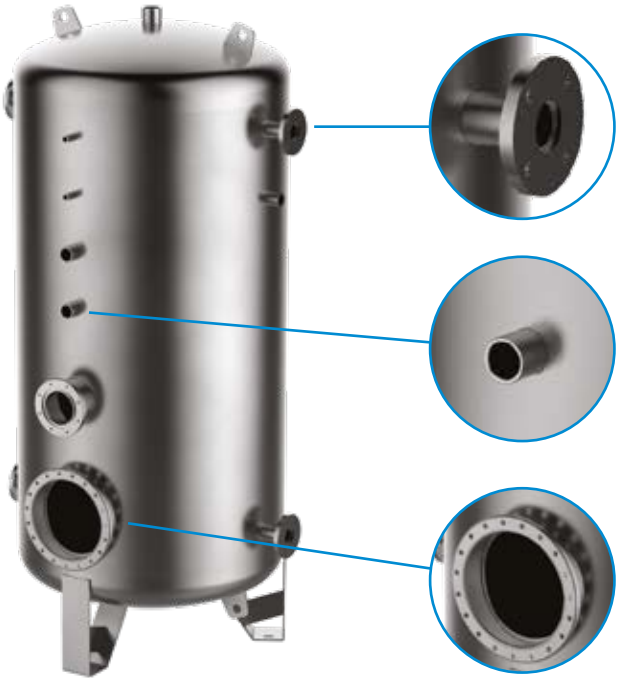
Accessories Compatible with: MINI-HC, VKG-HC(E), VKG(E), VK(E), VKT, VKX, VKS, VKR, VKD (pag. 66)

NOTE: Be sure to install the accessories according to the size and availability of the tank connections.

Special versions for Cold Water Storage Tanks

Special versions change the conformation of the products and hence the sales code will be different depending on the customisation required. Fiorini is able to provide any tailored solution quickly, providing the customer with the support they need to guide them to the solution that best suits their needs.
Here are some examples of special versions:

- Flanged (in different materials)
- Victaulic (in different materials)
- Larger size
- Customised on request



ALUMINIUM cladding

Accessory for outdoor installation.
It is mandatory to provide a wooden cage for transportation.

Packed in wooden cage

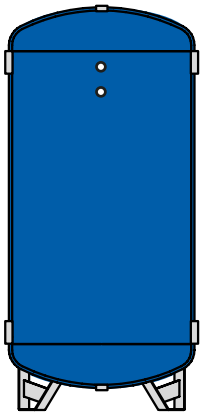
Guarantees greater product protection during transport

Accessories Compatible with: VKG-HC(E), VKG(E), VK(E), VKT, VKX, VKS, VKR, VKD (pag. 66)

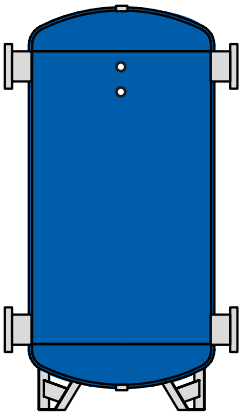
Tank Layout

This page guides you in choosing the couplings geometry/position of a chilled water tank. When requesting a quote, please specify the chosen layout and any changes.

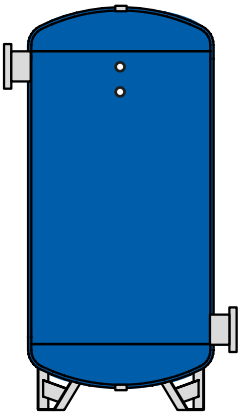
STANDARD



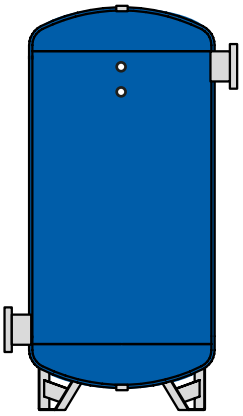
TL1
4 standard couplings



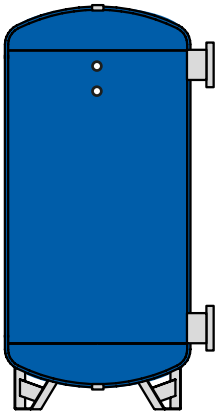
TL2
4 special couplings



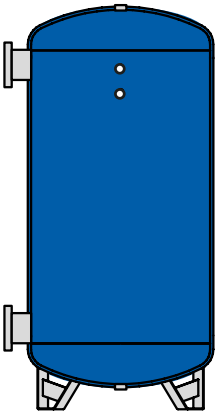
TL3
2 special couplings,top left and bottom right



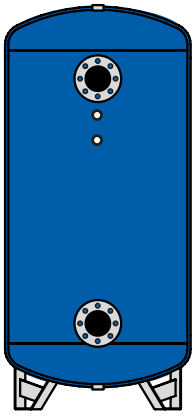
TL4
2 special couplings, top right and bottom left



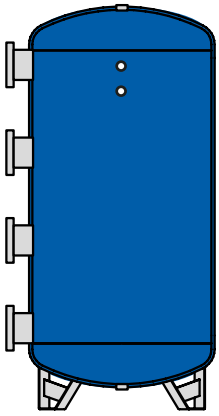
TL5
2 special couplings right



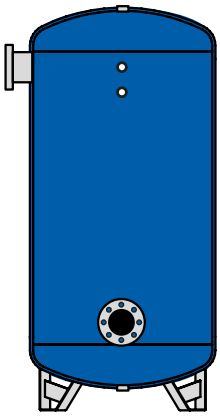
TL6
2 special couplings left



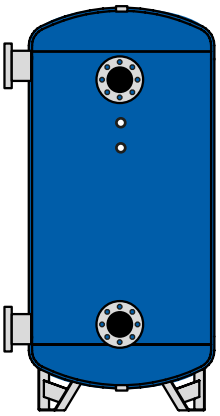
TL7
2 special couplings front



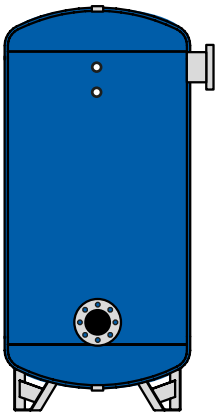
TL8
4 special couplings left



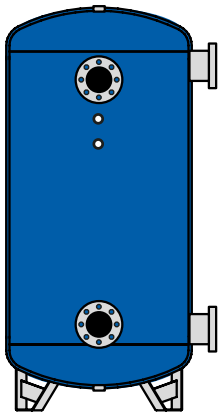
TL9
2 special couplings, top left and bottom front



TL10
4 special couplings left and front



TL11
2 special couplings top right and bottom front



TL12
4 special couplings right and front

Standard Accessories for Hydronic kits

Accessories for HPT kit

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	
838081104X	TIMER OPTION 48H*	
838080917X	ANTIVIBRATING FEET FOR HPT 300/500L	
838080936X	ANTIVIBRATING FEET FOR HPT 750/1000L	
838080938X	ANTIVIBRATING FEET FOR HPT 1500/2500L	

* WARNING If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory

Compatible with HPT kit see pag. 104

Accessories for HP 2.0 kit

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	
838081104X	TIMER OPTION 48H*	
838081583X	MANOMETER KIT	
838080861X	ANTIVIBRATING FEET UP TO P18	
838081286X	ANTIVIBRATING FEET FOR P19, P20, P21	
838081187X	EXPANSION VESSEL 12L UP TO P18	
838081195X	EXPANSION VESSEL 25L UP TO P18	
838081480X	EXPANSION VESSEL 2x25L UP TO P18	
838081234X	EXPANSION VESSEL 2x25L FOR P19, P20, P21	

* WARNING If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory

Compatible with HP kit see pag. 116

Transformation in flange connection for HP 2.0 kit

The codes and prices below are for single item.

Original connection Victaulic	Transformed connection UNI-EN PN 16	Code	Price
1"1/2	DN40	838081247X	
	DN50	838081248X	
2"	DN50	838081249X	
	DN65	838081250X	
2"1/2	DN65	838081251X	
	DN80	838081252X	
3"	DN80	838081253X	
	DN100	838081254X	
4"	DN100	838081255X	
	DN125	838081256X	

Compatible with HP kit see pag. 116

Galvanized Connection Transformation from threaded to flanged

The codes and prices below are for single item.

Original connection	Transformed connection uni-en pn 16	Code	Price
1"1/2	DN 40	838081200X	
	DN 50	838081201X	
2"	DN 50	838081202X	
	DN 65	838081203X	
2"1/2	DN 65	838081204X	
	DN 80	838081205X	
3"	DN 80	838081206X	
	DN 100	838081207X	
4"	DN 100	838081208X	
	DN 125	838081209X	

Galvanized Connection Transformation from threaded to Victaulic

The codes and prices below are for single item.

Original connection	Transformed connection	Code	Price
1"1/2	1"1/2	838081211X	
	2"	838081212X	
2"	2"	838081213X	
	2"1/2	838081214X	
2"1/2	2"1/2	838081215X	
	3"	838081216X	
3"	3"	838081217X	
	4"	838081218X	
4"	4"	838081219X	
	5"	838081220X	

Electrical resistors for VKB 2.0 kit

IP 65 Protection

Power W	Voltage V	Element number	Connection Diameter inch	Length mm	Code	Price
1300	230/380	3	2"	220	824100008	
2000	230/380	3	2"	290	824100009	
3000	230/380	3	2"	340	824100010	
4000	230/380	3	2"	390	824100012	

Temperature controls for VKB 2.0 kit

Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	822010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	822010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	822010007	

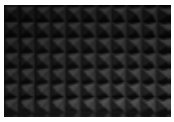
Compatible with VKB kit see pag. 124

Special versions for Hydronic kits

Special versions change the conformation of the products and hence the sales code will be different depending on the customisation required. Fiorini is able to provide any tailored solution quickly, providing the customer with the support they need to guide them to the solution that best suits their needs.
Here are some examples of special executions:

Inverter
Each pump can be operated by an inverter. The units equipped with inverters are equipped with a pressure sensor, 0-10 bar, which communicates with the inverter with 4-20 mA signal. All adjustment parameters are pre-charged during the test run at the company. The user must choose only the desired set point pressure value.

Antifreeze electric resistance kit
For **HPT**: mounted inside the tank, it consists of an electrical resistance of 1300 W for capacities up to 1000 l and two 1300 W electric resistors for larger capacities. The kit also includes a bi-thermostatic antifreeze adjustment (-35 / + 35 ° C) and is supplied assembled, wired and tested. 241/5000
For **HP 2.0**: The kit provides protection against freezing by means of a heating cable wound around piping. The kit also includes a bi-thermostatic antifreeze adjustment (-35 / + 35 ° C) and is supplied assembled, wired and tested.



Soundproof coating
Soundproofing is available and attenuates significantly the sound level of the machine.

Filter
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.

Balancing valves
Valve can be connected externally to balance the flow within the circuit.

Wooden box packing
Extra protective packing suitable for risky and long-distance transport.

Hot water systems

Contents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fiorini
fiorini

Hot water systems

A broad range of options which make it possible to efficiently produce Domestic Hot Water for both domestic and professional use and to manage water for technical use in heating systems.

We have numerous series of products dedicated to the production and storage of hot water. Those products meet people's needs and bring comfort to users, in individual housing, as well as public and private residential structures, the tertiary sector and the industrial sector. Our product lines consist of DHW systems, hot water storage tanks, thermal solar power systems which are designed to efficiently operate in all different applications.

Our products are well-thought-out. We try to come up with new conceptual solutions and to think over the materials we use. In this way we aim for:
- high performance
- a minimum heat loss
- high quality and a long life span

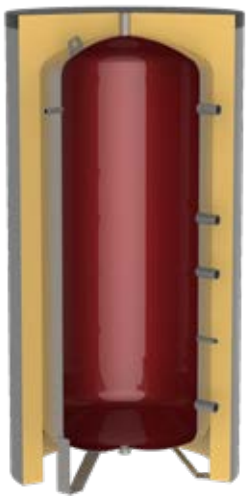
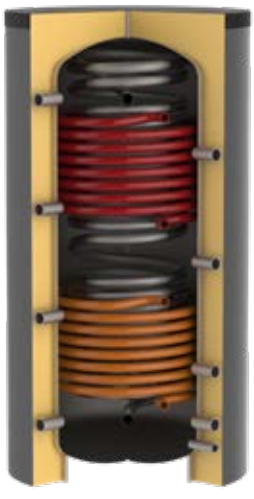
Energy labels
All products for hot water production are provided with an energy label in accordance with the CE directive and the specific regulations for the devices. The label certifies the energy efficiency class which helps the professionals and the users consciously choose the most efficient solution to their requirements. For more information see pag. 10.

Special materials and internal treatment of the tanks
We offer products with a finishing touch adapted to every possible application: high quality stainless steel and glass lining (enamel vitrified at a temperature of more than 800°C) which ensure a maximum hygiene and life span even when the water temperature is elevated. Moreover there is Bluetech, an innovative and efficient treatment with high elasticity. It is made from thermosetting resins and ensures a 100 % cleanliness of water for domestic use.

Insulation
The following types of insulation are available:
- rigid polyurethane foam, high density, thermal insulation
- Thick flexible polyurethane, also for large tanks (up to 10.000 litres) or for special projects
- Other materials, on the client's request

Protective equipment
There are sets with protective equipment which guarantee the safety and correct use of the products, such as protection against overpressure, safety valves, expansion vessels, protection against water hammering, antifreeze protection, cathodic protection against corrosion, etc If necessary, our clients can solicit the help of the consultancy service provided by our staff during the design and selection phase. They will help you look for the perfect solution to your problem and will send you the information needed to properly and efficiently manage the product and/or the device.

You can find more details in the following part of the brochure.

Inertial tanks for Domestic Hot Water FLEXY

The FLEXY range consists of inertial tanks for domestic hot water, available in version with or without inspection hole (allowing easy access during inspection and maintenance), in different capacities, from 200 to 10000 litres. They are equipped with rigid or flexible insulation and PVC outer coating, magnesium anode for protection against galvanic currents.

TESTED

Material: S 235 JR carbon steel

Treatment for internal protection

- up to 1000 Inorganic glass lining in accordance with DIN 4753.3
- from 1500 litres up Bluetech enamelling with thermosetting resins, suitable for domestic hot water

Insulation

Capacity (l)	Type
200, 300	Highly rigid polyurethane foam
from 500 to 1000	Polystyrene Graphite + Polyester Fiber
from 1500 to 5000	Polyester Fiber
from 6000	Flexible polyurethane foam

Operational limits

Capacity (l)	Max. temperature	Max. pressure
up to 1000	95°C	10 bar
from 1500	80°C	6 bar

Supplied accessories: Adjustable feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

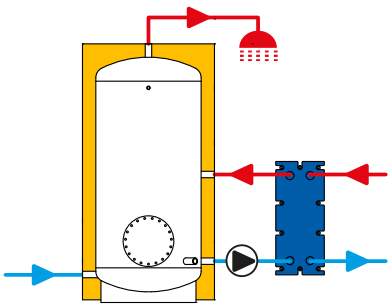
Standard accessories: see pag 274

Special versions: see pag 277

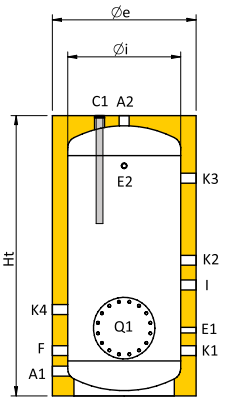
*Can be coupled with Boil custom (pag 180)

	FLEXY with inspection hole			With vertical packaging		FLEXY without inspection hole			With vertical packaging	
Capacity l	Code*	Price	Energy label	Dimensions cm	Weight kg	Code	Price	Energy label	Dimensions cm	Weight kg
200	817060015X		B	75x75x125	90	817060021X		B	75x75x125	80
300	817060016X		B	75x75x150	100	817060022X		B	75x75x150	90
500	817060017X		C	80x80x209	134	817060023X		C	80x80x209	124
750	817060018X		C	99x99x199	260	817060024X		C	99x99x199	250
1000	817060019X		C	99x99x230	296	817060025X		C	99x99x230	286
1500	817080112X		C	123x123x240	229	817080098X		C	123x123x240	218
2000	817080099X		C	132x132x275	280	817080115X		C	132x132x275	270
2500	817080100X			147x147x277,5	316	817080116X			147x147x277,5	306
3000	817080101X			147x147x299	349	817080117X			147x147x299	339
4000	817080102X			163x163x306	508	817080118X			163x163x306	498
5000	817080103X			183x183x310	597	817080119X			183x183x310	587
6000	817080120X			282x203x217,5	746	-				
8000	817080121X			352x203x217,5	882	-				
10000	817080122X			427x203x217,5	1032	-				

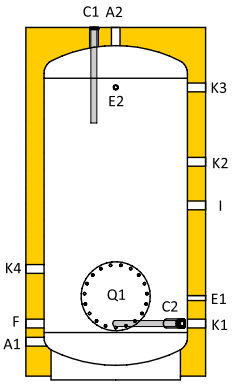
Inertial tanks for DHW FLEXY



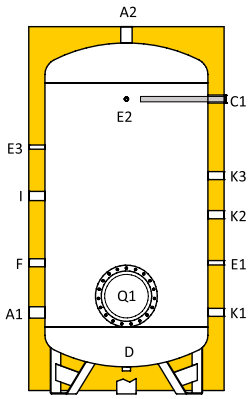
200 ≤ cap. ≤ 300



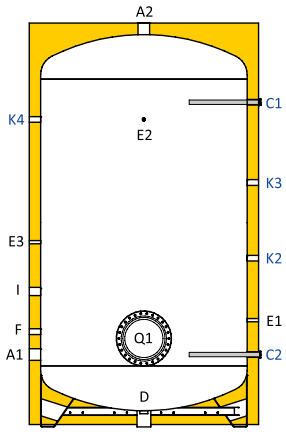
500 ≤ cap. ≤ 1000



1500 ≤ cap. ≤ 5000



6000 ≤ cap. ≤ 10000



Legend couplings

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
Q1	Inspection hole

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	Q1 (Øext/Øint) mm
200	1"1/4	1"1/4	1"1/4	-	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220
300	1"1/4	1"1/4	1"1/4	-	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220
500	1"1/4	1"1/4	1"1/4	1"1/4	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220
750	1"1/4	1"1/4	1"1/4	1"1/4	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø380/Ø300
1000	1"1/4	1"1/4	1"1/4	1"1/4	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø380/Ø300
1500	2"	2"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	Ø380/Ø300
2000	2"	2"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	Ø430/Ø350
2500	2"1/2	2"1/2	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	Ø430/Ø350
3000	3"	3"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	Ø430/Ø350
4000	3"	3"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	Ø430/Ø350
5000	3"	3"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	Ø430/Ø350
6000	3"	3"	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	-	1"1/4	1"1/4	1"1/4	Ø480/Ø400
8000	3"	3"	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	-	1"1/4	1"1/4	1"1/4	Ø480/Ø400
10000	3"	3"	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	-	1"1/4	1"1/4	1"1/4	Ø480/Ø400

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	C2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	Q1** mm
200	700	1100	1305	130	1100	-	-	320	855	-	220	540	130	660	970	420	330
300	700	1340	1515	130	1340	-	-	320	1120	-	220	540	220	660	1060	420	330
500	760	1920	2065	150	1920	250	-	380	1640	-	250	945	250	1090	1640	480	360
750	950	1970	2190	210	1970	310	-	460	1610	-	310	960	310	1150	1610	610	460
1000	950	2280	2470	210	2280	310	-	460	1910	-	310	915	310	1150	1910	610	460
1500	1250	2280	2600	500	1810	-	165	805	1810	1515	805	1215	500	1100	1340	-	600
2000	1350	2600	2930	505	2115	-	155	805	2115	1805	805	1505	505	1105	1345	-	620
2500	1400	2655	3000	565	2150	-	175	865	2150	1850	850	1550	565	1165	1405	-	680
3000	1450	2870	3215	575	2350	-	180	800	2350	2050	850	1750	575	1050	1415	-	690
4000	1600	2940	3350	600	2380	-	160	900	2380	2080	870	1780	600	1200	1440	-	715
5000	1800	2980	3480	610	2385	-	140	910	2160	2085	885	1785	610	1210	1450	-	725
6000	2000	2820	3460	630	2230	630	140	930	2080	1470	880	1230	-	1470	1930	2080	770
8000	2000	3520	4050	630	2830	630	140	930	2680	1610	830	1180	-	1470	2130	2680	770
10000	2000	4270	4720	630	3580	630	140	930	3430	1610	830	1180	-	1470	2880	3430	770

R*: Reversal quota

Q1**: Height from inspection hole center to the ground

Inertial tanks for Domestic Hot Water FLEXY INOX

The FLEXY INOX range consists of inertial tanks for domestic hot water made of stainless steel which is highly resistant against corrosion. The tanks are available in several capacities from 200 to 5000 litres. They are equipped with very powerful flexible insulation, externally covered in PVC and provided with a magnesium anode for protection against galvanic currents and an inspection flange for easy access during the control or maintenance phase.

Material: AISI 316 stainless steel

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 5000	Polyester Fiber

Operational limits

Max. temperature	Max. pressure
95°C	6 bar

Supplied accessories: Magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

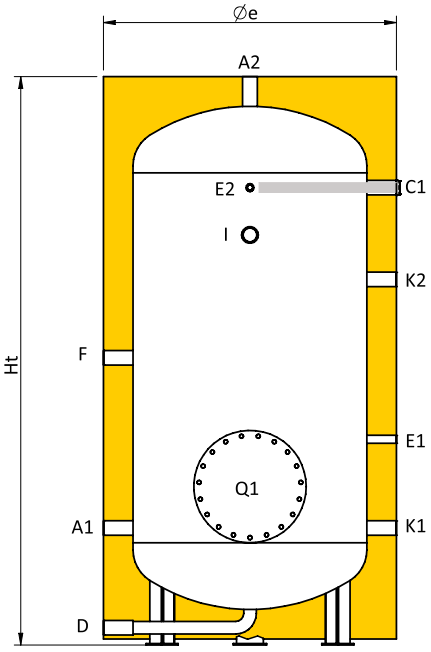
Special versions: see pag 277

TESTED

	With inspection hole			With vertical packaging	Without inspection hole			With vertical packaging
Cap. l	Code*	Price	Energy label	Dimensions cm	Code	Price	Energy label	Dimensions cm
200	817040107X		B	68x68x159	817040025		B	68x68x159
300	817040108X		C	78x78x163	817040026		C	78x78x163
500	817040109X		C	83x83x207	817040027		C	83x83x207
800	817040110X		C	102x102x204	817040028		C	102x102x204
1000	817040111X		C	103x103x231	817040029		C	103x103x231
1500	817040112X		C	123x123x232	817040030		C	123x123x232
2000	817040113X		C	143x143x240	817040031		C	143x143x240
2500	817040114X			143x143x265	817040032			143x143x265
3000	817040115X			148x148x292	817040033			148x148x292
4000	817040116X			163x163x300	817040034			163x163x300
5000	817040117X			183x183x303	817040035			183x183x303

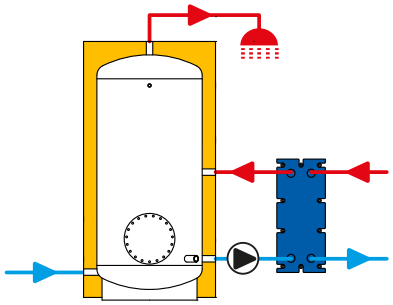
*can be coupled with the Boil custom (pag 180)

Inertial tanks for Domestic Hot Water FLEXY INOX



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
Q1	Inspection hole



Couplings chart

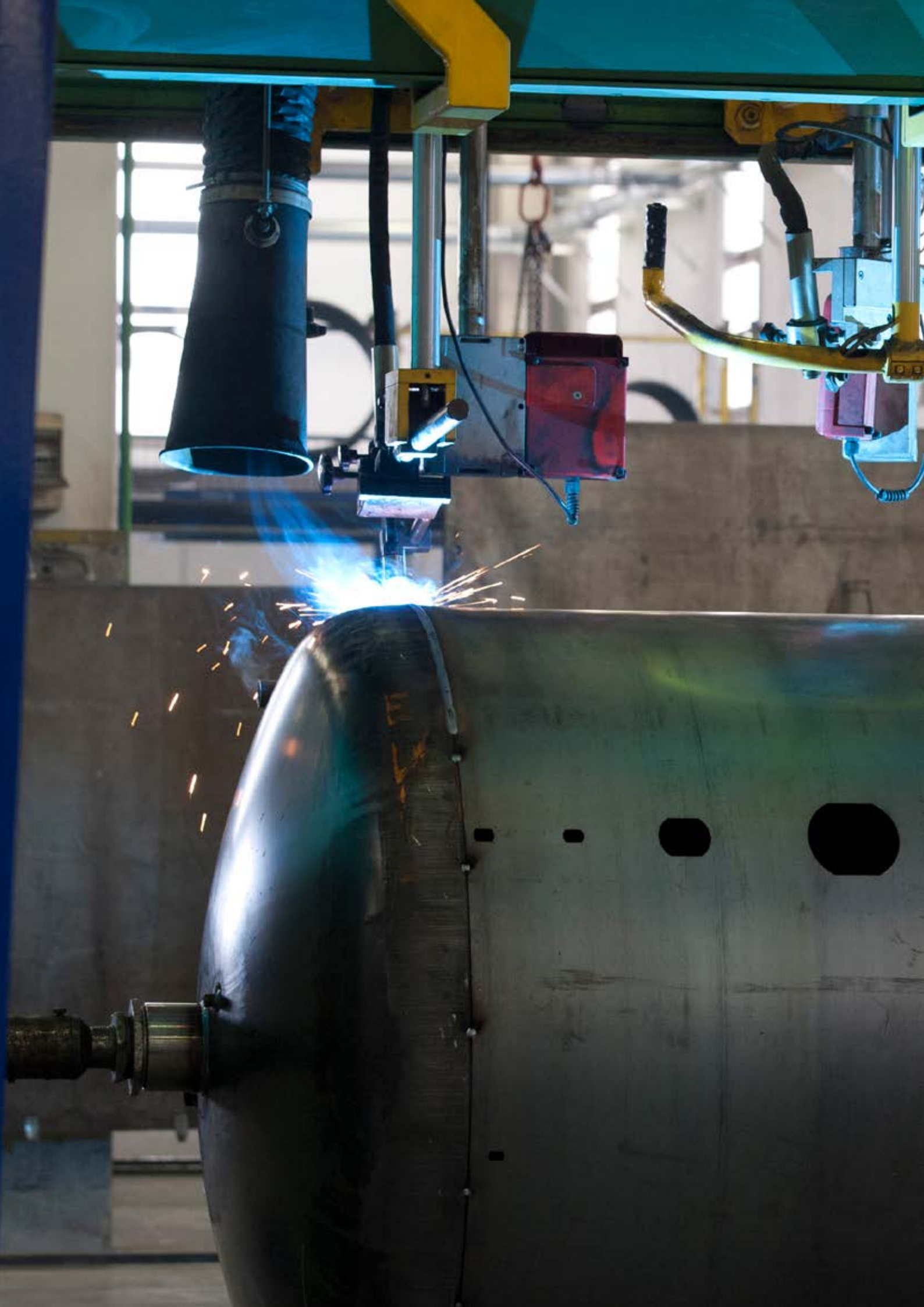
Cap. l	C1 inch	D inch	E1 inch	E2 inch	F inch	A1 inch	A2 inch	I inch	K1 inch	K2 inch	Q1 (Øext/Øint) mm
200	1"1/4	2"	1/2"	1/2"	1"1/4	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	Ø300/Ø220
300	1"1/4	2"	1/2"	1/2"	1"1/4	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	Ø300/Ø220
500	1"1/4	2"	1/2"	1/2"	1"1/4	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	Ø300/Ø220
800	1"1/4	1"1/4	1/2"	1/2"	1"1/4	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	Ø380/Ø300
1000	1"1/4	1"1/4	1/2"	1/2"	1"1/4	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	Ø380/Ø300
1500	1"1/4	1"1/4	1/2"	1/2"	1"1/4	2"	2"	1"1/2	1"1/4	1"1/4	Ø380/Ø300
2000	1"1/4	1"1/4	1/2"	1/2"	1"1/4	2"	2"	1"1/2	1"1/4	1"1/4	Ø430/Ø350
2500	1"1/4	1"1/4	1/2"	1/2"	1"1/4	2"1/2	2"1/2	1"1/2	1"1/4	1"1/4	Ø430/Ø350
3000	1"1/4	1"1/4	1/2"	1/2"	1"1/4	3"	3"	1"1/2	1"1/4	1"1/4	Ø430/Ø350
4000	1"1/4	1"1/4	1/2"	1/2"	1"1/4	3"	3"	1"1/2	1"1/4	1"1/4	Ø430/Ø350
5000	1"1/4	1"1/4	1/2"	1/2"	1"1/4	3"	3"	1"1/2	1"1/4	1"1/4	Ø430/Ø350

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	E1 mm	E2 mm	F mm	I mm	K1 mm	K2 mm	Q1** mm
200	650	1470	1610	275	1115	575	1115	725	915	275	915	375
300	750	1510	1690	295	1135	595	1135	745	965	295	965	395
500	800	1950	2110	270	1670	570	1670	970	1410	270	1110	370
800	990	1940	2200	395	1545	695	1545	970	1385	395	1235	535
1000	1000	2210	2445	405	1805	705	1805	1105	1445	405	1245	545
1500	1250	2225	2555	425	1815	725	1815	1115	1455	425	1265	555
2000	1450	2305	2725	460	1850	760	1850	1150	1490	460	1300	615
2500	1400	2530	2895	460	2100	760	2100	1275	1600	460	1300	615
3000	1450	2800	3155	475	2365	775	2365	1415	1645	475	1315	630
4000	1600	2880	3295	530	2400	830	2400	1450	1680	530	1370	665
5000	1800	2910	3425	530	2400	830	2400	1450	1680	530	1370	665

R*: reversal quota

Q1**: Height from inspection hole center to the ground



Water heaters

Indice

Glass lined water heater with fixed internal heat exchanger – SMART 1

The Smart 1 range consists of water heaters for the production of domestic hot water with a single fixed heat exchanger, available in several capacities, from 200 to 3000 litres. They are equipped with different type of insulation (see chart below), external PVC coating, a magnesium anode for protection against galvanic currents and an inspection flange to make access in the control and maintenance phase easier.

TESTED

Material: S 235 JR carbon steel

Treatment for internal protection: The boilers up to 1000l are treated with food grade inorganic glass lining in accordance with DIN 4753.3. The tanks with a capacity between 1500 and 3000 litres are varnished with Bluetech.

Insulation

Capacity (l)	Type
from 200 to 1000	Highly rigid polyurethane foam
from 1500	Polyester Fiber

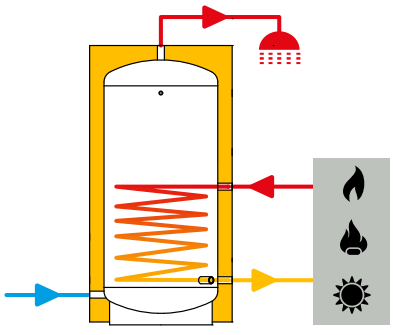
Operational limits

	Storage		Primary circuit	
Capacity (l)	temp. max.	pressure max.	temp. max.	pressure max.
up to 1000	95°C	10 bar	110°C	12 bar
from 1500 to 3000	80°C	6 bar	110°C	12 bar

Supplied accessories: Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

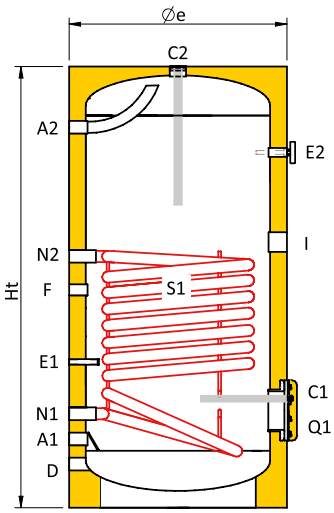
Special versions: see pag 277



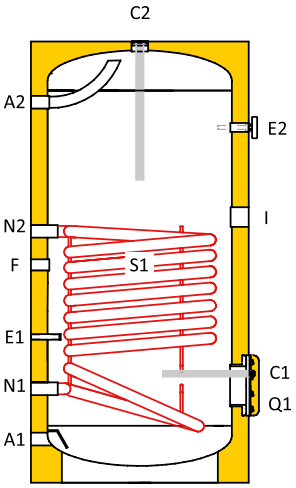
Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm	Weight kg
200	819060107X		B	75x75x120	84
300	819060108X		B	75x75x168	122
500	819060110X		C	75x75x204	195
750	819060111X		C	90x90x207	260
1000	819060112X		C	110x110x198	330
1500	819080001X		C	123x123x237,5	255
2000	819080002X		C	132x132x269,5	325
3000	819080005X			147x147x299	411

Glass lined water heater with fixed internal heat exchanger – SMART 1

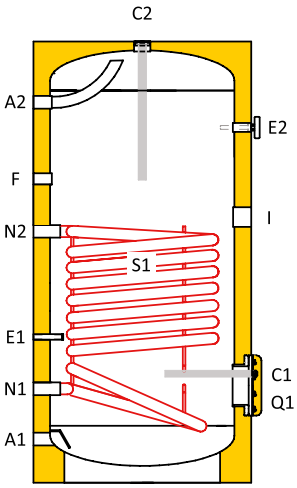
cap = 200



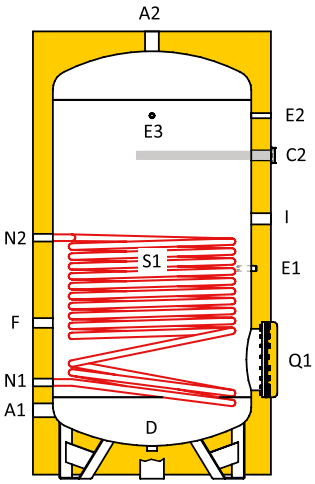
cap = 300, 750, 1.000



cap = 500



1.500 ≤ cap ≤ 5.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer

E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Exchanger outlet
N2	Exchanger inlet
Q1	Inspection hole
S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	N1 inch	N2 inch	Q (Øext/Øint) mm
200	1"	1"	M8	1"1/4	1"	3/8"x90	1/2"	-	3/4"	1"1/2	1"	1"	Ø180/Ø120
300	1"	1"	M8	1"1/4	-	3/8"x90	1/2"	-	3/4"	1"1/2	1"	1"	Ø180/Ø120
500	1"	1"	M8	1"1/4	-	3/8"x125	1/2"	-	3/4"	1"1/2	1"	1"	Ø180/Ø120
750	1"1/2	1"1/2	M8	2"	-	3/8"x140	1/2"	-	1"1/4	1"1/2	1"	1"	Ø280/Ø205
1000	1"1/2	1"1/2	M8	2"	-	3/8"x160	1/2"	-	1"1/4	1"1/2	1"	1"	Ø280/Ø205
1500	2"	2"	-	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"	1"	Ø380/Ø300
2000	2"	2"	-	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"	1"	Ø380/Ø300
3000	3"	3"	-	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"	1"	Ø380/Ø300

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	N1 mm	N2 mm	Q1** mm
200	670	1100	1290	210	865	130	445	795	-	680	540	290	790	290
300	670	1615	1750	130	1355	-	435	1295	-	650	805	280	750	290
500	750	1950	2090	180	1650	-	530	1570	-	1320	1030	320	970	330
750	855	2050	2225	215	1715	-	575	1725	-	925	1110	375	1045	445
1000	1055	1960	2230	247	1567	-	587	1577	-	577	1047	447	997	477
1500	1250	2280	2605	345	-	165	1060	1830	1830	785	1310	485	1215	600
2000	1350	2600	2930	345	-	155	1165	2150	2150	815	1495	490	1325	605
3000	1450	2870	3220	400	-	180	1375	2410	2410	875	1625	550	1540	665

R*: reversal quote

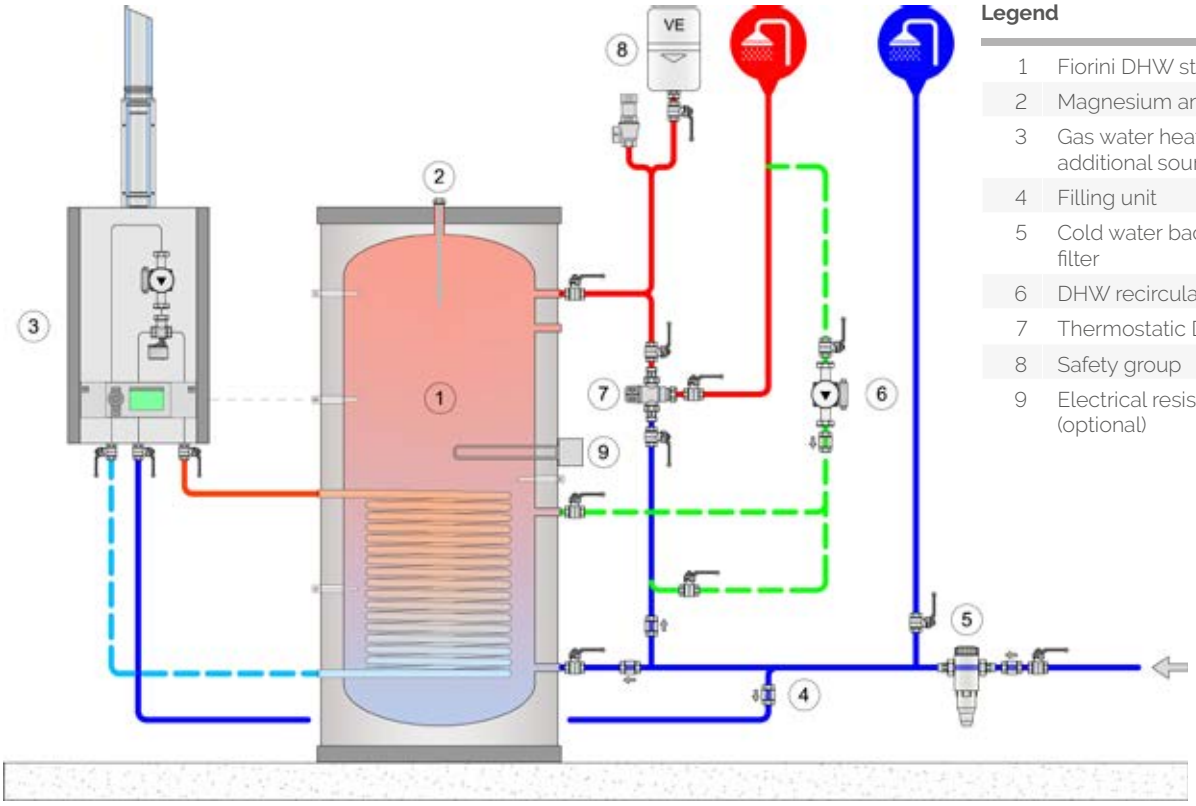
Q1**: Height from inspection hole center to the ground

Technical information for SMART 1 series

		DHW production TiACS = 10°C						Exchanger	
Capacity	Ti	TuACS= 45°C		TuACS = 60°C		Ta = 50°C TuACS = 45°C	Ta = 60°C TuACS = 45°C	Surface area	Nominal flow
l	°C	l/h (a)	kW (b)	l/h (c)	kW (d)	l/10 min. (e)	l/10 min. (f)	m²	mc/h
	70	810	33	395	23	347	390		
200	80	1081	44	602	35	392	435	1,4	3
	90	1253	51	739	43	421	464		
	70	810	33	395	23	454	517		
300	80	1081	44	602	35	499	563	1,4	3
	90	1253	51	739	43	527	591		
	70	1179	48	584	34	728	834		
500	80	1572	64	877	51	793	900	2	3
	90	1842	75	1083	63	838	945		
	70	1400	57	688	40	1031	1190		
750	80	1867	76	1032	60	1109	1268	2,4	3
	90	2186	89	1290	75	1162	1321		
	70	1572	64	774	45	1325	1538		
1000	80	2113	86	1169	68	1415	1628	2,7	3
	90	2481	101	1462	85	1477	1690		
	70	2137	87	1049	61	1951	2271		
1500	80	2874	117	1599	93	2074	2393	3,7	4
	90	3390	138	1995	116	2160	2479		
	70	2506	102	1221	71	2545	2970		
2000	80	3341	136	1840	107	2684	3110	4,3	4
	90	3931	160	2287	133	2782	3208		
	70	3022	123	1479	86	3695	4333		
3000	80	4029	164	2236	130	3862	4501	5,2	4
	90	4717	192	2786	162	3977	4615		

- a continuous DHW flow with TuACS= 45°C
- b power of the exchanger with TuACS=45°C
- c continuous DHW flow with TuACS= 60°C
- d power of the exchanger with TuACS=60°C
- e amount of DHW at 45°C in the first 20 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

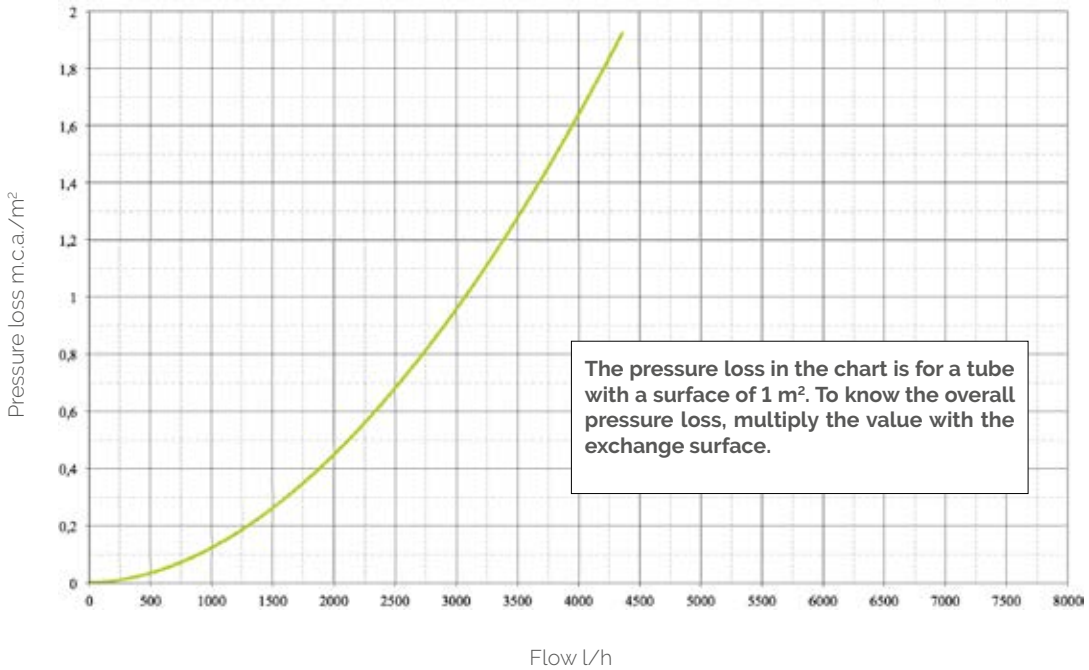
Technical information for SMART 1 series



Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Gas water heater / additional source
4	Filling unit
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Safety group
9	Electrical resistor (optional)

Pressure loss fixed heat exchanger



Glass lined water heater with two fixed internal heat exchangers – SMART 2

The Smart 2 range consists of Water heaters for the production of domestic hot water with a double fixed heat exchanger, available in several capacities (from 200 up to 3000 litres). They are equipped with different type of insulation (see chart below), external PVC coating, a magnesium anode for protection against galvanic currents, an inspection flange for easy access during the control and maintenance phase.

Material: S 235 JR carbon steel

Treatment for internal protection: The boilers with a capacity of up to 1000 l are treated with food grade inorganic glass lining in accordance with DIN 4753.3, those with a capacity of 1500 to 3000 l with Bluetech.

Insulation

Capacity (l)	Type
from 200 to 1000	Highly rigid polyurethane foam
from 1500	Polyester Fiber

Operational limits

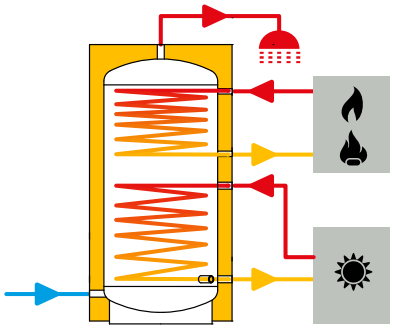
	Storage		Primary circuit	
Capacity (l)	temp. max.	pressure max.	temp. max.	pressure max.
up to 1000	95°C	10 bar	110°C	12 bar
from 1500 to 3000	80°C	6 bar	110°C	12 bar

Supplied accessories: Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

Special versions: see pag 277

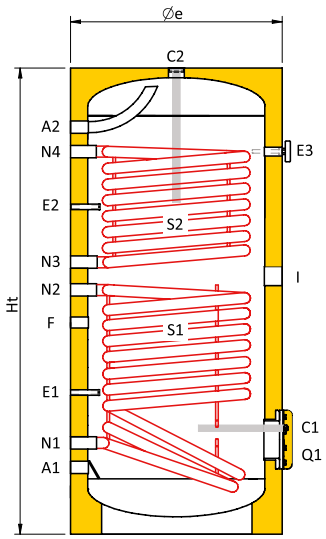
TESTED



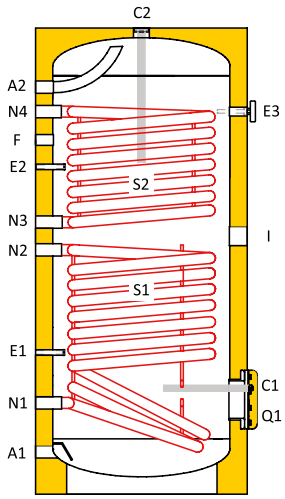
Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm	Weight kg
200	819060114X		B	75x75x120	98
300	819060115X		B	75x75x168	133
500	819060117X		C	75x75x204	215
750	819060118X		C	90x90x207	296
1000	819060119X		C	110x110x198	360
1500	819080003X		C	123x123x237,5	281
2000	819080004X		C	132x132x269,5	366
3000	819080006X			147x147x299	454

Glass lined water heater with two fixed internal heat exchangers – SMART 2

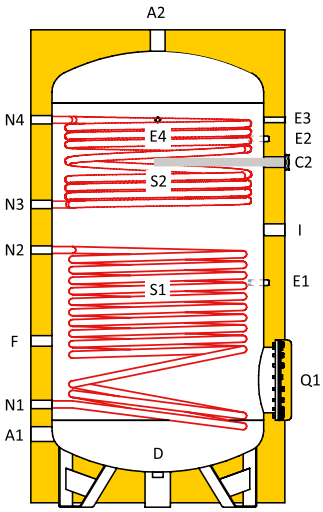
200 ≤ cap ≤ 1000



cap. = 500



1500 ≤ cap ≤ 5000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	F inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
200	1"	1"	M8	1"1/4	-	3/8"x90	3/8"x90	1/2"	-	3/4"	1"1/2	1"	1"	1"	1"	Ø180/120
300	1"	1"	M8	1"1/4	-	3/8"x90	3/8"x90	1/2"	-	3/4"	1"1/2	1"	1"	1"	1"	Ø180/Ø120
500	1"	1"	M8	1"1/4	-	3/8"x125	3/8"x125	1/2"	-	3/4"	1"1/2	1"	1"	1"	1"	Ø180/Ø120
750	1"1/2	1"1/2	M8	2"	-	3/8"x140	3/8"x140	1/2"	-	1"1/4	1"1/2	1"	1"	1"	1"	Ø280/Ø205
1000	1"1/2	1"1/2	M8	2"	-	3/8"x160	3/8"x160	1/2"	-	1"1/4	1"1/2	1"	1"	1"	1"	Ø280/Ø205
1500	2"	2"	-	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"	1"	1"	1"	Ø380/Ø300
2000	2"	2"	-	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"	1"	1"	1"	Ø380/Ø300
3000	3"	3"	-	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"	1"	1"	1"	Ø380/Ø300

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1 mm
200	670	1130	1290	130	975	-	345	780	825	450	630	210	580	685	895	290
300	670	1615	1750	130	1355	-	435	1030	1295	650	805	280	750	860	1200	290
500	750	1950	2090	180	1650	-	530	1200	1570	1320	1030	320	970	1090	1439	329
750	855	2050	2225	215	1715	-	575	1365	1725	925	1110	375	1045	1175	1555	445
1000	1055	1960	2230	247	1567	-	587	1247	1577	877	1047	447	997	1097	1437	477
1500	1250	2280	2605	345	-	165	1060	1740	1830	785	1310	485	1215	1430	1830	600
2000	1350	2600	2930	345	-	155	1165	2065	2150	815	1495	480	1315	1690	2150	605
3000	1450	2870	3220	400	-	180	1375	2225	2410	875	1625	550	1540	1680	2410	665

R*: reversal quota

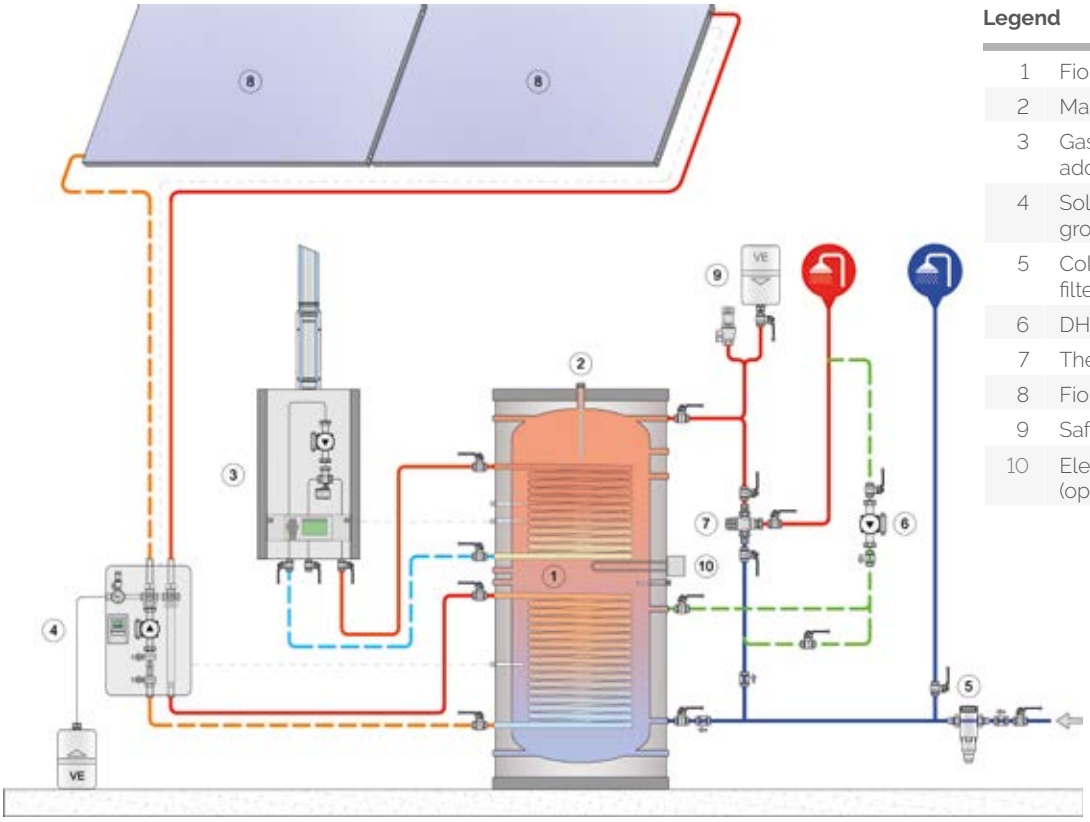
Q1**: Height from inspection hole center to the ground

Technical information for SMART 2 series

Capacity	Ti	DHW production TiACS = 10°C						Upper Exchanger	Lower Exchanger	Nominal flow
		TuACS= 45°C		TuACS = 60°C		Ta = 50°C TuACS = 45°C	Ta = 60°C TuACS = 45°C	Surface area	Surface area	
l	°C	l/h (a)	kW (b)	l/h (c)	kW (d)	l/10 min. (e)	l/10 min. (f)	m²	m²	mc/h
	70	417	17	206	12	282	324			
200	80	540	22	292	17	302	345	0,7	1	3
	90	614	25	361	21	315	357			
	70	638	26	309	18	425	489			
300	80	860	35	481	28	462	526	1,1	1,4	3
	90	1007	41	584	34	486	550			
	70	638	26	309	18	531	616			
400	80	860	35	481	28	568	653	1,1	1,8	3
	90	1007	41	584	34	593	678			
	70	638	26	309	18	638	744			
500	80	860	35	481	28	675	781	1,1	2	3
	90	1007	41	584	34	699	806			
	70	688	28	344	20	912	1072			
750	80	933	38	516	30	953	1112	1,2	2,4	3
	90	1081	44	636	37	978	1137			
	70	884	36	430	25	1211	1423			
1000	80	1179	48	653	38	1260	1473	1,5	2,7	3
	90	1376	56	808	47	1293	1505			
	70	1326	54	653	38	1816	2135			
1500	80	1793	73	980	57	1894	2213	2,3	3,7	6,0
	90	2113	86	1238	72	1947	2267			
	70	1744	71	860	50	2418	2843			
2000	80	2334	95	1290	75	2516	2942	3	4,3	8,0
	90	2727	111	1599	93	2582	3007			
	70	2211	90	1083	63	3559	4198			
3000	80	2948	120	1634	95	3682	4321	3,8	5,2	8,0
	90	3440	140	2029	118	3764	4403			

- a continuous DHW flow with TuACS= 45°C
- b power of the exchanger with TuACS=45°C
- c continuous DHW flow with TuACS= 60°C
- d power of the exchanger with TuACS=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

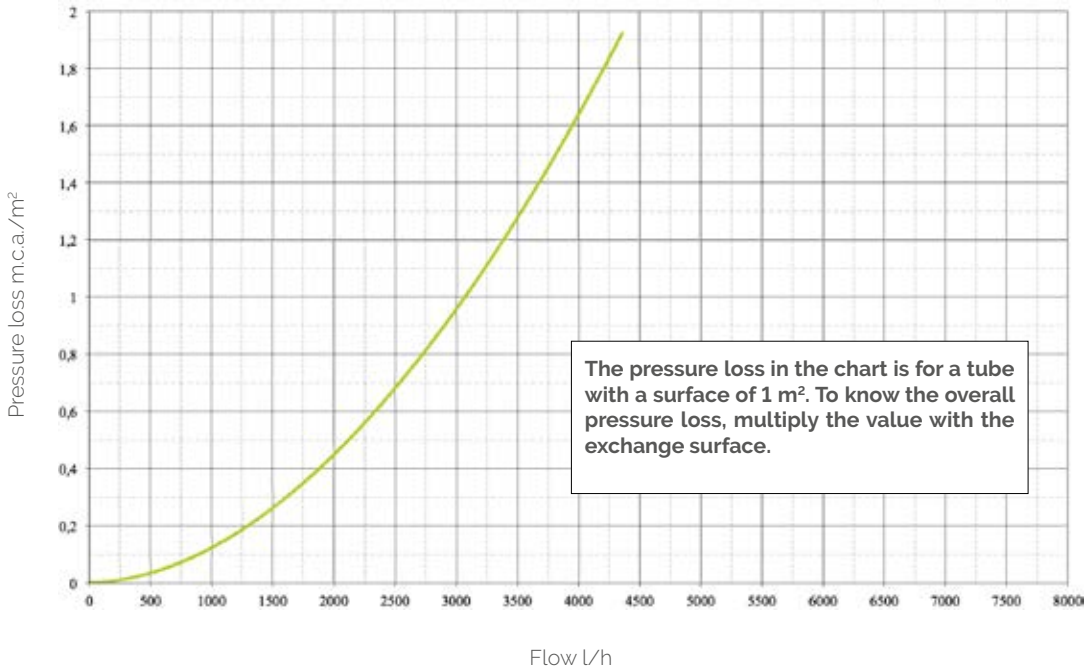
Technical information for SMART 2 series



Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Gas water heater / additional source
4	Solar thermal return group
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Fiorini solar panel
9	Safety group
10	Electrical resistor (optional)

Pressure loss fixed heat exchanger



Glass lined water heater with a solar power station – SMART 2 SOLAR KIT

Water heater for the production of domestic hot water with a double fixed heat exchanger and a solar power station S2 SOLAR 30 - 25/6. The capacity is 300l. The water heater is equipped with very thick high-density rigid polyurethane insulation, external PVC coating, a magnesium anode for protection against galvanic currents, an inspection flange for easier access during the inspection and maintenance phase.

Material: S 235 JR carbon steel

Treatment for internal protection: Food grade inorganic glass lining according to DIN 4753.3

Insulation

Capacity (l)	Type
300	Highly rigid polyurethane foam

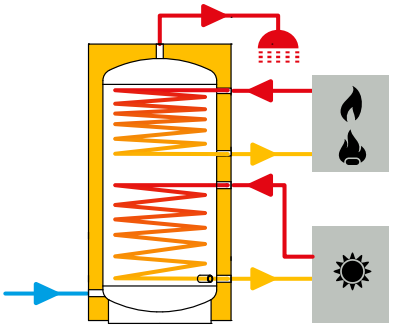
Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	110°C	12 bar

TESTED

Supplied accessories: Adjustable height feet, safety valve and thermometer, magnesium sacrificial anode.

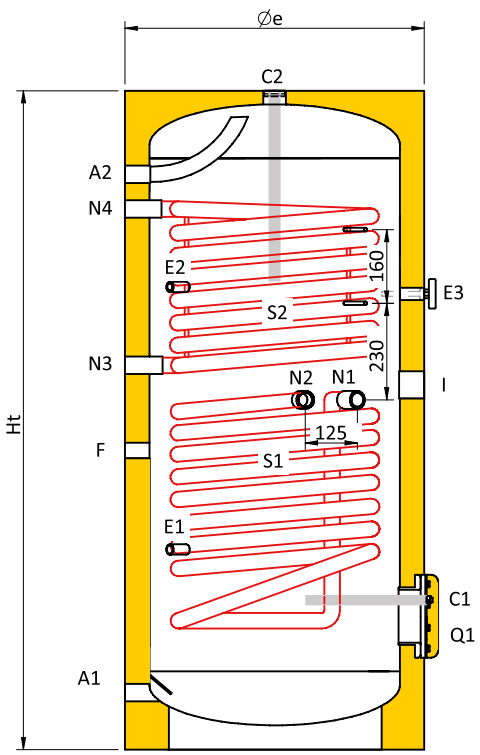
Standard accessories: see pag 274



Capacity l	Code.	Price	Energy label
300	838110066X		B

Glass lined water heater with a solar power station – SMART 2 SOLAR KIT

cap = 300



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
300	1"	1"	M8	1"1/4	1"	3/8"x150	3/8"x150	1/2"	3/4"	1"1/2	1"	1"	1"	1"	Ø180/Ø120

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1** mm
300	670	1615	1750	210	1365	130	385	1005	950	600	770	700	700	835	1175	290

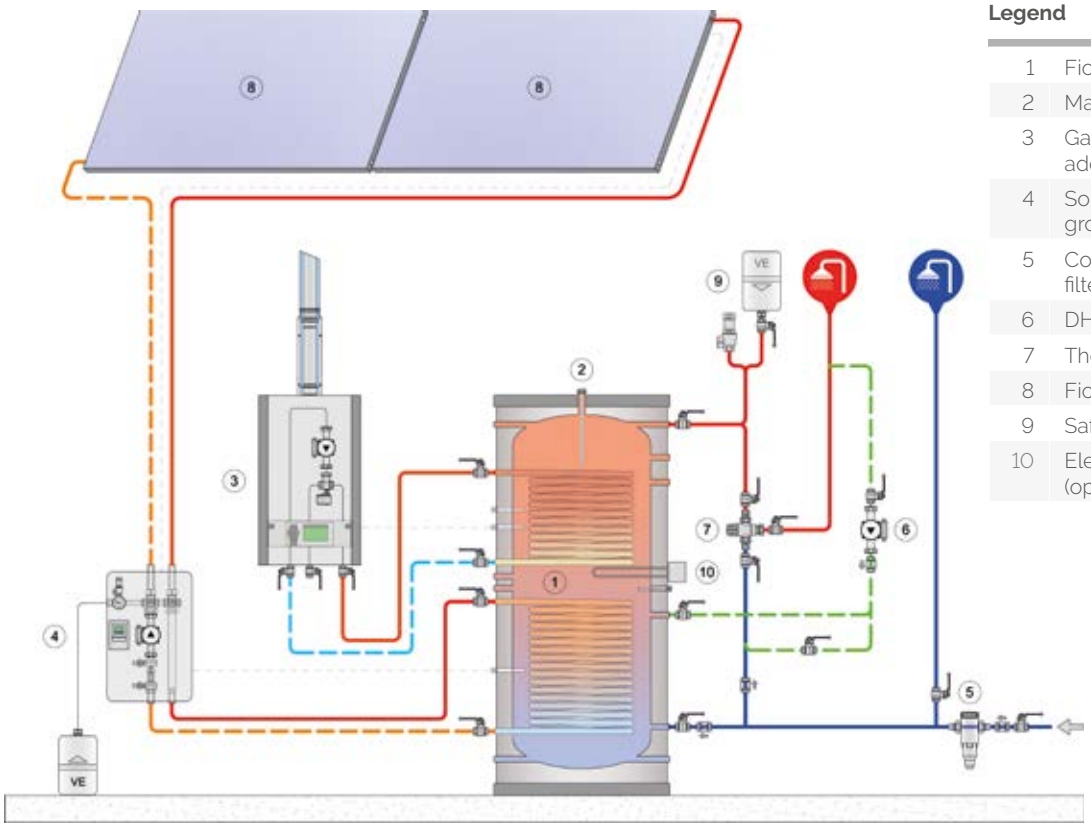
R*: reversal quota

Q1**: Height from inspection hole center to the ground

Technical information for SMART 2 SOLAR KIT series

		DHW production TiACS = 10°C						Upper Exchanger	Lower Exchanger	
Capacity	Ti	TuACS= 45°C		TuACS = 60°C		Ta = 50°C TuACS = 45°C	Ta = 60°C TuACS = 45°C	Surface area	Surface area	Nominal flow
l	°C	l/h (a)	kW (b)	l/h (c)	kW (d)	l/10 min. (e)	l/10 min. (f)	m²	m²	mc/h
	70	638	26	309	18	425	489			
300	80	860	35	481	28	462	526	1,1	1,4	3
	90	1007	41	584	34	486	550			

- a continuous DHW flow with TuACS= 45°C
- b power of the exchanger with TuACS=45°C
- c continuous DHW flow with TuACS= 60°C
- d power of the exchanger with TuACS=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

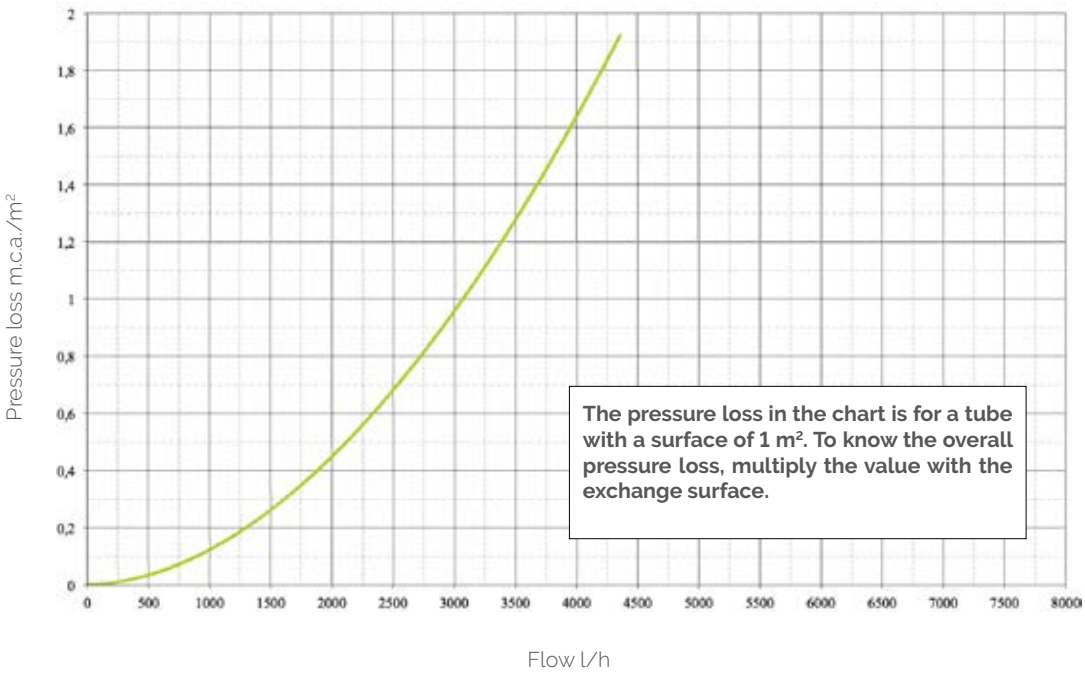


Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Gas water heater / additional source
4	Solar thermal return group
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Fiorini solar panel
9	Safety group
10	Electrical resistor (optional)

Technical information for SMART 2 SOLAR KIT series

Pressure loss fixed heat exchanger



S2 SOLAR 30 solar unit

The S2 SOLAR 30 solar unit is the ideal option for small and medium-sized installations of which the components are tested and pre-assembled to guarantee the quality of the performance and the easy installation. The electronic control unit of the solar unit MTDC is an integral part of the kit and comes cabled and with a probe for measuring the temperature.
The kit is insulated in polystyrene.

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Glass lined water heater with a fixed heat exchanger for Heat pumps – SMART HP

The HP range consists of water heaters for the production of domestic hot water with a double spiral singleheat exchanger with a large surface, to be connected with a heat pump. The heaters are available in several capacities, from 300 to 1000 l and are insulated with very thick high density rigid polyurethane, externally covered with PVC and provided with a magnesium anode to protect against galvanic currents and an inspection flange for easy access during the inspection and maintenance phase.

Material: S 235 JR carbon steel

Treatment for internal protection: Food grade inorganic glass lining according to DIN 4753.3

TESTED

Insulation

Capacity (l)	Type
from 300 to 1000	Highly rigid polyurethane foam

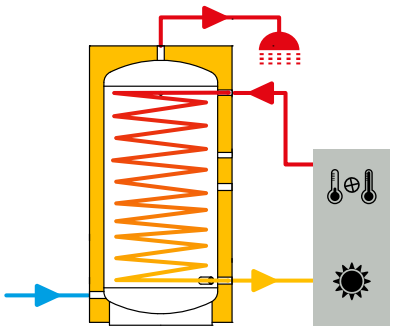
Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	110°C	12 bar

Supplied accessories: Adjustable height feet, safety valve and thermometer, magnesium sacrificial anode.

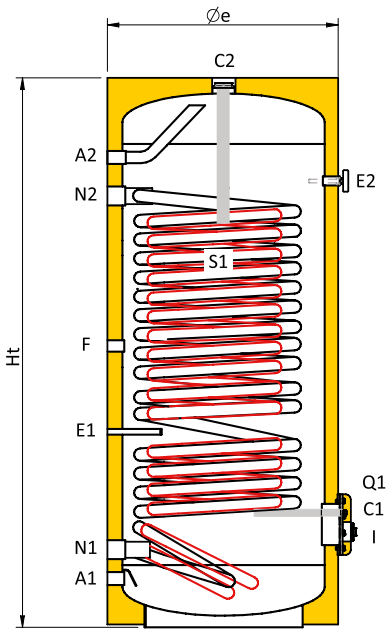
Standard accessories: see pag 274

				With vertical packaging	
Capacity l	Code	Price	Energy label	Dimensions cm	Weight kg
300	819060121X		B	75x75x168	177
500	819060123X		C	75x75x204	239
750	819060124X		C	90x90x207	318
1000	819060125X		C	110x110x198	409

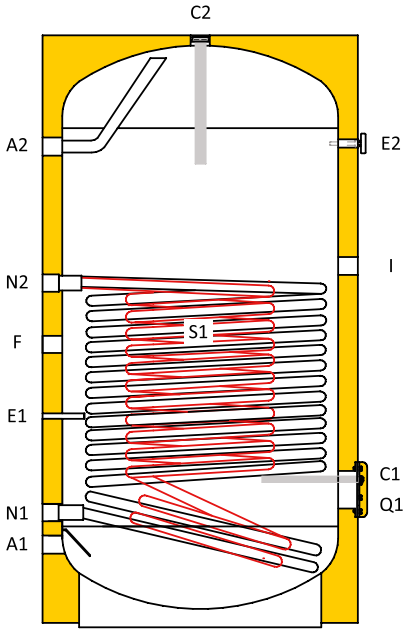


Glass lined water heater with a fixed heat exchanger for Heat pumps – SMART HP

300 ≤ cap ≤ 500



750 ≤ cap ≤ 1000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
Q1	Inspection hole
S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 mm	C2 inch	E1 inch	E2 mm	F inch	I inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
300	1"	1"	M8	1"1/4	3/8"x90	1/2"	3/4"	1"1/2	1"1/4	1"1/4	Ø180/Ø120
500	1"	1"	M8	1"1/4	3/8"x120	1/2"	3/4"	1"1/2	1"1/4	1"1/4	Ø180/Ø120
750	1"1/2	1"1/2	M8	2"	3/8"x140	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	Ø280/Ø205
1000	1"1/2	1"1/2	M8	2"	3/8"x160	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	Ø280/Ø205

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	F mm	I mm	N1 mm	N2 mm	Q1** mm
300	670	1615	1750	130	1355	550	1295	765	-	220	1035	290
500	750	1950	2090	180	1650	610	1580	870	-	265	1415	340
750	855	2050	2225	215	1715	755	1725	1175	1425	395	1355	445
1000	1055	1960	2230	247	1567	747	1577	1077	1277	447	1197	497

R*: reversal quota

Q1**: Height from inspection hole center to the ground

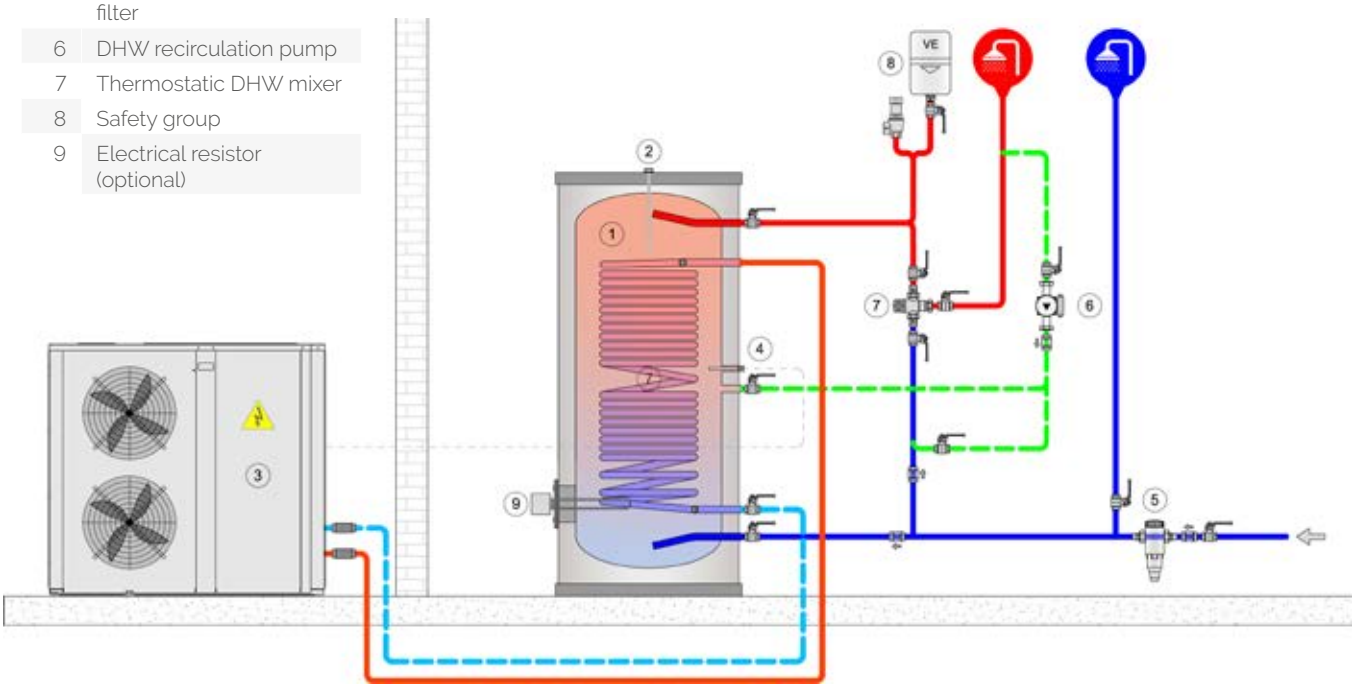
Technical information for SMART HP series

Capacity	Ti	DHW production TiDHW = 10°C TuDHW= 45°C		Ta = 50°C TuDHW = 45°C	Exchanger Surface area	Exchanger Nominal flow
l	°C	l/h (a)	kW (b)	l/10 min. (e)	m²	mc/h
300	50	688	28	433	3,8	4,0
	80	2236	91	691		
500	50	958	39	691	6	4,0
	80	2432	99	937		
750	50	982	40	961	6,5	4,0
	80	3390	138	1362		
1000	50	982	40	1227	6,5	4,0
	80	3390	138	1628		

- a continuous DHW flow with TuDHW= 45°C
- b power of the exchanger with TuACS=45°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- Exchanger capacity: 7.10 Lt/mq

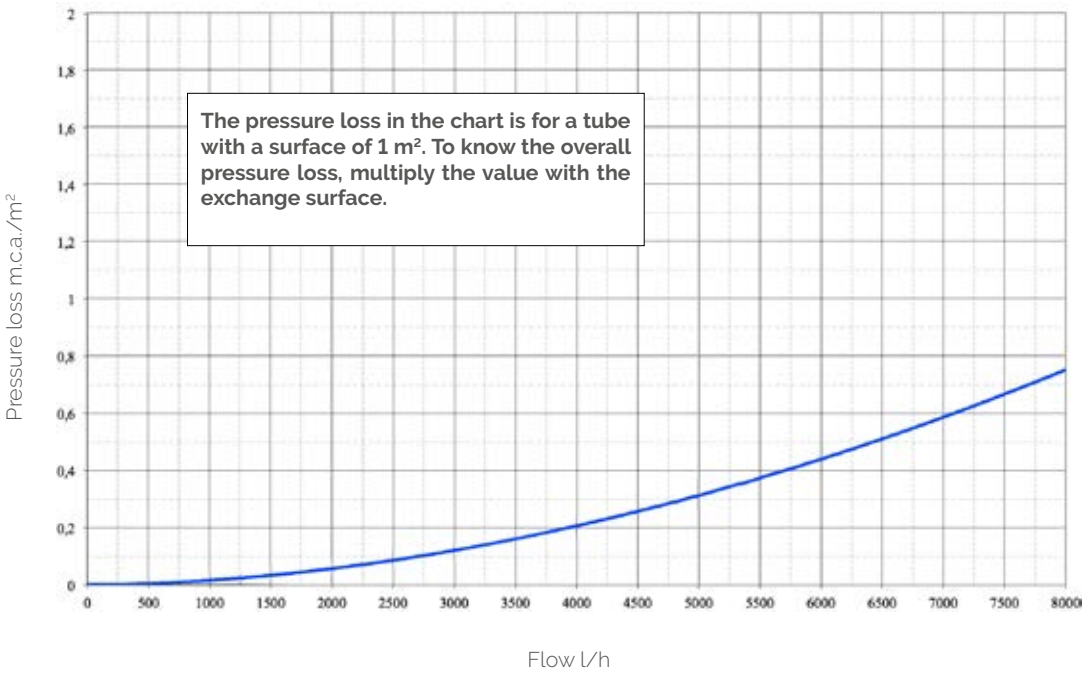
Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Heat pump / additional source
4	DHW temperature probe
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Safety group
9	Electrical resistor (optional)



Technical information for SMART HP series

Pressure loss fixed heat exchanger



The pressure loss in the chart is for a tube with a surface of 1 m². To know the overall pressure loss, multiply the value with the exchange surface.

Glass lined water heater with fixed double heat exchanger for Heat pumps – SMART HP 2

The HP 2 range consists of water heaters for the production of domestic hot water with a double fixed heat exchangers, one simple and one with double spiral with a large surface, to be coupled with a heat pump together with additional sources (solar, gas water heater). The heaters are available in the capacities of 300 and 500 l and are insulated with very thick high density rigid polyurethane, externally covered with PVC and provided with a magnesium anode to protect against galvanic currents and an inspection flange for easy access during the inspection and maintenance phase.

Material: S 235 JR carbon steel

Treatment for internal protection: Food grade inorganic glass lining according to DIN 4753.3

TESTED

Insulation

Capacity (l)	Type
300, 500	Highly rigid polyurethane foam

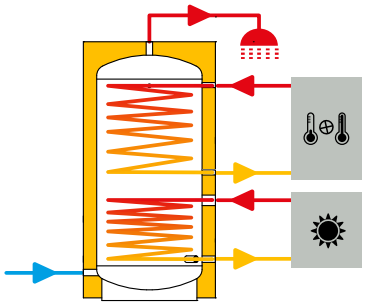
Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	110°C	12 bar

Supplied accessories: Adjustable height feet, safety valve and thermometer, magnesium sacrificial anode.

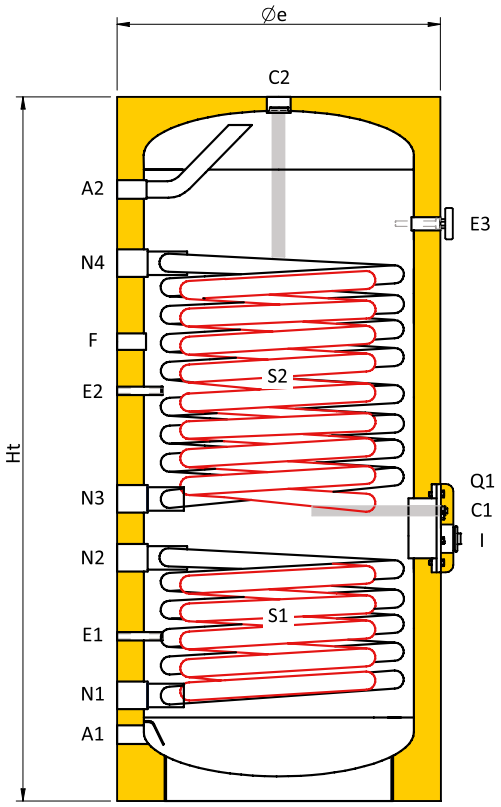
Standard accessories: see pag 274

				With vertical packaging	
Capacity l	Code	Price	Energy label	Dimensions cm	Weight kg
300	819060154X		B	75x75x168	160
500	819060156X		C	75x75x204	285



Glass lined water heater with fixed double heat exchanger for Heat pumps – SMART HP 2

300 ≤ cap ≤ 500



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	E1 inch x mm	E2 inch x mm	E3 inch	F inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
300	1"	1"	M8	1"1/4	3/8"x90	3/8"x90	1/2"	3/4"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø180/Ø120
500	1"	1"	M8	1"1/4	3/8"x120	3/8"x120	1/2"	3/4"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø180/Ø120

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	F mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1** mm
300	670	1615	1750	130	1355	335	835	1295	935	220	495	615	1095	555
500	750	1950	2090	180	1730	410	960	1600	1265	265	645	755	1645	700

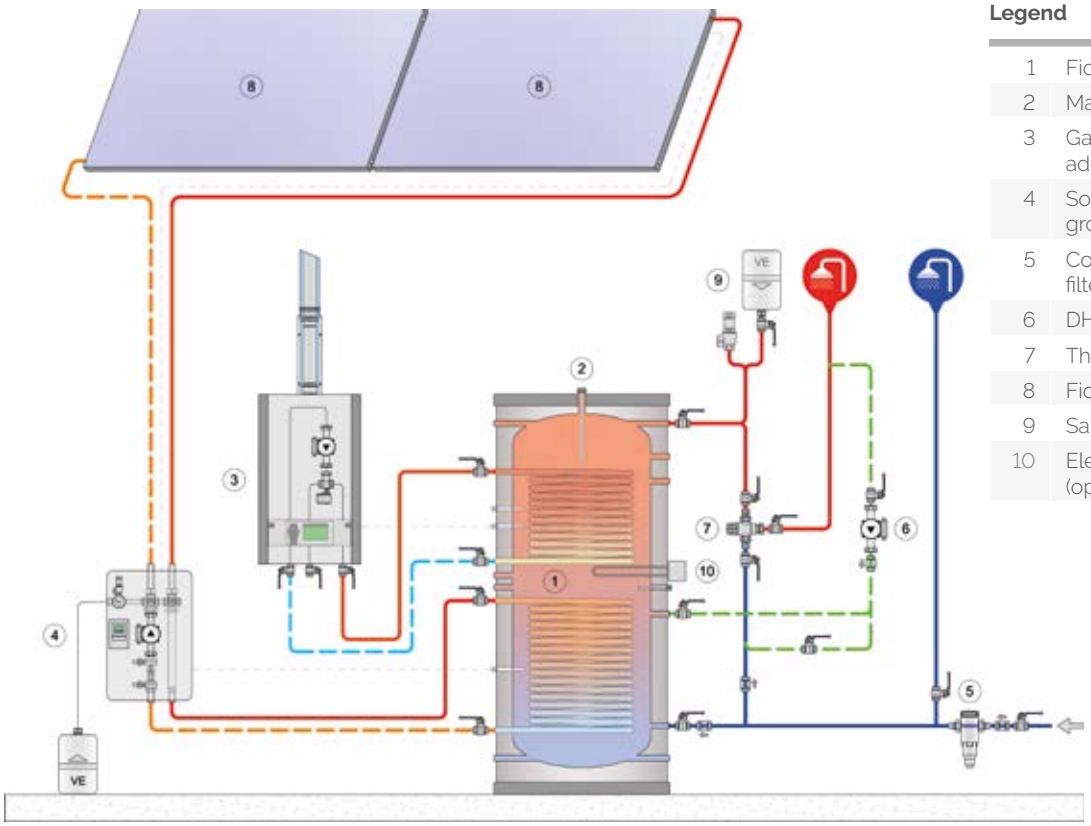
R*: reversal quota

Q1**: Height from inspection hole center to the ground

Technical information for SMART HP 2 series

Capacity	Ti	DHW production TiACS = 10°C TuACS= 45°C		Ta = 50°C TuACS = 45°C	Exchanger Upper exchanger surface	Exchanger Lower exchanger surface	Nominal flow
l	°C	l/h (a)	kW (b)	l/10 min. (e)	m²	m²	mc/h
300	50	553	22,5	435	2,2	1	1,0
	80	1501	61,1	593			2,6
500	50	860	35	715	4,8	1,8	1,5
	80	2334	95	960			4,1

- a continuous DHW flow with TuDHW= 45°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- Exchanger capacity: 7.10 Lt/mq

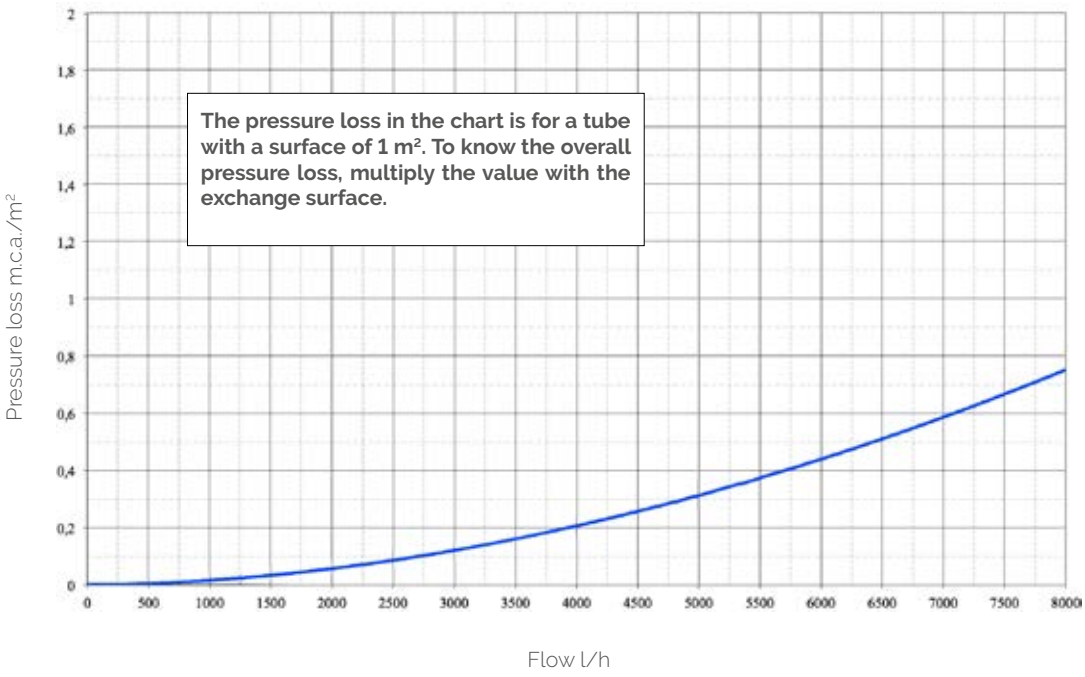


Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Gas water heater / additional source
4	Solar thermal return group
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Fiorini solar panel
9	Safety group
10	Electrical resistor (optional)

Technical information for SMART HP 2 series

Pressure loss fixed heat exchanger



Stainless steel water heater with fixed heat exchanger - SMART INOX 1

The SMART INOX 1 range consists of water heaters for the production of sanitary hot water with a single fixed heat exchanger. They are available in several capacities, from 200 up to 3000 litres and have different insulation with respect to capacity (see chart below) and coated externally in PVC and equipped with a magnesium anode for the protection against galvanic currents, an inspection flange for the easy access during the inspection and maintenance phase.

Material: AISI 316 stainless steel

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 3.000	Polyester Fiber

Operational limits

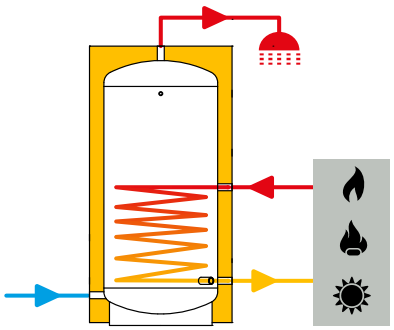
Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	6 bar	95°C	16 bar

Supplied accessories: Magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

Special versions: see pag 277

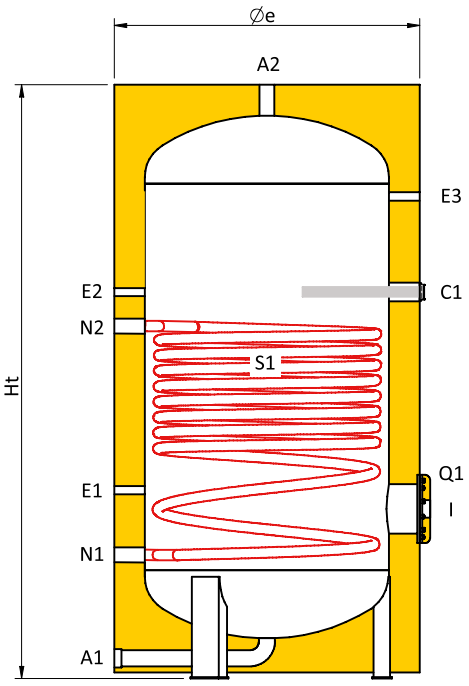
TESTED



Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm
200	819040060X		B	70x70x165
300	819040061X		C	80x80x168
500	819040063X		C	90x90x210
800	819040064X		C	105x105x209
1000	819040065X		C	105x105x235
1500	819040066X		C	130x130x237
2000	819040067X		C	160x160x245
2500	819040089X			160x160x299
3000	819040090X			160x160x299

Stainless steel water heater with fixed heat exchanger - SMART INOX 1

200 ≤ cap. ≤ 3.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
I	Electrical resistor
N1	Exchanger outlet
N2	Exchanger inlet
Q1	Inspection hole
S1	Lower exchanger (see pag. 166)

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	E1 inch	E2 inch	E3 inch	I inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
200	1"	1"	1"1/4	1/2"	1/2"	1/2"	1"1/2	3/4"	3/4"	Ø220/Ø130
300	1"	1"	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"	1"	Ø220/Ø130
500	1"	1"	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"	1"	Ø220/Ø130
800	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"1/4	1"1/4	Ø220/Ø130
1000	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"1/4	1"1/4	Ø220/Ø130
1500	1"1/2	1"1/2	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"1/4	1"1/4	Ø300/Ø220
2000	1"1/2	1"1/2	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"1/4	1"1/4	Ø300/Ø220
2500	1"1/2	1"1/2	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"1/4	1"1/4	Ø300/Ø220
3000	1"1/2	1"1/2	1"1/4	1/2"	1/2"	1/2"	1"1/2	1"1/4	1"1/4	Ø300/Ø220

Size chart

Cap. l	Øe mm	Ht mm	R* mm	C1 mm	E1 mm	E2 mm	E3 mm	I mm	N1 mm	N2 mm	Q1 mm
200	650	1470	1610	870	425	870	1195	385	265	770	385
300	750	1510	1690	965	445	965	1215	405	285	790	405
500	800	1950	2110	1060	420	1050	1685	380	260	885	380
800	990	1920	2165	1185	545	1185	1555	505	395	1005	505
1000	1000	2190	2410	1335	555	1335	1815	515	405	1155	515
1500	1250	2225	2555	1315	565	1295	1815	545	415	1115	545
2000	1450	2305	2725	1300	600	600	1850	580	450	1145	580
2500	1400	2530	2895	1450	600	600	2100	580	450	1300	580
3000	1450	2800	3155	1645	615	1345	2365	595	465	1265	595

R*: reversal quota

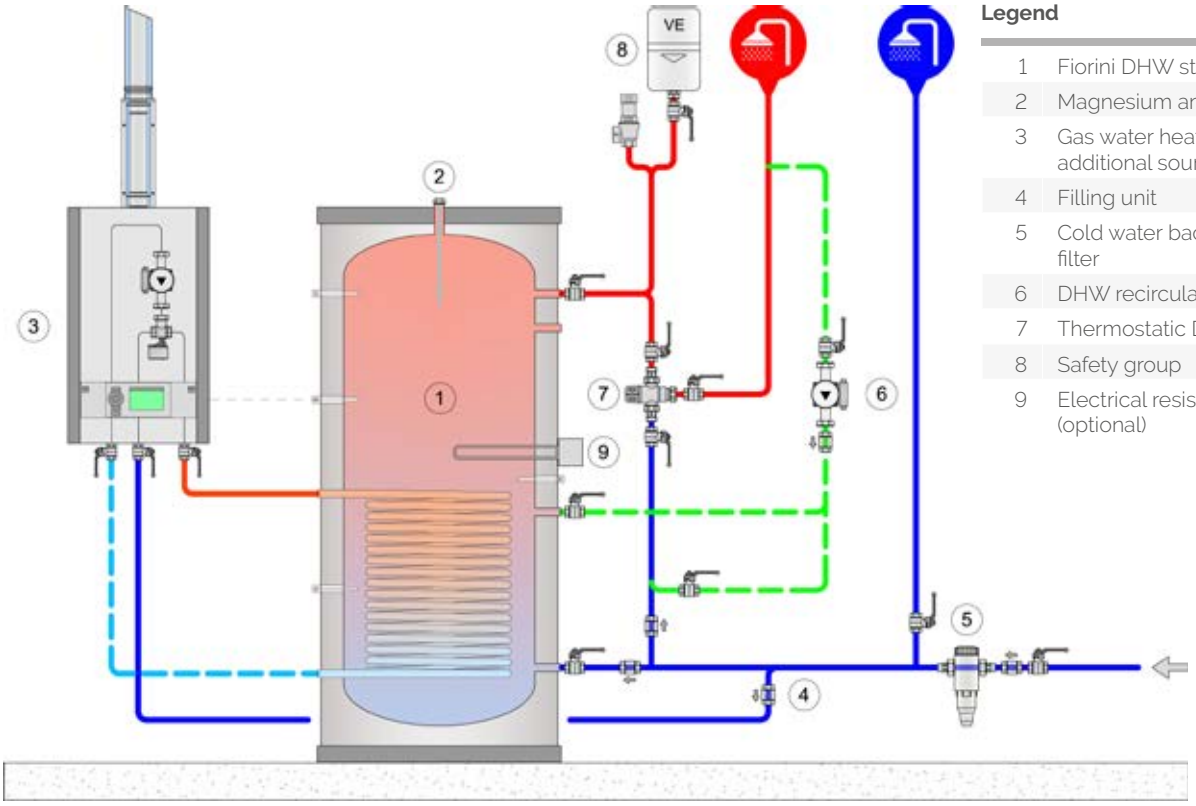
Q**: Height from inspection hole center to the ground

Technical information for SMART INOX 1 series

		DHW production TiDHW = 10°C						Exchanger	
Capacity	Ti	TuDHW= 45°C		TuDHW = 60°C		Ta = 50°C TuDHW = 45°C	Ta = 60°C TuDHW = 45°C	Surface area	Nominal flow
l	°C	l/h (a)	kW (b)	l/h (c)	kW (d)	l/10 min. (e)	l/10 min. (f)	m²	mc/h
200	70	565	23	275	16	306	349	1,0	3,0
	80	761	31	430	25	339	382		
	90	884	36	516	30	360	402		
300	70	737	30	361	21	441	505	1,3	3,0
	80	982	40	550	32	482	546		
	90	1154	47	670	39	511	575		
500	70	1105	45	550	32	716	822	1,9	3,0
	80	1474	60	825	48	777	883		
	90	1744	71	1014	59	822	928		
600	70	1105	45	533	31	822	950	1,9	3,0
	80	1474	60	808	47	883	1011		
	90	1720	70	1014	59	924	1052		
800	70	1400	57	688	40	1084	1254	2,4	4,0
	80	1867	76	1032	60	1162	1332		
	90	2186	89	1290	75	1215	1385		
1000	70	1842	75	911	53	1370	1583	3,2	6,0
	80	2481	101	1376	80	1477	1690		
	90	2924	119	1720	100	1551	1763		
1500	70	2309	94	1135	66	1980	2299	4,0	6,0
	80	3120	127	1720	100	2115	2434		
	90	3661	149	2150	125	2205	2525		
2000	70	2801	114	1376	80	2594	3020	4,8	8,0
	80	3734	152	2064	120	2749	3175		
	90	4373	178	2562	149	2856	3282		
2500	70	3292	134	1634	95	3208	3740	5,6	8,0
	80	4398	179	2442	142	3392	3924		
	90	5160	210	3027	176	3519	4051		
3000	70	3734	152	1823	106	3813	4452	6,4	8,0
	80	4963	202	2752	160	4018	4656		
	90	5823	237	3440	200	4161	4800		

- a continuous DHW flow with TuDHW= 45°C
- b exchanger power with TuDHW=45°C
- c continuous DHW flow with TuDHW= 60°C
- d exchanger power with TuDHW=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

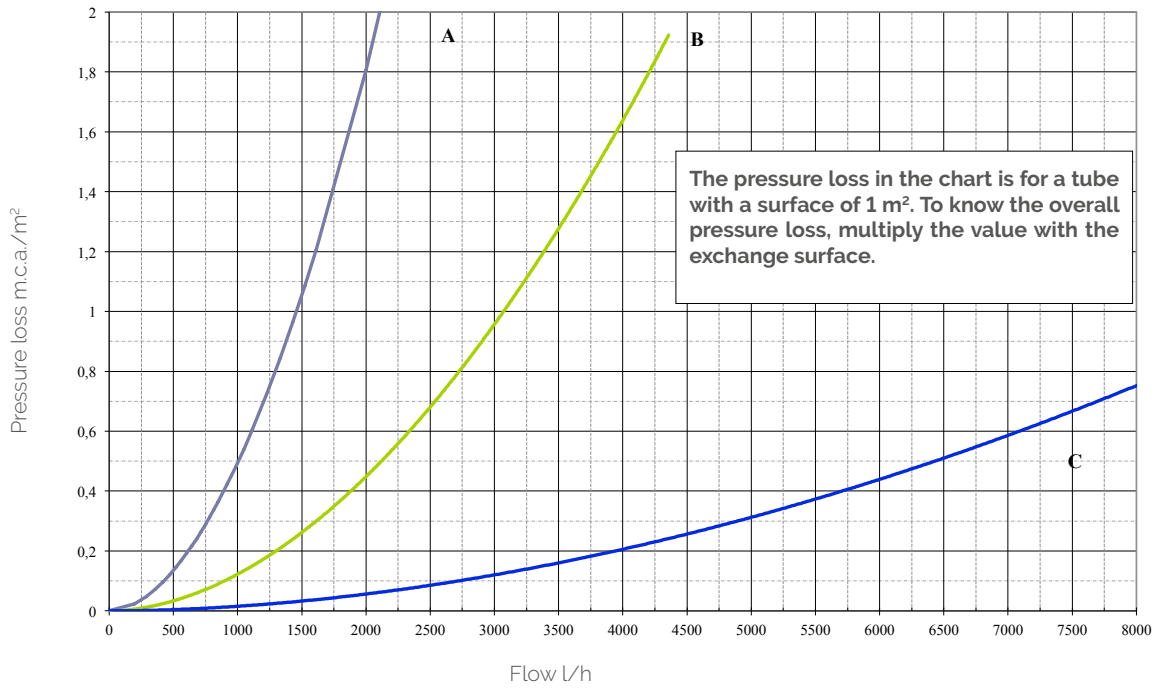
Technical information for SMART INOX 1 series



Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Gas water heater / additional source
4	Filling unit
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Safety group
9	Electrical resistor (optional)

Pressure loss fixed heat exchanger



A) 200 l tank B) 300 - 600 l tank C) 800 - 3000 l tank

Stainless steel water heater with fixed heat exchanger - SMART INOX 2

The SMART INOX 2 range consists of water heaters for the production of domestic hot water with a double fixed heat exchanger. They are available in several capacities, from 200 up to 3000 litres and have different insulation with respect to capacity (see chart below) and coated externally in PVC and equipped with a magnesium anode for the protection against galvanic currents, an inspection flange for the easy access during the inspection and maintenance phase.

Material: AISI 316 stainless steel

Treatment for internal protection: Pickling and passivation

TESTED

Insulation

Capacity (l)	Type
from 200 to 3.000	Polyester Fiber

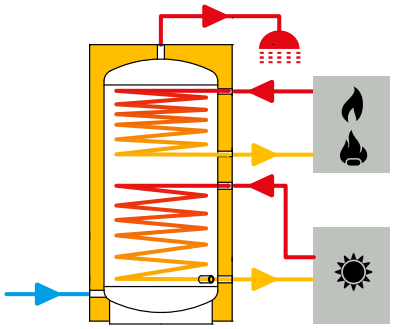
Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	6 bar	95°C	16 bar

Supplied accessories: Magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

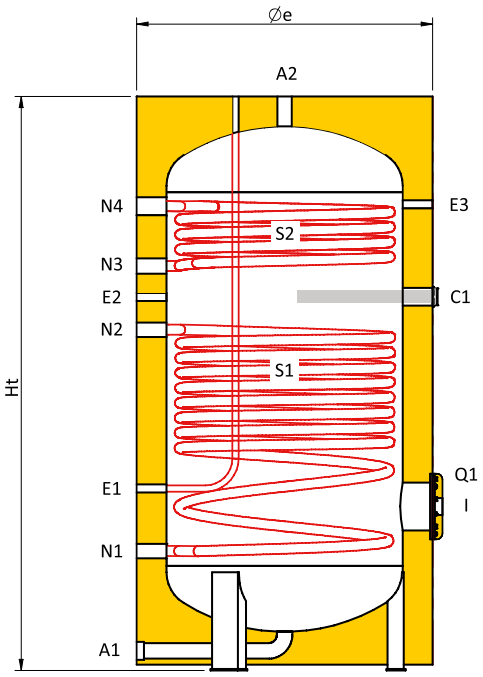
Special versions: see pag 277



Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm
200	819040068X		B	70x70x165
300	819040069X		C	80x80x168
500	819040071X		C	90x90x210
800	819040072X		C	105x105x209
1000	819040073X		C	105x105x235
1500	819040074X		C	130x130x237
2000	819040075X		C	160x160x245
2500	819040102X			160x160x299
3000	819040103X			160x160x299

Stainless steel water heater with fixed heat exchanger - SMART INOX 2

200 ≤ cap. ≤ 3.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
Q1	Inspection hole
S1	Lower exchanger
S2	Upper exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	E1 mm	E2 inch	E3 inch	I inch	N1 inch	N2 inch	N3 inch	N4 inch	Q1 (Øext/Øint) mm
200	1"	1"	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	3/4"	3/4"	3/4"	3/4"	Ø220/Ø130
300	1"	1"	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"	1"	1"	1"	Ø220/Ø130
500	1"	1"	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"	1"	1"	1"	Ø220/Ø130
800	1"1/4	1"1/4	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø220/Ø130
1000	1"1/4	1"1/4	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø220/Ø130
1500	1"1/2	1"1/2	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220
2000	1"1/2	1"1/2	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220
2500	1"1/2	1"1/2	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220
3000	1"1/2	1"1/2	1"1/4	Ø21,3	1/2"	1/2"	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	Ø300/Ø220

Size chart

Cap. l	Øe mm	Ht mm	R* mm	C1 mm	E1 mm	E2 mm	E3 mm	I mm	N1 mm	N2 mm	N3 mm	N4 mm	Q1** mm
200	650	1470	1610	870	425	870	1195	385	265	770	990	1170	385
300	750	1510	1690	965	445	965	1215	405	285	790	1040	1190	405
500	800	1950	2110	1060	420	1050	1685	380	260	885	1445	1670	380
800	990	1940	2200	1185	545	1185	1555	505	395	1005	1360	1540	505
1000	1000	2210	2445	1335	555	1335	1815	515	405	1155	1560	1800	515
1500	1250	2225	2545	1315	565	1295	1815	545	415	1115	1505	1765	545
2000	1450	2305	2715	1300	600	1300	1850	580	450	1145	1560	1820	580
2500	1400	2530	2930	1450	600	1450	2100	580	450	1300	1750	2050	580
3000	1450	2800	3190	1645	615	1345	2365	595	465	1265	2060	2365	595

R*: reversal quota

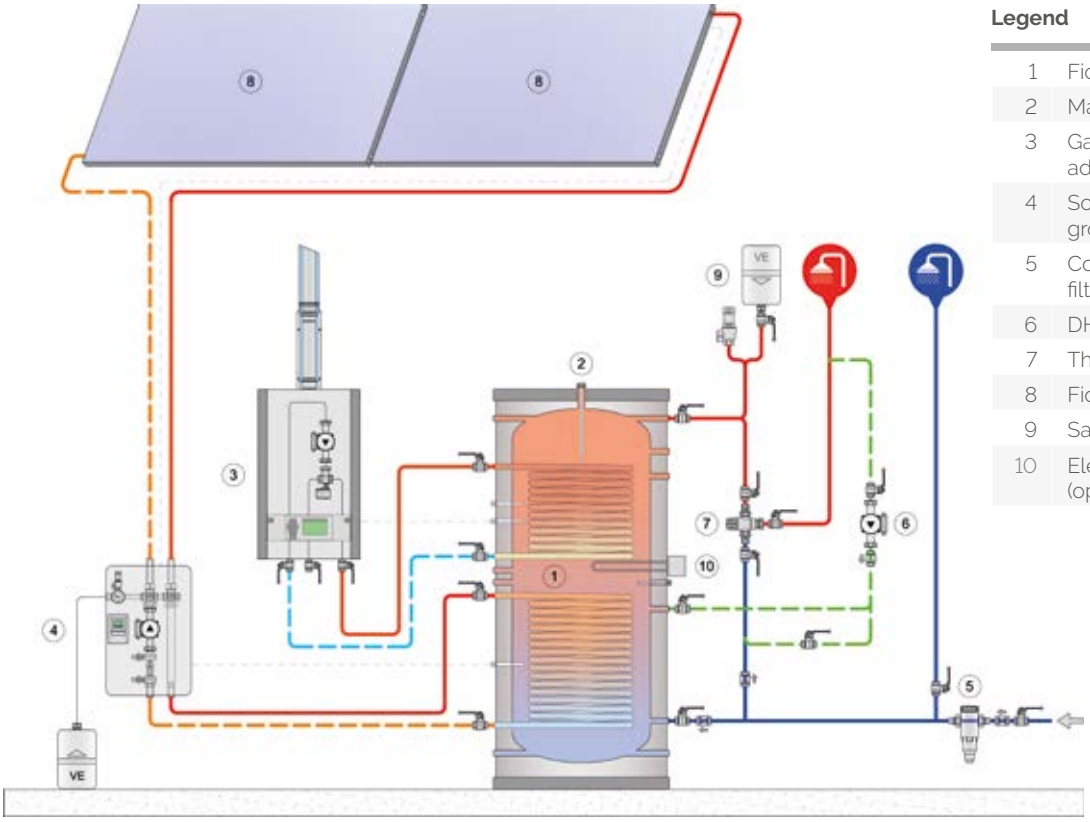
Q1**: Height from inspection hole center to the ground

Technical information for SMART INOX 2 series

		DHW production TiDHW = 10°C						Upper exchanger	Lower exchanger	
Capacity	Ti	TuDHW= 45°C		TuDHW = 60°C		Ta = 50°C TuDHW = 45°C	Ta = 60°C TuDHW = 45°C	Surface area	Surface area	Nominal flow
l	°C	l/h (a)	kW (b)	l/h (c)	kW (d)	l/10 min. (e)	l/10 min. (f)	m²	m²	mc/h
	70	270	11	137	8	257	300			
200	80	368	15	206	12	274	316	0,5	1,0	3,0
	90	442	18	258	15	286	328			
	70	344	14	154	9	376	440			
300	80	442	18	258	15	392	456	0,6	1,3	3,0
	90	516	21	309	18	405	468			
	70	589	24	292	17	630	736			
500	80	786	32	430	25	662	769	1,0	1,9	3,0
	90	909	37	533	31	683	789			
	70	565	23	275	16	732	860			
600	80	761	31	430	25	765	892	1,0	1,9	3,0
	90	909	37	533	31	789	917			
	70	688	28	344	20	965	1135			
800	80	933	38	516	30	1006	1176	1,2	2,4	4,0
	90	1081	44	636	37	1031	1201			
	70	688	28	344	20	1178	1391			
1000	80	933	38	516	30	1219	1432	1,2	3,2	6,0
	90	1081	44	636	37	1243	1456			
	70	909	37	447	26	1747	2066			
1500	80	1228	50	688	40	1800	2119	1,6	4,0	6,0
	90	1449	59	860	50	1837	2156			
	70	1154	47	567	33	2319	2745			
2000	80	1548	63	860	50	2385	2811	2,0	4,8	8,0
	90	1818	74	1066	62	2430	2856			
	70	1400	57	688	40	2892	3424			
2500	80	1867	76	1049	61	2970	3502	2,4	5,6	8,0
	90	2211	90	1290	75	3028	3559			
	70	1400	57	688	40	3424	4063			
3000	80	1867	76	1032	60	3502	4140	2,4	6,4	8,0
	90	2186	89	1290	75	3555	4194			

- a continuous DHW flow with TuDHW= 45°C
- b exchanger power with TuDHW=45°C
- c continuous DHW flow with TuDHW= 60°C
- d exchanger power with TuDHW=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

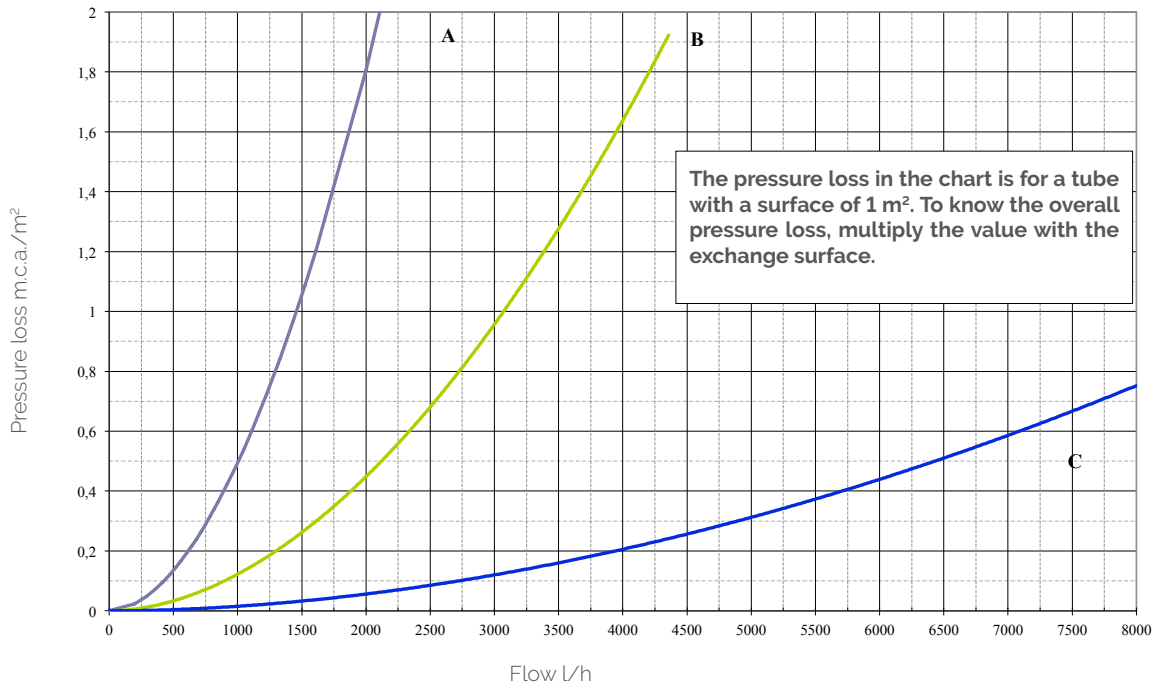
Technical information for SMART INOX 2 series



Legend

1	Fiorini DHW storage tank
2	Magnesium anode
3	Gas water heater / additional source
4	Solar thermal return group
5	Cold water bacteriostatic filter
6	DHW recirculation pump
7	Thermostatic DHW mixer
8	Fiorini solar panel
9	Safety group
10	Electrical resistor (optional)

Pressure loss fixed heat exchanger



A) 200 l tank B) 300 - 600 l tank C) 800 - 3000 l tank

Enamelled interspace tanks

The interspace tanks are intended for the production of domestic hot water. The heat exchange takes place through the outer mantle of the tank to which a cavity adheres, in which water from the boiler flows. The high exchange area ensures:

- efficient operation,
- high power exchanged,
- uniform distribution of the temperature of the sanitary water,
- reduced heat dispersion from the sanitary water.

The tank can be installed on the wall in a horizontal or vertical position.

Material: S235 JR steel

Mounting brackets NOT included

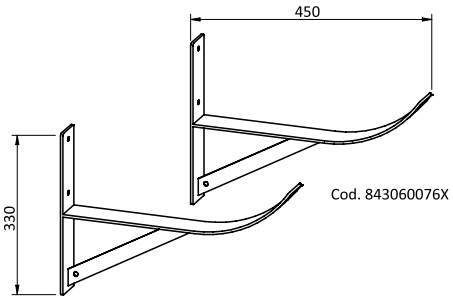
Insulation

Capacity (l)	Type
100, 140	Highly rigid polyurethane foam

Limite di utilizzo

	Storage		Interspace	
Capacity l	Temperature max.	Pressure max.	Temperature max.	Pressure max.
100	95°C	6 bar	99°C	2 bar
140	95°C	10 bar	99°C	2 bar

Cap. l	Cod.	Price	Energy class	Weight kg
100	836060001X		C	47
140	836060002X		C	65

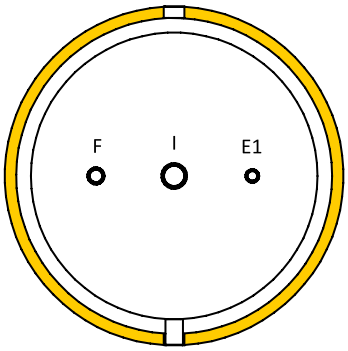


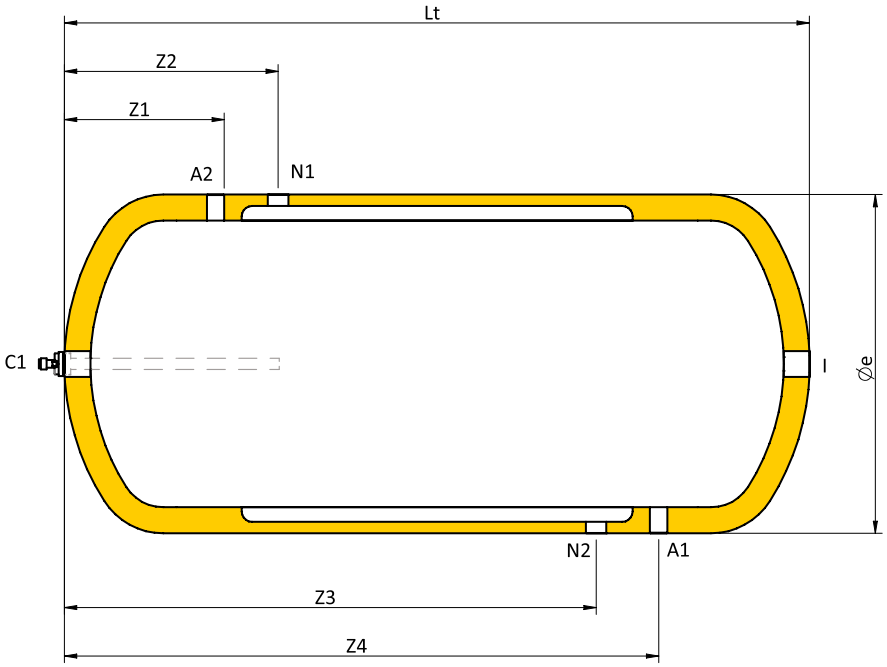
Assembly brackets required

(NOT INCLUDED - to be ordered separately)

Cod.	Price
843090076X	

Enamelled interspace tanks





Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
E1	Probe / Thermometer
F	Recirculation
I	Electrical resistor
N1	Exchanger outlet
N2	Exchanger inlet

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 mm	E1 inch	F inch	I inch	N1 inch	N2 inch
100	3/4"	3/4"	1"1/4	1"1/4	1/2"	3/4"	1"1/4	1"	1"
140	3/4"	3/4"	1"1/4	1"1/4	1/2"	3/4"	1"1/4	1"	1"

Size chart

Cap. l	Øe mm	Lt mm	Z1 mm	Z2 mm	Z3 mm	Z4 mm
100	670	1100	170	265	710	815
140	670	1590	170	265	965	1070

Water heater with tube heat exchanger – BOIL

The BOIL range consists of water heaters with a tube heat exchanger for the production of domestic hot water. There are several capacities, from 200 up to 5000 litres. They are equipped, depending on the capacity, insulation (see chart below), an external cover in PVC and a magnesium anode for the protection against galvanic currents.

TESTED

Materials

The boilers are made from high quality materials such as:

- Tank: carbon steel S 235 JR
- Tube heat exchanger: galvanized stainless steel AISI 304
- Exchanger head: galvanized carbon steel S 235 JR

Internal protective treatment

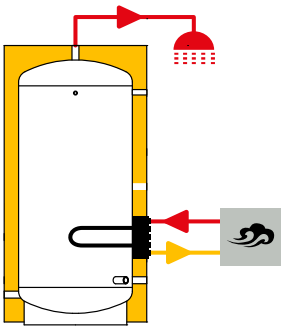
- up to 1000 litres inorganic **glass lining**, according to DIN 4753.3
- from 1500 litres **Bluetech enamelling** with thermosetting resins, suitable for DHW

Insulation

Capacity (l)	Type
200, 300	Highly rigid polyurethane foam
from 500 to 1000	Polystyrene Graphite + Polyester Fiber
from 1500	Polyester Fiber

Operational limits

	Storage		Primary circuit	
Capacity l	max. temperature	max. pressure	max. temperature	max. pressure
up to 1000	95°C	10 bar	110°C	12 bar
from 1500	80°C	6 bar	110°C	12 bar



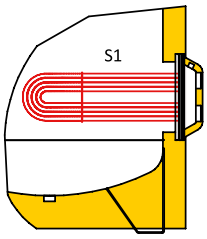
Supplied accessories: Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

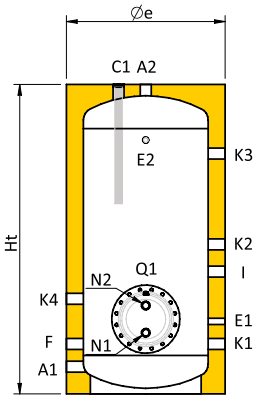
Special versions: see pag 277

Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm	Weight kg
200	818060068X		B	75x75x125	101
300	818060069X		B	75x75x150	113
500	818060070X		C	80x80x209	148
750	818060071X		C	99x99x199	283
1000	818060072X		C	99x99x230	322
1500	818080375X		C	123x123x240	262
2000	818080361X		C	132x132x275	324
2500	818080362X			147x147x277,5	368
3000	818080363X			147x147x299	409
4000	818080364X			163x163x306	582
5000	818080365X			183x183x310	687

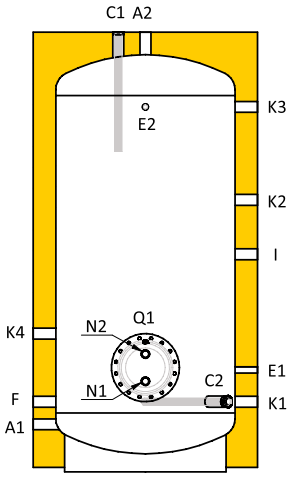
Water heater
with tube heat exchanger – BOIL



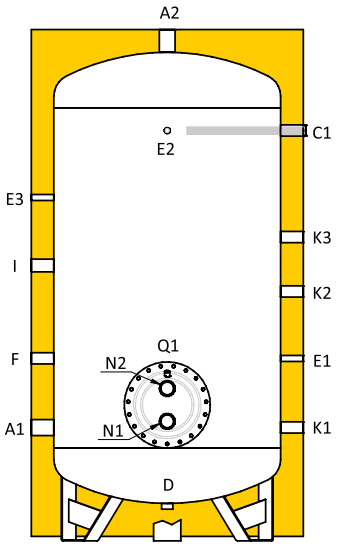
200 ≤ cap. ≤ 300



500 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
C2	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
Q1	Inspection hole
S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	C2 inch	D inch	E1 inch	E2 inch	E3 inch	F inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
200	1"1/4	1"1/4	1"1/4	-	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	Ø300/Ø220
300	1"1/4	1"1/4	1"1/4	-	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	Ø300/Ø220
500	1"1/4	1"1/4	1"1/4	1"1/4	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	Ø300/Ø220
750	1"1/4	1"1/4	1"1/4	1"1/4	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	2"	2"	Ø380/Ø300
1000	1"1/4	1"1/4	1"1/4	1"1/4	-	1/2"	1/2"	-	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	2"	2"	Ø380/Ø300
1500	2"	2"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	2"	2"	Ø380/Ø300
2000	2"	2"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	2"	2"	Ø430/Ø350
2500	2"1/2	2"1/2	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	2"	2"	Ø430/Ø350
3000	3"	3"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	2"	2"	Ø430/Ø350
4000	3"	3"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	2"	2"	Ø430/Ø350
5000	3"	3"	1"1/4	-	1"1/4	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	-	2"	2"	Ø430/Ø350

Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	C2 mm	D mm	E1 mm	E2 mm	E3 mm	F mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	Q1** mm
200	700	1100	1305	130	1100	-	-	320	855	-	220	540	130	660	970	420	270	390	330
300	700	1340	1515	130	1340	-	-	320	1120	-	220	540	220	660	1060	420	370	390	330
500	760	1920	2065	150	1920	250	-	380	1640	-	250	945	250	1090	1640	480	330	450	360
750	950	1970	2190	210	1970	310	-	460	1610	-	310	960	310	1150	1610	610	387,5	532,5	460
1000	950	2280	2470	210	2280	310	-	460	1910	-	310	915	310	1150	1910	610	387,5	532,5	460
1500	1250	2280	2600	500	1810	-	165	805	1810	1515	805	1215	500	1100	1340	-	527,5	672,5	600
2000	1350	2600	2930	505	2115	-	155	805	2115	1805	805	1505	505	1105	1345	-	525	715	620
2500	1400	2655	3000	565	2150	-	175	865	2150	1850	850	1550	565	1165	1405	-	585	775	680
3000	1450	2870	3215	575	2350	-	180	800	2350	2050	850	1750	575	1050	1415	-	595	785	690
4000	1600	2940	3350	600	2380	-	160	900	2380	2080	870	1780	600	1200	1440	-	620	810	715
5000	1800	2980	3480	610	2385	-	140	910	2385	2085	885	1785	610	1210	1450	-	630	820	725

R*: reversal quota

Q1**: Height from inspection hole center to the ground

Water heater with tube heat exchanger BOIL INOX

The BOIL INOX range consists of water heaters with tube heat exchanger for the production of domestic hot water. They are available in several capacities, from 200 up to 5000 litres and equipped with different type of insulation (see chart below), external cover in PVC and a magnesium anode for protection against galvanic currents.

TESTED

Materials

The boilers are made from high quality materials such as:

- Tank: AISI 316 stainless steel
- Tube heat exchanger: AISI 316 stainless steel
- Exchanger head: galvanized carbon steel S235 JR

Treatment for internal protection: Pickling and passivation

Insulation

Capacity (l)	Type
from 200 to 5000	Polyester Fiber

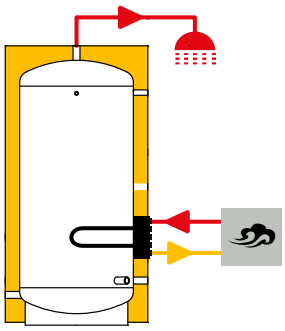
Operational limits

Storage		Primary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	6 bar	110°C	12 bar

Supplied accessories: Magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

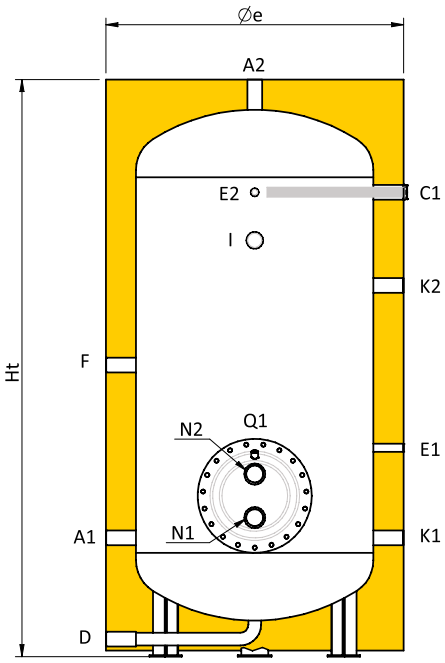
Special versions: see pag 277

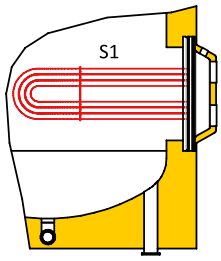


Capacity l	Code	Price	Energy label	With vertical packaging Dimensions cm
200	818040067X		B	68x68x159
300	818040068X		C	78x78x163
500	818040069X		C	83x83x207
800	818040070X		C	102x102x204
1000	818040071X		C	103x103x231
1500	818040072X		C	123x123x232
2000	818040073X		C	143x143x240
2500	818040074X			143x143x265
3000	818040075X			148x148x292
4000	818040076X			163x163x300
5000	818040077X			183x183x303

Water heater with tube heat exchanger BOIL INOX

200 ≤ cap. ≤ 5.000





Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
Q1	Inspection hole
S1	Lower exchanger

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	D inch	E1 inch	E2 inch	F inch	I inch	K1 inch	K2 inch	N1 inch	N2 inch	Q1 (Øext/Øint) mm
200	1"	1"	1"1/4	1"	1/2"	1/2"	1"	1"1/2	1"1/4	1"1/4	1"	1"	Ø300/Ø220
300	1"	1"	1"1/4	1"	1/2"	1/2"	1"	1"1/2	1"1/4	1"1/4	1"	1"	Ø300/Ø220
500	1"	1"	1"1/4	1"	1/2"	1/2"	1"	1"1/2	1"1/4	1"1/4	1"	1"	Ø300/Ø220
800	1"1/4	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø380/Ø300
1000	1"1/4	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø380/Ø300
1500	1"1/2	1"1/2	1"1/4	1"1/2	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø380/Ø300
2000	2"	2"	1"1/4	2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø430/Ø350
2500	2"	2"	1"1/4	2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø430/Ø350
3000	2"	2"	1"1/4	2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø430/Ø350
4000	2"1/2	2"1/2	1"1/4	2"1/2	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø430/Ø350
5000	2"1/2	2"1/2	1"1/4	2"1/2	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	2"	2"	Ø430/Ø350

Size chart

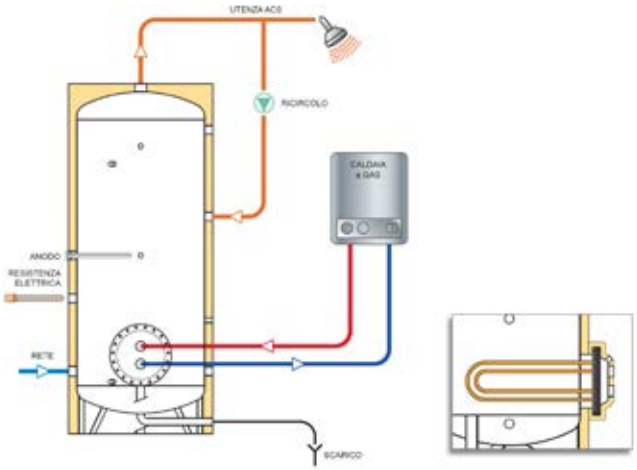
Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	E1 mm	E2 mm	F mm	I mm	K1 mm	K2 mm	N1 mm	N2 mm	Q1** mm
200	650	1470	1610	275	1115	575	1115	725	915	275	915	315	435	375
300	750	1510	1690	295	1135	595	1135	745	965	295	965	335	455	395
500	800	1950	2110	270	1670	570	1670	970	1410	270	1110	310	430	370
800	1030	1940	2200	395	1545	695	1545	970	1385	395	1235	462,5	607,5	535
1000	1040	2210	2445	405	1805	705	1805	1105	1445	405	1245	472,5	617,5	545
1500	1250	2225	2555	425	1815	725	1815	1115	1455	425	1265	482,5	627,5	555
2000	1450	2305	2725	460	1850	760	1850	1150	1490	460	1300	520	710	615
2500	1400	2530	2895	460	2100	760	2100	1275	1600	460	1300	520	710	615
3000	1450	2800	3155	475	2365	775	2365	1415	1645	475	1315	535	725	630
4000	1600	2880	3295	530	2400	830	2400	1450	1680	530	1370	570	760	665
5000	1800	2910	3425	530	2400	830	2400	1450	1680	530	1370	570	760	665

R*: reversal quota

Q1**: Height from inspection hole center to the ground

Technical information for BOIL and BOIL INOX series

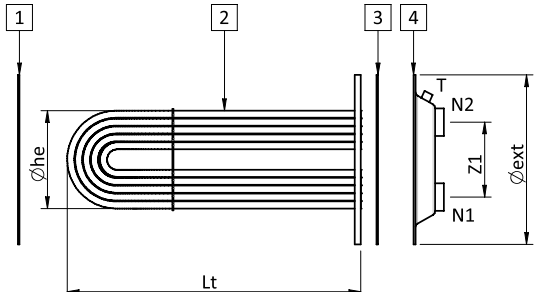
		DHW production TiDHW = 10°C						Exchanger		
Capacity	Ti	TuDHW= 45°C		TuDHW = 60°C		Ta = 50°C TuDHW = 45°C	Ta = 60°C TuDHW = 45°C	Surface area	Capacity	Nominal flow
l	°C	l/h (a)	kW (b)	l/h (c)	kW (d)	l/10 min. (e)	l/10 min. (f)	m²	l	mc/h
200	70	241	9,8	119	4,9	258	315	0,5	2	0,5
	80	300	12,2	169	6,9	266	323			0,6
	90	362	14,7	214	8,7	273	330			0,7
300	70	364	14,8	181	7,4	384	470	0,75	2,8	0,7
	80	453	18,4	252	10,3	395	480			0,8
	90	544	22,1	322	13,1	405	491			1
500	70	482	19,6	240	9,8	620	763	1	3,6	0,9
	80	602	24,5	336	13,7	632	775			1,1
	90	580	23,6	343	14	644	787			1,1
800	70	723	29,4	358	14,6	983	1212	1,5	5,9	1,3
	80	902	36,7	506	20,6	1001	1229			1,6
	90	1084	44,1	642	26,2	1018	1247			1,9
1000	70	964	39,2	480	19,6	1224	1510	2	7,2	1,7
	80	1204	49	675	27,5	1245	1531			2,2
	90	1445	58,8	857	34,9	1266	1552			2,6
1500	70	1445	58,8	728	29,7	1837	2266	3	10,9	2,6
	80	1806	73,5	1020	41,6	1869	2297			3,2
	90	2168	88,2	1292	52,6	1899	2328			3,8
2000	70	1927	78,4	976	39,8	2421	2992	4	14,7	3,4
	80	2408	98	1368	55,7	2454	3026			4,3
	90	2890	117,6	1731	70,5	2488	3059			5,1
2500	70	2408	98	1232	50,2	3014	3728	5	18,5	4,3
	80	3010	122,5	1722	70,1	3053	3767			5,3
	90	3612	147	2178	88,7	3091	3805			6,4
3000	70	2890	117,6	1478	60,2	3577	4434	6	22	5,1
	80	3612	147	2066	84,1	3614	4471			6,4
	90	4335	176,4	2613	106,4	3650	4507			7,6
4000	70	3853	156,8	2020	82,3	4775	5918	8	30,1	6,8
	80	4816	196	2802	114,1	4824	5967			8,5
	90	5780	235,2	3530	143,7	4872	6015			10,2
5000	70	4816	196	2978	121,2	5938	7366	10	36,4	8,5
	80	6020	245	4099	166,9	5990	7419			10,6
	90	7224	294	5138	209,2	6042	7470			12,7



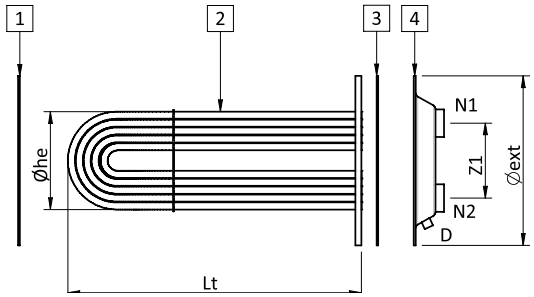
- a continuous DHW flow with TuDHW= 45°C
- b exchanger power with TuDHW=45°C
  c continuous DHW flow with TuDHW= 60°C
- d exchanger power with TuDHW=60°C
- e amount of DHW at 45°C in the first 10 min. with a storage temperature of 50°C
- f amount of DHW at 45°C in the first 10 min. with a storage temperature of 60°C
- Exchanger capacity: 7.10 Lt/mq

Technical information for BOIL and BOIL INOX series

Water only



Steam only



Couplings legend

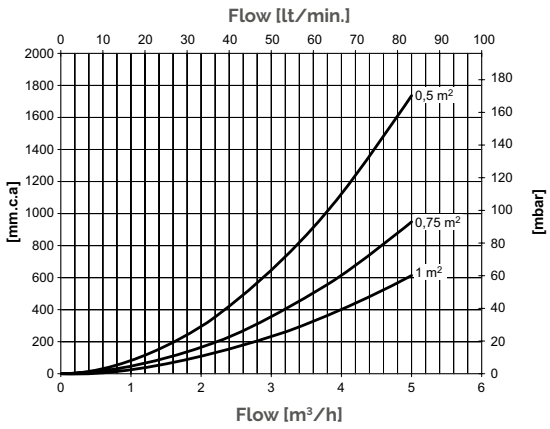
D	Drain
N1	Exchanger inlet/outlet
N2	Exchanger inlet/outlet
T	Vent
1	Gasket without cross-beam
2	Bundle tube heat exchangers
3	Gasket with cross-beam
4	Head

Technical information tube heat exchanger

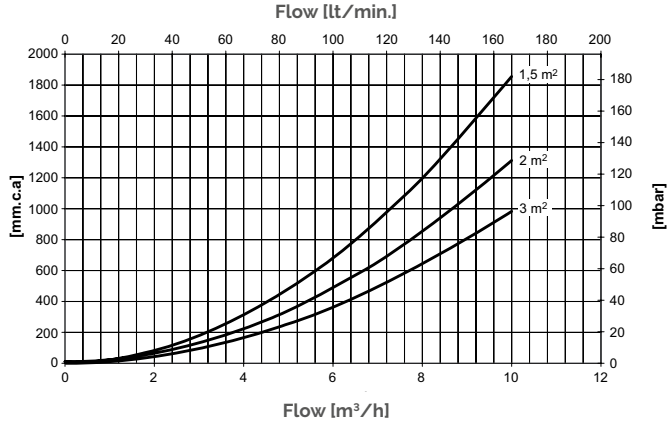
Surf. m²	Power* kW	Lt mm	Øext mm	Øhe mm	N1 inch	N2 inch	Z1 mm	Volume l	dp mca
0,5	12,2	460	300	166	1"	1"	120	1,84	0,65
0,75	18,4	445	300	202	1"	1"	120	2,44	0,65
1	24,5	475	300	202	1"	1"	120	3,23	0,7
1,5	36,7	600	380	270	2"	2"	145	5,36	0,75
2	49	600	380	270	2"	2"	145	6,51	0,8
3	73,5	720	380	278	2"	2"	145	9,8	0,9
4	98	750	430	316	2"	2"	190	13,2	1
5	122,5	780	430	324	2"	2"	190	16,68	1,1
6	147	895	430	324	2"	2"	190	19,2	1,2
8	196	1250	430	324	2"	2"	190	27	1,3
10	245	1510	430	324	2"	2"	190	32,7	1,4

Pressure loss tube heat exchanger

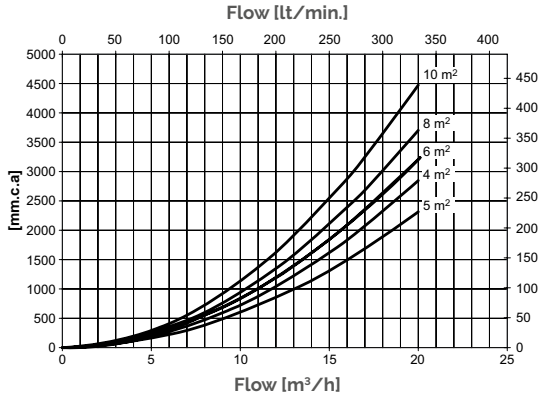
Exchanger surface 0,5 - 1 m²



Exchanger surface 1,5 - 3 m²



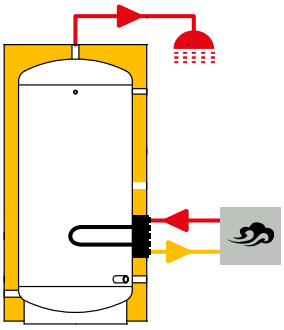
Exchanger surface 5 - 10 m²



Customized water heater with removable exchanger

The concept of the Boil custom range has been introduced to give the user the possibility of composing their own system for domestic how water production by coupling it with several types of storage tanks and exchangers. This enables the conception of flexible solutions for every type of storage tank, volume or power of the exchanger.

TESTED



2

exchanger with copper spiral

1

tube heat exchanger

The option with one hole makes it possible to couple the storage tanks listed below with a tube heat exchanger or an exchanger with copper spiral. The following pages discuss the possible combinations.

Storage tanks with one inspection hole.
Available options:

FLEXY glass lined version (see pag. 138)
FLEXY INOX version in AISI 316 stainless steel (see pag. 140)

FLEXY

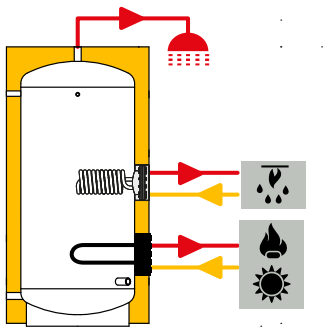
FLEXY INOX

❖ **how to compose a Boil custom**
1) take the code of the Flexy storage tank with inspection hole
2. Add the code of the exchanger
You can choose between the following:
- Tube heat exchanger (see pag. 183)
- Exchanger with copper spiral (see pag. 184)

BOIL CUSTOM CODE =
Storage tank code +
exchanger code

Customized water heater with removable exchanger

The concept of the Boil custom range has been introduced to give the user the possibility of composing their own system for domestic how water production by coupling it with several types of storage tanks and exchangers. This enables the conception of flexible solutions for every type of storage tank, volume or power of the exchanger.



TESTED

blind plate

3

exchanger with copper spiral

2

tube heat exchanger

1

Features

Material S 235 JR carbon steel
Internal protective treatment: Bluetech enamelling with thermosetting resins, suited for domestic water

Supplied accessories: magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

Special versions: see pag 277

Operational limits

max. temperature	max. pressure
80°C	6 bar

Insulation

Capacity (l)	Type
from 200 to 5000	Polyester Fiber

The option with two inspection holes makes it possible to couple the storage tank with:

✔ Two tube heat exchangers
✔ Two exchangers with a copper spiral
✔ A tube heat exchanger and an exchanger with a copper spiral
✔ One of the two heat exchangers and a blind plate that guarantees an easy inspection.

Codes and prices of the tanks with two inspection holes

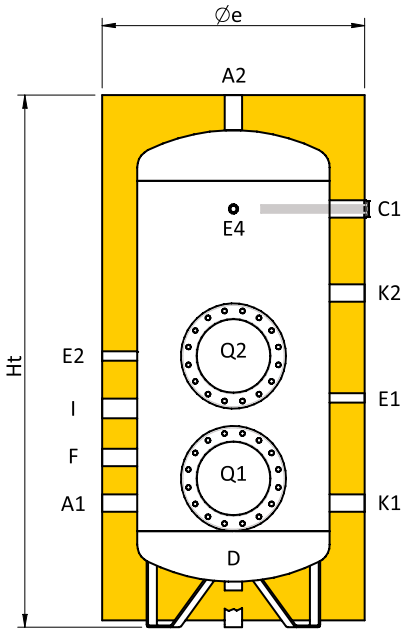
				With vertical packaging	
Capacity l	Code	Price	Energy label	Dimensions cm	Weight kg
200	817080134X		B	68x68x155,5	55
300	817080135X		A	78x78x164	80
500	817080136X		B	88x88x192,5	105
750	817080191X		C	99x99x199	160
1000	817080138X		D	99x99x230	180
1500	817080139X		C	123x123x237,5	230
2000	817080140X		C	132x132x269,5	280
2500	817080141X			147x147x277,5	315
3000	817080142X			147x147x299	350
4000	817080143X			163x163x306	505
5000	817080144X			183x183x310	595

❖ how to compose a Boil custom
1) take the code of the storage tank with two inspection holes
2) add the code of the exchanger
You can choose between
- tube heat exchanger (see pag. 183])
- heat exchanger with a copper spiral (see pag. 184)

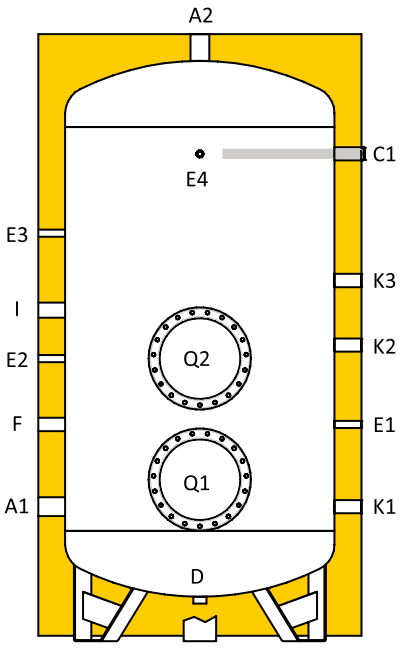
Boil custom 2 inspection holes code = code of storage tank + code of exchanger

Customized water heater with removable exchanger – BOIL Custom – 2 inspection holes

200 ≤ cap. ≤ 300



500 ≤ cap. ≤ 5.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
C1	Anode
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
F	Recirculation
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
Q1	Inspection hole
Q2	Inspection hole

Couplings chart

Cap. l	A1 inch	A2 inch	C1 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	F inch	I inch	K1 inch	K2 inch	K3 inch	Q1 - Q2 (Øext/Øint) mm
200	1"1/4	1"1/4	1"1/4	1"1/4	1/2"	1/2"	-	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	-	Ø300/Ø220
300	1"1/4	1"1/4	1"1/4	1"1/4	1/2"	1/2"	-	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	-	Ø300/Ø220
500	1"1/4	1"1/4	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø300/Ø220
750	1"1/2	1"1/2	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø380/Ø300
1000	1"1/2	1"1/2	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø380/Ø300
1500	2"	2"	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø380/Ø300
2000	2"	2"	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø430/Ø350
2500	2"1/2	2"1/2	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø430/Ø350
3000	3"	3"	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø430/Ø350
4000	3"	3"	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø430/Ø350
5000	3"	3"	1"1/4	1"1/4	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	Ø430/Ø350

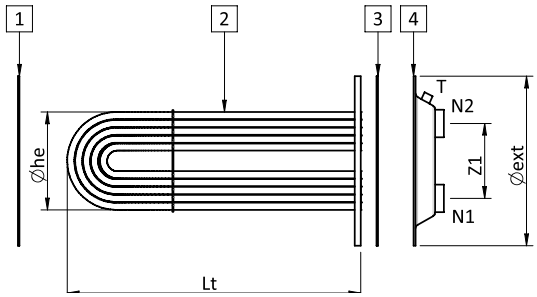
Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	C1 mm	D mm	E1 mm	E2 mm	E3 mm	E4 mm	F mm	I mm	K1 mm	K2 mm	K3 mm	Q1** mm	Q2** mm
200	650	1435	1580	310	1150	125	620	730	-	1150	440	555	310	930	-	380	730
300	750	1520	1695	355	1195	130	655	775	-	1195	485	625	355	955	-	425	775
500	850	1805	2000	375	1445	135	675	795	1145	1445	675	960	375	975	1215	445	795
750	990	1840	2090	390	1470	130	710	980	1360	1470	710	1160	390	1010	1230	500	980
1000	1050	2120	2370	415	1675	120	715	985	1445	1675	745	1175	415	1015	1255	515	985
1500	1250	2280	2605	500	1810	165	805	1050	1515	1810	805	1230	500	1100	1340	600	1050
2000	1350	2600	2930	505	2115	155	805	1150	1805	2115	805	1505	505	1105	1345	620	1150
2500	1400	2655	3005	565	2150	175	865	1210	1850	1850	850	1550	565	1165	1405	680	1210
3000	1450	2870	3220	575	2350	180	800	1220	2050	2050	850	1750	575	1050	1415	690	1220
4000	1600	2940	3350	600	2380	160	900	1245	2080	2080	870	1780	600	1200	1440	715	1245
5000	1800	2980	3485	610	2385	140	910	1255	2085	2085	885	1785	610	1210	1450	725	1255

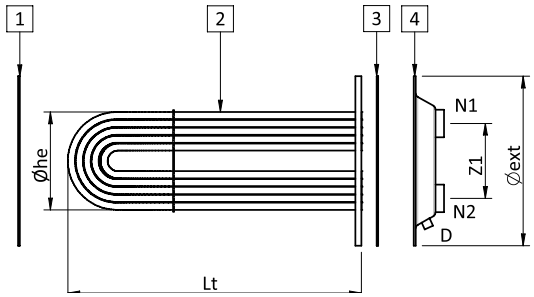
R*: reversal quota
**for the 200 and 300 L tanks, the anode is placed in the G2 coupling.
Q1 ***/Q2 ***: Height from inspection hole center to the ground

Bundle tube heat exchanger

Water only

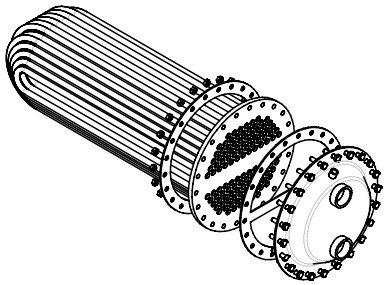


Steam only



Couplings legend

D	Drain
N1	Exchanger inlet/outlet
N2	Exchanger inlet/outlet
T	Vent
1	Gasket without cross-beam
2	Bundle tube heat exchangers
3	Gasket with cross-beam
4	Head



Technical information tube heat exchanger

Surf. m²	Power* kW	Lt mm	Øext mm	Øhe mm	N1 inch	N2 inch	Z1 mm	Volume l	dp mca
0,5	12,2	460	300	166	1"	1"	120	1,84	0,65
0,75	18,4	445	300	202	1"	1"	120	2,44	0,65
1	24,5	475	300	202	1"	1"	120	3,23	0,7
1,5	36,7	600	380	270	2"	2"	145	5,36	0,75
2	49	600	380	270	2"	2"	145	6,51	0,8
3	73,5	720	380	278	2"	2"	145	9,8	0,9
4	98	750	430	316	2"	2"	190	13,2	1
5	122,5	780	430	324	2"	2"	190	16,68	1,1
6	147	895	430	324	2"	2"	190	19,2	1,2
8	196	1250	430	324	2"	2"	190	27	1,3
10	245	1510	430	324	2"	2"	190	32,7	1,4

Performance calculated with primary 80°C and domestic water 10-45°C

Compatibility between (1) the tube heat exchanger and (4) the storage tank

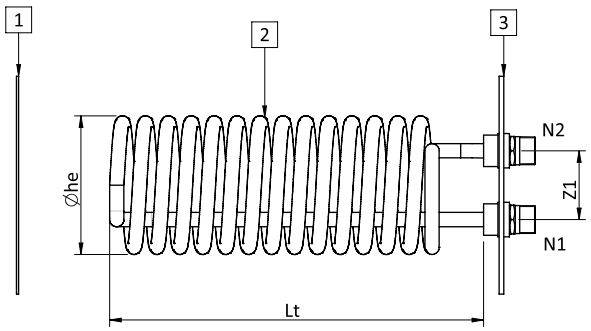
Cap. l	Surface m² 0,5	0,75	1	1,5	2	3	4	5	6	8	10
200	✔	✔	✔								
300	✔	✔	✔								
500	✔	✔	✔								
800				✔	✔	✔					
1000				✔	✔	✔					
1500				✔	✔	✔					
2000							✔	✔	✔		
2500							✔	✔	✔		
3000							✔	✔	✔	✔	
4000							✔	✔	✔	✔	
5000							✔	✔	✔	✔	✔

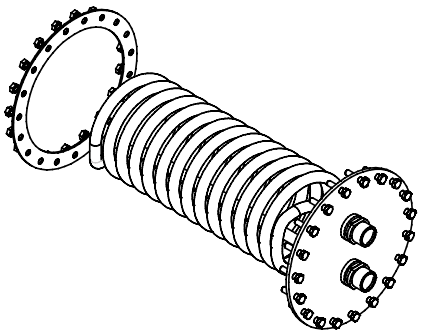
✔ Combination is possible

surf. m²	Version 1 Stainless steel AISI 304 Code	Price	Version 2 Stainless steel AISI 316 Code	Price	Version with steam P ≤ 6 bar Code	Price	cat. P.E.D.	Version with steam P ≤ 12 bar Code	Price	cat. P.E.D.
0,5	821030379X		821030393X		821030285X		Art.4 par.3	821030405X		Cat. I
0,75	821030380X		821030394X		821030286X		Art.4 par.3	821030406X		Cat. I
1	821030381X		821030395X		821030287X		Art.4 par.3	821030407X		Cat. I
1,5	821030382X		821030396X		821030288X		Cat. I	821030408X		Cat. I
2	821030383X		821030397X		821030289X		Cat. I	821030409X		Cat. I
3	821030385X		821030399X		821030291X		Cat. I	821030411X		Cat. I
4	821030386X		821030400X		821030292X		Cat. I	821030412X		Cat. II
5	821030387X		821030401X		821030293X		Cat. I	821030413X		Cat. II
6	821030388X		821030402X		821030294X		Cat. I	821030414X		Cat. II
8	821030389X		821030403X		821030296X		Cat. I	821030416X		Cat. II
10	821030390X		821030404X		821030418X		Cat. II	821030418X		Cat. II

Version 1: AISI 304 stainless steel tube heat exchanger, assembled on a varnished plate with galvanised head
Version 2 and version with steam: AISI 306 stainless steel tube heat exchanger on a AISI 304 steel plate and AISI 304 steel head

Copper spiral coil





Compatibility chart for copper spiral coil and storage tank

Capacity l	Surface m²							
	0,82	1,38	1,53	2,27	3,1	4,54	5,26	6,34
200	✔	✔	✔					
300	✔	✔	✔					
500	✔	✔	✔	✔	✔			
800	✔	✔	✔	✔	✔	✔	✔	✔
1000	✔	✔	✔	✔	✔	✔	✔	✔
1500	✔	✔	✔	✔	✔	✔	✔	✔
2000	✔	✔	✔	✔	✔	✔	✔	✔
2500	✔	✔	✔	✔	✔	✔	✔	✔
3000	✔	✔	✔	✔	✔	✔	✔	✔
4000	✔	✔	✔	✔	✔	✔	✔	✔
5000	✔	✔	✔	✔	✔	✔	✔	✔

✔ Combination is possible

Couplings legend

N1	Ingresso/uscita scambiatore
N2	Ingresso/uscita scambiatore
1	Guarnizione S/T (senza traverso)
2	Serpentino rame alettato
3	Piastra di montaggio

Technical information copper spiral coil

Surf. m²	Lt mm	Øhe mm	Z1 mm	N1 inch	N2 inch	Type of coil	Internal volume l	Dp kPa	Thermal eff. (*) kW
0,82	380	160	75	3/4"	3/4"	Single coil	0,7	25	15
1,38	420	170	75	3/4"	3/4"	Single coil	1,2	30	21,6
1,53	450	170	75	3/4"	3/4"	Single coil	1,4	35	24
2,27	570	170	75	3/4"	3/4"	Single coil	2	35	27
3,1	550	180	90	1"1/4	1"1/4	Double coil	2,7	26	35
4,54	570	242	120	1"1/4	1"1/4	Double coil	3,9	35	55
5,26	660	242	120	1"1/4	1"1/4	Double coil	4,5	35	57,5
6,34	780	242	120	1"1/4	1"1/4	Double coil	5,5	35	61,5

*Performance calculated with the following temperatures: primary 80°C and domestic water 10-45°C

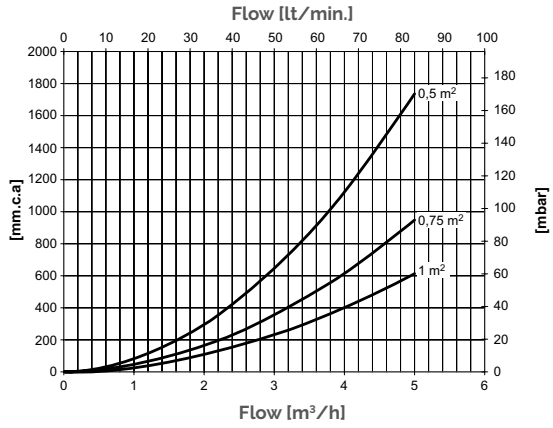
Surface area m²	Assembled on a plate ø 300		Assembled on a plate ø 380		Assembled on a plate ø 430	
	Code	Price	Code	Price	Code	Price
0,82	821040017		821040254X		821040259X	
1,38	821040019		821040255X		821040260X	
1,53	821040020		821040256X		821040261X	
2,27	821040252X		821040021		821040262X	
3,1	821040253X		821040022		821040263X	
4,54	-		821040023		821040027	
5,26	-		821040257X		821040024	
6,34	-		821040258X		821040025	

The copper coils are supplied with plates, bolts, nuts and gaskets

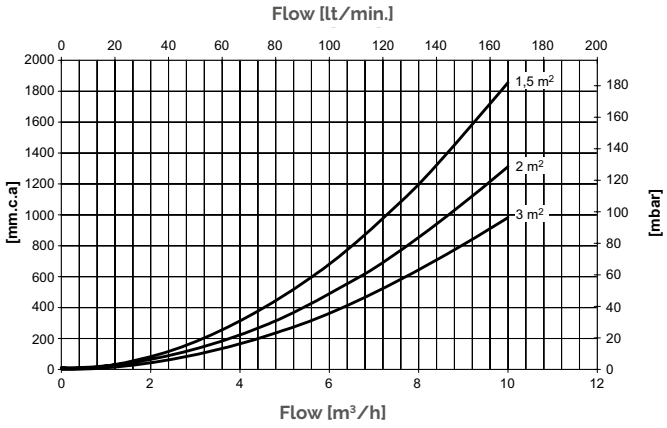
Customized water heater with removable heat exchanger – BOIL custom
Curve: pressure loss

Pressure loss tube heat exchanger

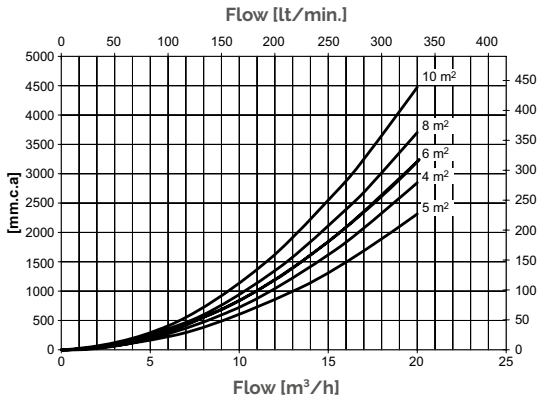
Exchanger surface 0,5 - 1 m²



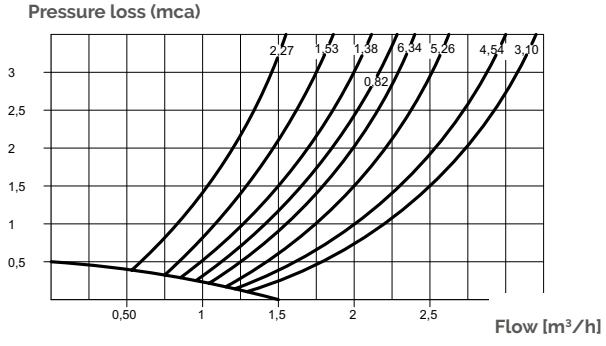
Exchanger surface 1,5 - 3 m²



Exchanger surface 5 - 10 m²



Pressure loss copper spiral coil




fiorini
fiorini
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Fast Heaters for DHW

Contents

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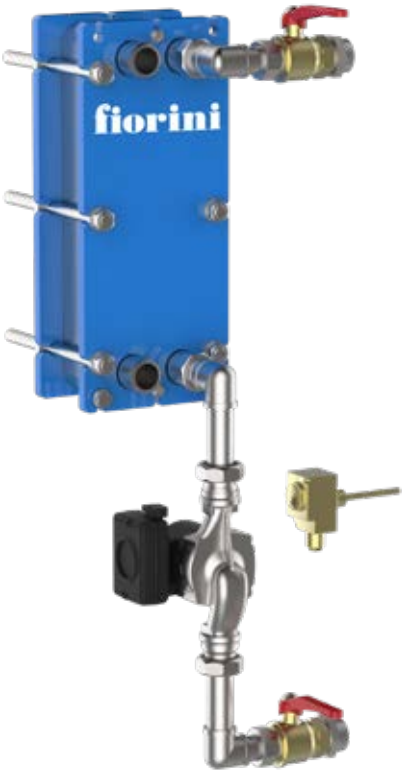
Fast heater
Kit AFK



TESTED

The AFK kit consists of a high efficiency inspectable plate heat exchange unit, fittings and circulation pump. The systems for the rapid production of domestic hot water combine an AFK Kit with an storage tank chosen freely within the FLEXY and BOIL ranges. The possibility of combining AFK kits with storage tanks of any type and volume, allows you to create a wide range of solutions for the rapid production of domestic hot water ideal for small and medium-sized installations (homes, restaurants, hotels, sports centers, etc.) . Compared to traditional fixed coil storage systems, the advantages of combining the storage with an external plate heat exchanger are:

✔ use a lower capacity tank with the same DHW supplied, therefore drastically reduce the overall dimensions;
✔optimize the combination of boiler power (or heat generator) and heat exchanger performance.
✔ decrease the DHW replenishment time

Standard accessories: SLC control unit see pag 274 - The regulation is entrusted to the electronic SLC regulator which, using the pre-set hydraulic schemes, allows to optimize and monitor the functioning of the system.

HOW TO COMPOSE THE AFK SYSTEM
To compose the desired AFK system it is necessary to identify:

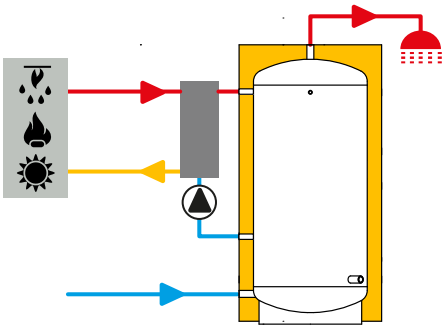
1. the AFK kit code of the required power (see next page)
2. the code of the tank to be combined (see sections FLEXY and BOIL page 138 and page 140)
3. select any accessories from those available

AFK kits consist of:
✔ K042 inspectable plate heat exchanger available in configurations with different plate numbers depending on the power it must be exchanged
✔ High efficiency recirculation pump
✔ Chrome-plated brass fittings
✔ Thermostat

EXCHANGER AND ACCUMULATION
The heat exchange element, the heat exchanger K042, consists of corrugated plates in stainless steel AISI 316, enclosed in a containment frame in carbon steel painted with epoxy powders and bolted with a galvanized steel linkage. The plates are separated by gaskets in NBR (or EPDM on request). The body material of the tank, the internal protective treatments and the possible insulation are indicated in the relevant sections of this catalog, FLEXY and BOIL.

max. working pressure
10 bar

Fast heater
Kit AFK



Kit AFK FLEXY series pag. 138
FLEXY INOX series pag. 140

Code	Accessory	Price
843090014X	AFK insulation kit for heat exchanger and pipe fittings	
822120028	SLC electronic control unit (see. pag. 274)	

Size of the exchanger	Power kW		Continuous DHW production l/h	dP Primary kPa	Coupligns inch	Min-max power of the pump W	Tension V/Ph/Hz	Min-max current A
K042/09	35	14*	859	18	1"1/4	3-140	230/1/50	0,04-1,1
K042/15	70	24*	1717	24	1"1/4	3-140	230/1/50	0,04-1,1
K042/21	115	34*	2862	33	1"1/4	3-140	230/1/50	0,04-1,1
K042/25	150	40*	3721	39	1"1/4	3-140	230/1/50	0,04-1,1
K042/33	200	53*	4866	39	1"1/4	3-140	230/1/50	0,04-1,1

Performance calculated with primary 80-60 °C and domestic water 10-45°C
* Performance calculated with primary 55-50°C and domestic water 10-45 °C

Size of the exchanger	Code	Price	Packed Dimensions cm	Packed Weight kg
K042/09	841060038X		105x41x27	38
K042/15	841060039X		105x41x27	40
K042/21	841060040X		105x41x27	42
K042/25	841060041X		105x41x27	43
K042/33	841060042X		105x41x27	45

Fast heater
Kit AFW

The AFW kit consists of a high efficiency brazed plate heat exchange unit, fittings and circulation pump. The systems for the rapid production of domestic hot water combine an AFW Kit with an storage tank chosen freely within the FLEXY and BOIL ranges. The possibility of combining AFW kits with storage tanks of any type and volume, allows you to create a wide range of solutions for the rapid production of domestic hot water ideal for small and medium-sized installations (homes, restaurants, hotels, sports centers, etc.) . Compared to traditional fixed coil storage systems, the advantages of combining the storage with an external plate heat exchanger are:

✔ use a lower capacity tank with the same DHW supplied, therefore drastically reduce the overall dimensions;
✔optimize the combination of boiler power (or heat generator) and heat exchanger performance.
✔ decrease the DHW replenishment time

Standard accessories: SLC control unit see pag 274 - The regulation is entrusted to the electronic SLC regulator which, using the pre-set hydraulic schemes, allows to optimize and monitor the functioning of the system.

TESTED

HOW TO COMPOSE THE AFW SYSTEM
To compose the desired AFW system it is necessary to identify:

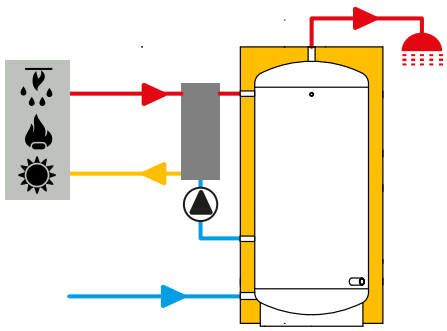
1. the AFW kit code of the required power (see next page)
2. the code of the tank to be combined (see sections FLEXY and BOIL page 138 and page 140)
3. select any accessories from those available

AFW kits consist of:
✔ WP4 brazed plate heat exchanger available in configurations with different plate numbers depending on the power it must be exchanged
✔ High efficiency recirculation pump
✔ Chrome-plated brass fittings
✔ Thermostat

EXCHANGER AND ACCUMULATION
The heat exchange unit, i.e. the brazed WP4 heat exchanger, is made of corrugated AISI 316 stainless steel plates, soldered with pure copper. The body material of the tank, the internal protective treatments and the possible insulation are indicated in the relevant sections of this catalog, FLEXY and BOIL.

max. working pressure
10 bar

Fast heater
Kit AFW



Kit AFW FLEXY series pag. 138
FLEXY INOX series pag. 140

AFW insulation kit

Size of the exchanger	Power kW		Continuous DHW production l/h	dP Primary kPa	Coupligns inch	Min-max power of the pump W	Tension V/Ph/Hz	Min-max current A
WP4/14	35*	14**	859	18	1"1/4	3-140	230/1/50	0,04-1,1
WP4/20	70*	24**	1717	24	1"1/4	3-140	230/1/50	0,04-1,1
WP4/30	115*	34**	2862	33	1"1/4	3-140	230/1/50	0,04-1,1
WP4/40	150*	40**	3721	39	1"1/4	3-140	230/1/50	0,04-1,1
WP4/50	200*	53**	4866	39	1"1/4	3-140	230/1/50	0,04-1,1

Performance calculated with primary 80-60 °C and domestic water 10-45°C
* Performance calculated with primary 55-50°C and domestic water 10-45 °C

Size of the exchanger	Code	Price	Packed Dimensions cm	Packed Weight kg
WP4/14	841060043X		105x41x27	12
WP4/20	841060044X		105x41x27	13
WP4/30	841060045X		105x41x27	14
WP4/40	841060046X		105x41x27	16
WP4/50	841060047X		105x41x27	18

Cod.	Accessorio	Prezzo
843090091X	AFW insulation kit WP4/14	
843090092X	AFW insulation kit WP4/20	
843090093X	AFW insulation kit WP4/30	
843090094X	AFW insulation kit WP4/40	
843090095X	AFW insulation kit WP4/50	
822120028	SLC electronic control unit (see. pag. 274)	

Technical information - DHW fast production units – AFK and AFW series

Dimensions
The AFK and AFW DHW production station is different from regular water heaters because of the presence of a high efficiency plate heat exchanger. This feature ensures that the available power from the energy source is fully used even when the temperature in the storage tank increases. Because of all this, smaller storage tanks can be used instead of the larger ones that would be used with a normal water heater with tube heat exchanger. To select the right DHW production unit the following data are needed:

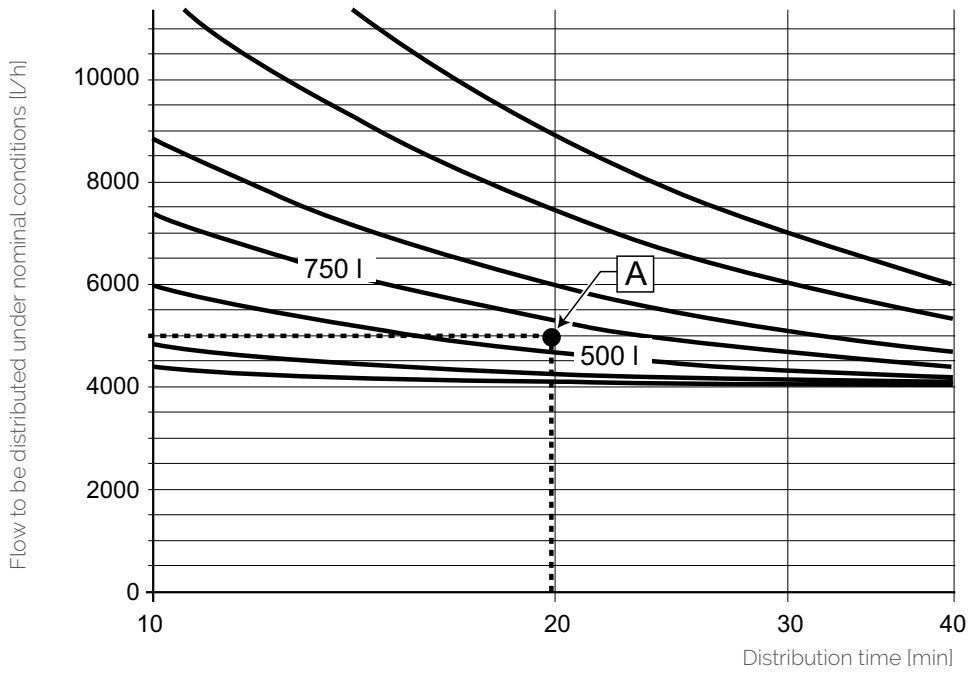
P_p: Power available from the primary source
T_{in}: Water temperature of the circuit
T_p: Temperature of the primary source
T_u: Temperature of the DHW
V_p: DHW flow to be distributed during the sampling period
T_{punta}: Duration of the sampling period
T_{rip}: Time available to restore the temperature in the storage tank

In the following pages there are a series of charts which indicate the DHW production when the sampling period lengthens and when the temperature varies in time, with the zero use. The graphics can help you with the selection of the correct model for your application.

Example
You have to distribute a DHW flow of 5000l/h at 40°C for a sampling period of 20 min. The inlet temperature of the circuit is 15°C and the available power from the heater is 150 kW with a flow at 80°C.

Determining the volume
We use the graphic in which the nominal power of the heat exchanger is equal to or inferior to the power of the heater. Therefore, we select a K042 with 25 plates. We look at the axis with the abscissas with the duration of the sampling period (20 min). Then, we vertically move the line until we cross the straight line with the flow. This is point A. Near that point there is the 750l storage tank with a 5250 l/h flow for 20 min, while the 500l storage tank has a 4100 l/h flow for 20 min. You should choose the boiler with the features that are the most similar to the project data.

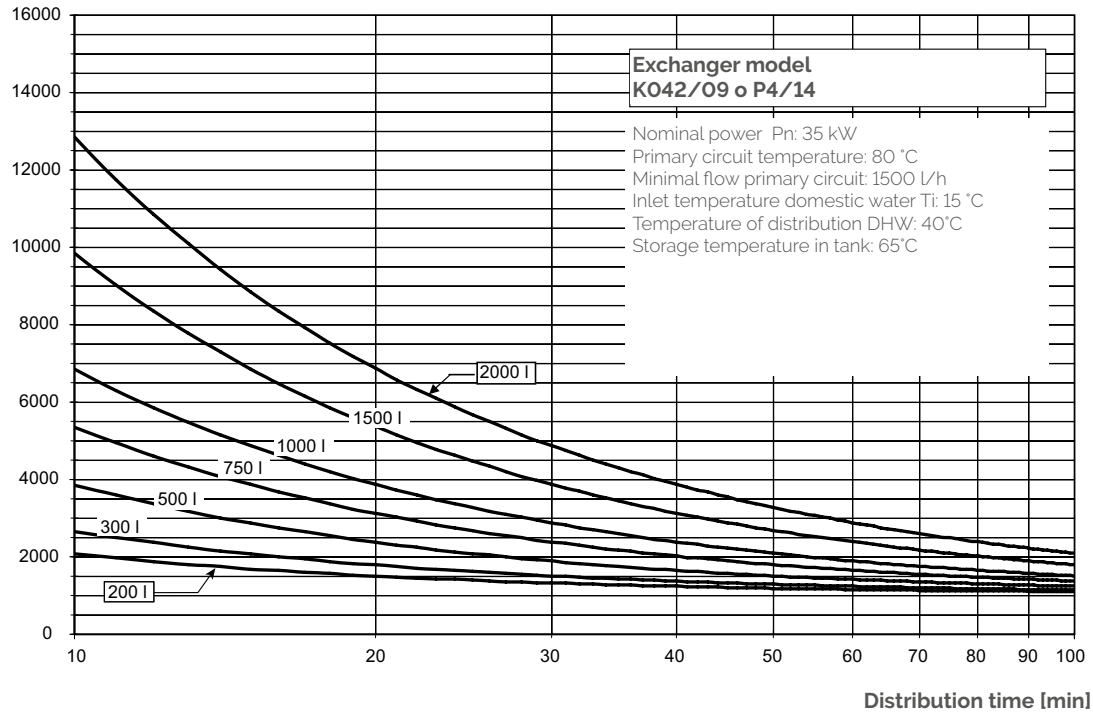
Determining the heat exchanger
The correct heat exchanger should guarantee a thermal exchange equal to or superior to the power destined for the DHW production. Very important when choosing the heat exchanger is the flow temperature of the heat generator.



Performances AFK and AFW series

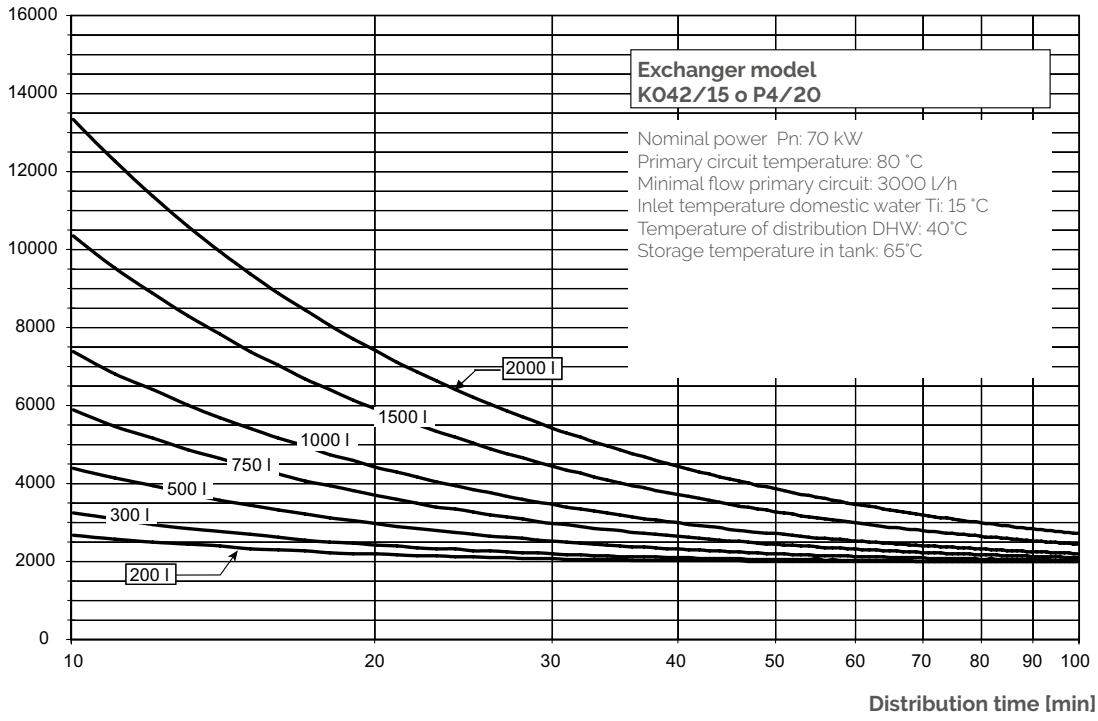
Performance with K042/09 plate heat exchanger

Flow to be distributed under nominal conditions [l/h]



Performance with K042/15 plate heat exchanger

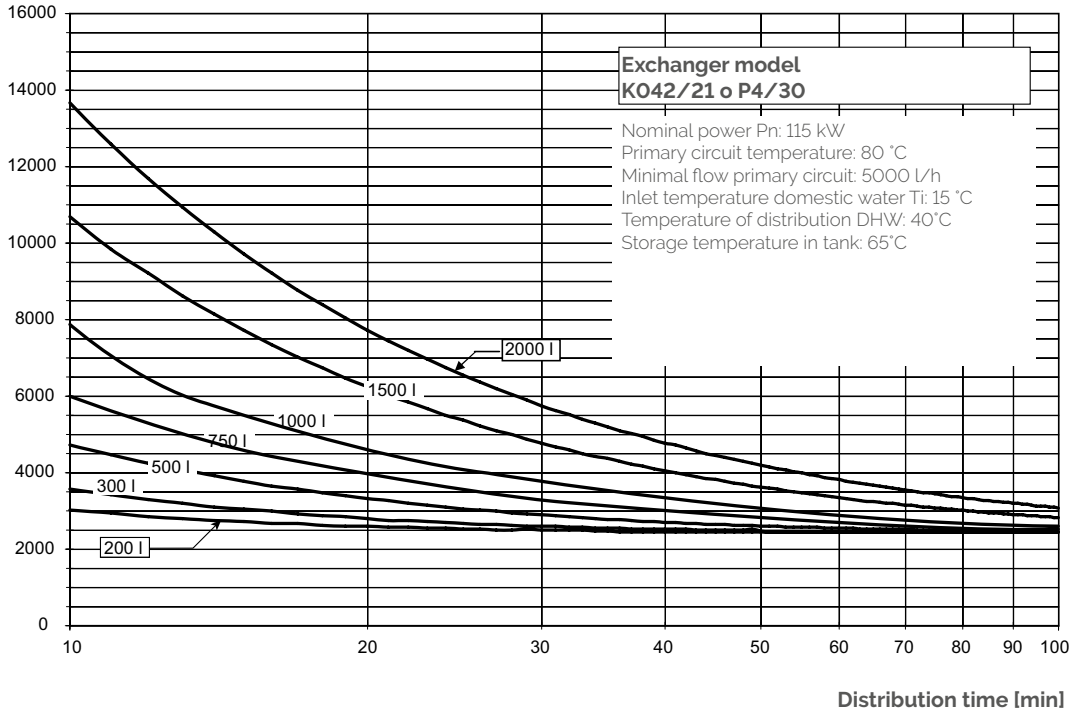
Flow to be distributed under nominal conditions [l/h]



Performances AFK and AFW series

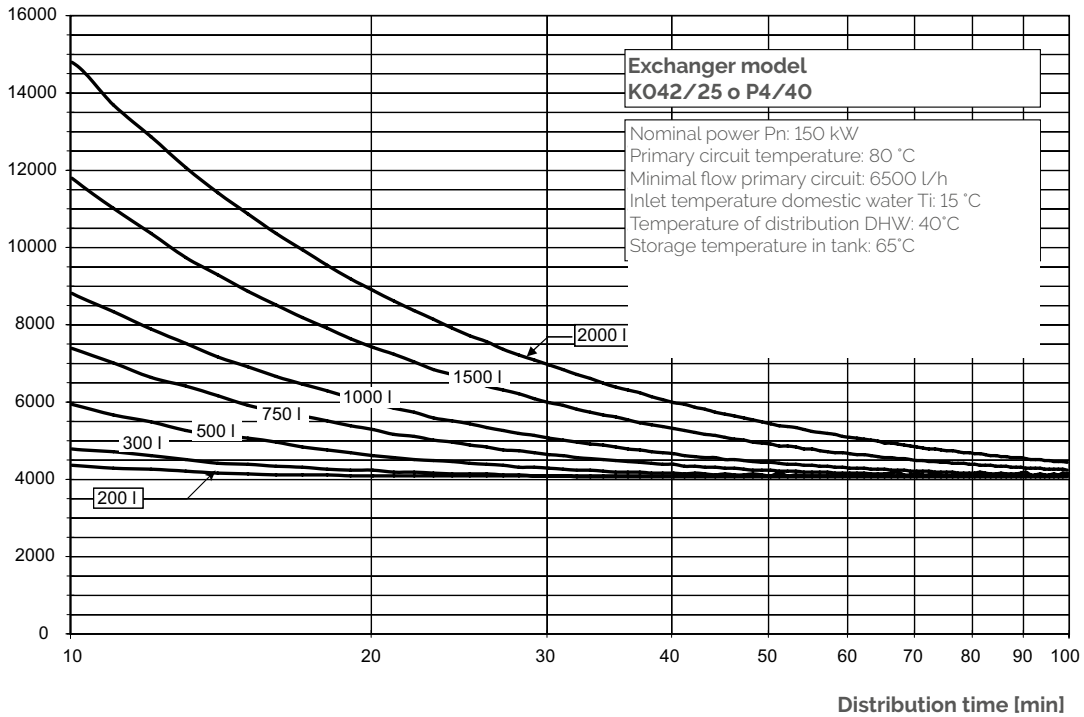
Performance with K042/21 plate heat exchanger

Flow to be distributed under nominal conditions [l/h]



Performance with K042/25 plate heat exchanger

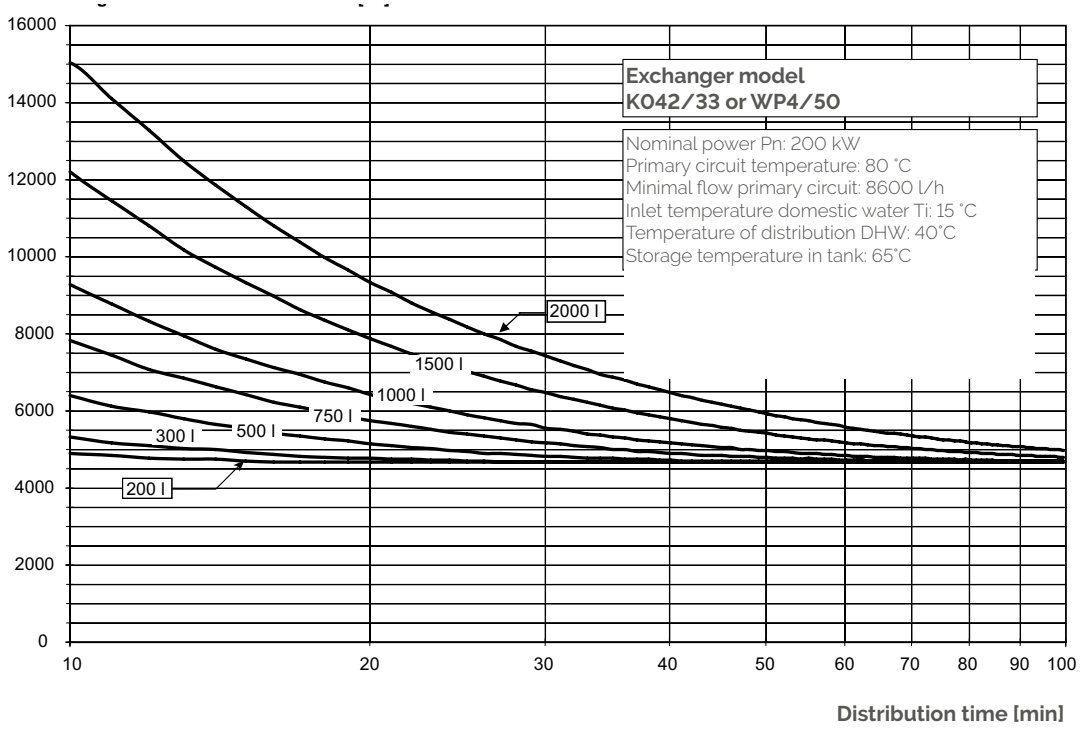
Flow to be distributed under nominal conditions [l/h]



Performances AFK and AFW series

Performances with K042/33 plate heat exchanger

Flow to be distributed under nominal conditions [l/h]



Fast selection charts for AFK and AFW

The two charts below can help you with the selection of the AFKX unit in some standard circumstances.

Hotel rooms

Exchanger model	Storage tank capacity						
	200 l	300 l	500 l	750 l	1000 l	1500 l	2000 l
K042/ 9 / WP4/14	6	8	13	14	16	*	*
K042/15 / WP4/20	12	16	22	23	25	28	*
K042/21 / WP4/30	16	22	28	29	30	34	38
K042/25 / WP4/40	30	40	51	51	52	54	58
K042/33 / WP4/50	35	47	60	60	60	62	65

Consumption in the room during the peak period: 130 l
Duration of the peak period: 1.5 h
Inlet temperature Ti: 15°C
DHW distribution temperature: 40°C
Initial storage temperature: 65°C
Max recovery time: 2h
Synchronism coefficient: 1
*: recovery time more than 2h

Residential setting

Exchanger model	Storage tank capacity						
	200 l	300 l	500 l	750 l	1000 l	1500 l	2000 l
K042/ 9 / WP4/14	7	10	14	16	18	*	*
K042/15 / WP4/20	13	17	23	24	25	28	*
K042/21 / WP4/30	16	22	28	29	30	33	36
K042/25 / WP4/40	28	37	47	47	48	49	52
K042/33 / WP4/50	31	42	53	53	53	55	58

Consumption in the room during the peak period: 260 l
Duration of the peak period: 1.5 h
Inlet temperature Ti: 15°C
DHW distribution temperature: 40°C
Initial storage temperature: 65°C
Max recovery time: 2h
Synchronism coefficient: table synchronism coefficients
*: recovery time more than 2h

Synchronism coefficient

N° rooms	Coeff.	N° rooms	Coeff.
<5	1	36 ÷ 40	0,48
6 ÷ 15	0,61	41 ÷ 45	0,47
16 ÷ 20	0,54	46 ÷ 50	0,46
21 ÷ 25	0,52	51 ÷ 55	0,45
26 ÷ 30	0,51	56 ÷ 60	0,44
31 ÷ 35	0,49		

Heat exchanger group for domestic hot water production – AFK-HD

The AFK-HD system for the fast preparation of Domestic Hot Water can be coupled with storage tanks that are already installed in small, medium-sized and large settings. The available thermal exchange units can be coupled with all storage tank of the FLEXY, FLEXY INOX, BOIL and BOIL INOX series.

The AFK-HD system consists of:
✔ Gasketed plate heat exchanger – AISI 316L stainless steel, model K042 or K080;
✔ Stainless steel self-supporting base with adjustable feet;
✔ Stainless steel pump, electronic and high efficiency (up to model K042);

Available accessories
All exchangers can be installed with the following accessories (on request)

✔ Removable heat exchanger insulation (optional);
✔ Thermostat for primary circuit (optional);
✔ control unit SLC (see pag. 274)
Available on request, for versions up to the AFK HD 200.

TESTED

Primary circuit		Secondary circuit	
Max temperature	Max pressure	Max temperature	Max pressure
95°C	16 bar	195°C	6 bar

Model*	Exchanger	Code	Price	Packed Dimensions cm	Weight kg
AFK-HD 35	K042/09	841060019X		28x49x105	51
AFK-HD 70	K042/15	841060020X		28x49x105	53
AFK-HD 115	K042/21	841060021X		28x49x105	55
AFK-HD 150	K042/25	841060022X		28x49x105	56
AFK-HD 200	K042/33	841060018X		28x49x105	59
AFK-HD 250	K080H/23	841060023X		105x33x95	126
AFK-HD 300	K080H/29	841060024X		105x33x95	129
AFK-HD 350	K080H/33	841060025X		105x33x95	131
AFK-HD 400	K080H/39	841060026X		105x33x95	140

* Electronic pump up to model AFK-HD 200, from 250 three-phase pump.

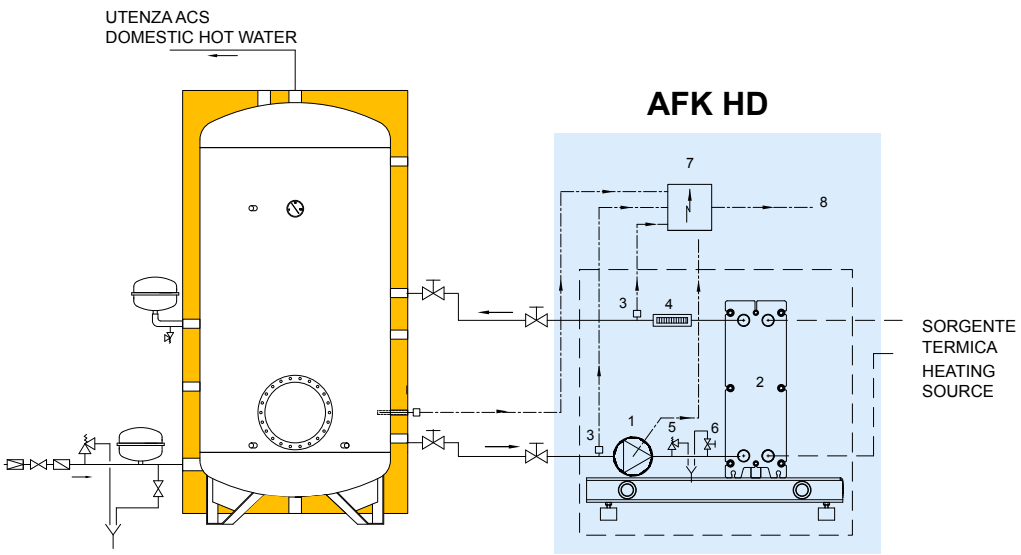
Standard Accessories: see pag 274

Code	Accessory	Price
822120028	SLC electronic control unit (see. pag. 274)	

ACCESSORY only suitable up to AFK-HD 200 (included)

Insulation kit for AFK HD			
K042		K080	
Code	Price	Code	Price
821080037X		821080038X	

Technical information
AFK-HD



Legend

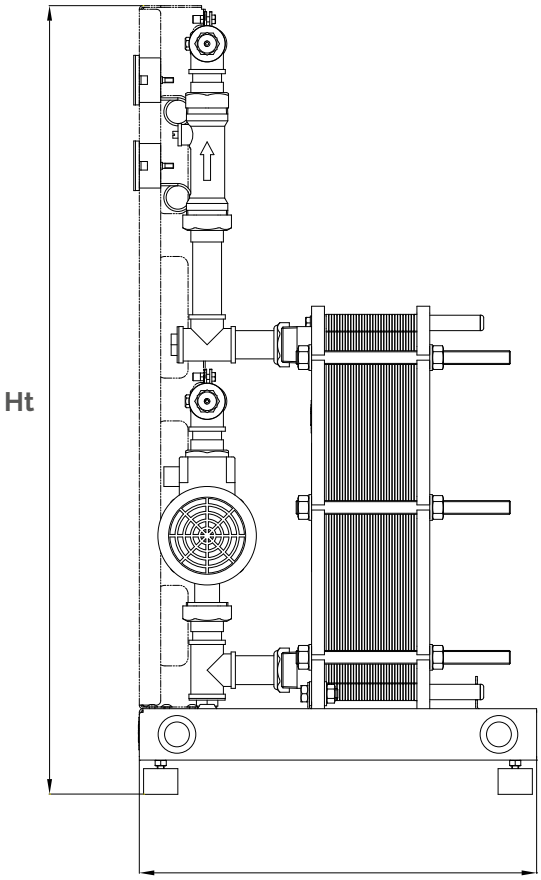
1	Stainless steel recirculation pump
2	Gasketed plate heat exchanger
3	Probe holder
4	Flow rate regulator
5	Safety valve
6	Drain valve
7	Electronic control panel (optional)
8	Output signal for primary circuit

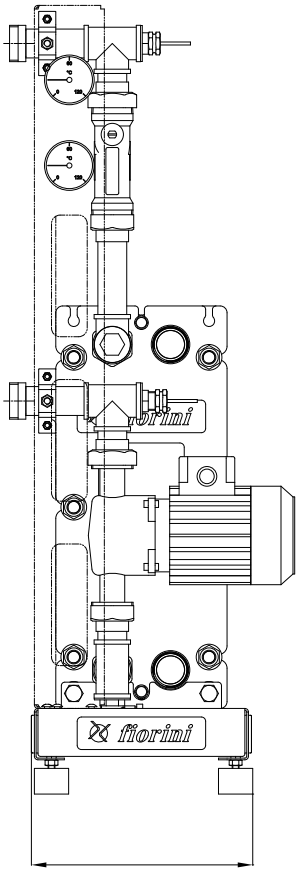
Performances
AFK-HD

Capacity l	K042/09	K042/15	K042/21	K042/25	K042/33	K080h/23	K080h/29	K080h/33	K080h/39
200	330/500 1100/859	440/725 2000/1717	500/1300 2900/2862	730/2075 4150/3721	810/2330 4900/4866	1055/1995 5765/5650	1340/2570 7485/7370	1505/2895 8465/8350	1830/3550 10430/10320
300	430/600 1300/859	535/1200 2000/1717	590/1400 2905/2862	800/2125 4200/3721	880/2375 4900/4866	1110/2055 5820/5650	1400/2625 7540/7370	1560/2955 8525/8350	1890/3610 10490/10320
500	665/800 1500/859	730/1475 2100/1717	785/1660 2910/2862	990/2310 4175/3721	1060/2560 4910/4866	1225/2165 5935/5650	1510/2740 7655/7370	1675/3070 8640/8350	2005/3725 10605/10320
800	900/1030 1750/859	980/1835 2300/1717	1030/2025 2920/2862	1230/2625 4175/3721	1300/2860 4915/4866	1395/2340 6105/5650	1685/2910 7825/7370	1845/3240 8810/8350	2175/3895 10775/10320
1000	1130/1300 1900/859	1220/2200 2500/1414	1280/2385 2930/2862	1470/300 4300/3721	1540/3200 4920/4866	1510/2455 6220/5650	1800/3025 7940/7370	1960/3355 8925/8350	2290/4010 10890/10320
1500	1630/1830 2490/859	1725/2950 2975/1717	1780/3125 3350/2862	1965/3710 4675/3721	2025/3925 5150/4866	1795/2740 6505/5650	2085/3310 8225/7370	2245/3640 9210/8350	2575/4295 11175/10320
2000	2160/2300 300/859	2220/3700 3450/1717	2280/3860 3825/2862	2465/4450 5100/3721	2500/4650 5550/4866	2080/3025 6790/5650	2370/3600 8510/7370	2535/3925 9595/8350	2860/4580 11460/10320

Supply of DHW in litres in the first 10/20/60 minutes and flow in continuous dispensing in l / h (Primary 80 ° C, delivery 45 ° C)

Technical information
AFK-HD





Technical information

Model	Exchanger	Power kW		Flow primary l/h	Pdc primary kPa	Electrical features pump Tension V/Ph/Hz	Min-max current A	Wt mm	Lt mm	Ht mm	Couplings inch
SIZE 1											
AFK-HD 35	K042/09	35	14*	1500*/1800**	18*/25**	230/1/50	0,04-1,1	305	464	921	1"1/4
AFK-HD 70	K042/15	70	24*	3000*/3900**	24*/40**	230/1/50	0,04-1,1	305	464	921	1"1/4
AFK-HD 115	K042/21	115	34*	5000*/5800**	33*/45**	230/1/50	0,04-1,1	305	464	921	1"1/4
AFK-HD 150	K042/25	150	40*	6500*/6800**	39*/45**	230/1/50	0,04-1,1	305	464	921	1"1/4
AFK-HD 200	K042/33	200	53*	8600*/8700**	39*/43**	230/1/50	0,04-1,1	305	464	921	1"1/4
SIZE 2											
AFK-HD 250	K080H/23	250	165*	8800*/8800**	49*/49**	400/3/50	1.03	305	1031	829	1"1/2
AFK-HD 300	K080H/29	300	170*	10500*/10500**	48*/48**	400/3/50	1.03	305	1031	829	1"1/2
AFK-HD 350	K080H/33	350	210*	12500*/12500**	47*/47**	400/3/50	1.03	305	1031	829	1"1/2
AFK-HD 400	K080H/39	400	250*	14100*/14100**	46*/46**	400/3/50	1.03	305	1031	829	1"1/2

Performance calculated with primary 80°C and domestic water 10/45°C
* Performance calculated with primary 55°C and domestic water 10-45°C


VALLICELLI
FORLI'

Fresh Water Stations for DHW

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Mounted SET
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AQUAMATIC

Instantaneous DHW (Domestic Hot Water) production unit with integrated storage tank

Italian style, innovation and technology

AQUAMATIC is an innovative product consisting of an inertial heat storage system coupled with an instantaneous hot water production unit. Everything is enclosed in a uniquely designed element, which combines style, innovation, and technology. AQUAMATIC is used in heating systems, even multi-energy ones, which are powered by sources (heat pump, solar heating, biomass boilers, and so on) requiring the use of a heat storage unit for optimal function. In the event of heat pump systems, which also furnish hydronic cooling, an inertial storage system is also available that perfectly integrates with the AQUAMATIC base and is suitable for containing hot or cold water, depending on the season.

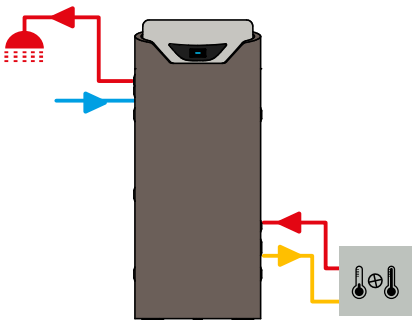
The production of domestic hot water occurs within a plate heat exchanger with stainless steel plates that guarantee:

- ✔ maximum hygiene
- ✔ high production of domestic hot water without the need for a high level of installed power

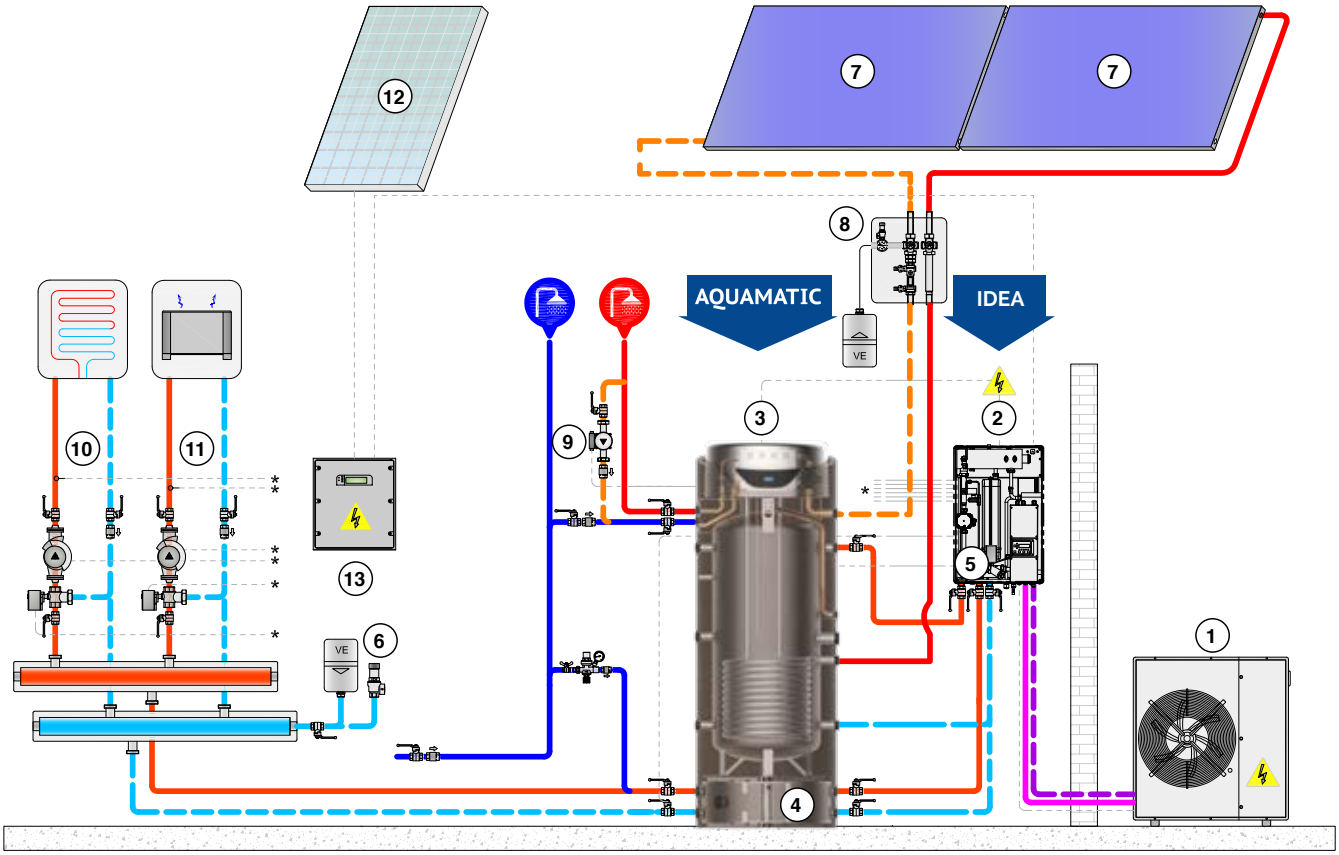
The heart of the system is the integrated display through which the user sets and controls all of the AQUAMATIC functions. Main features of the AQUAMATIC:

- ✔ Compact and original design
- ✔ Simple installation, thanks to already integrated elements
- ✔ Easy and intuitive use, thanks to the graphic display
- ✔ Activates automatically even with a low demand for domestic water (2 litres/min)
- ✔ Guarantees maximum hygiene and prevents the formation of legionella
- ✔ Easy access to internal parts for maintenance
- ✔ Minimum heat dispersion (B energy class)
- ✔ Ability to communicate with control systems
- ✔ Can be used with various energy sources
- ✔ Produces a quantity of domestic water at a comfortable temperature, greater than any other traditional system (heaters) of equal capacity

Model	Capacity l	Code	Price	With vertical packaging Dimensions cm	Weight kg
AQUAMATIC	200	842030104X		75x75x140	80
	300	842030105X		75x75x180	94
	500	842030106X		90x90x185	121
AQUAMATIC PLUS	300	842030107X		75x75x180	101
	500	842030108X		90x90x185	136
AQUAMATIC SOLAR	300	842030109X		75x75x180	106
	500	842030110X		90x90x185	141

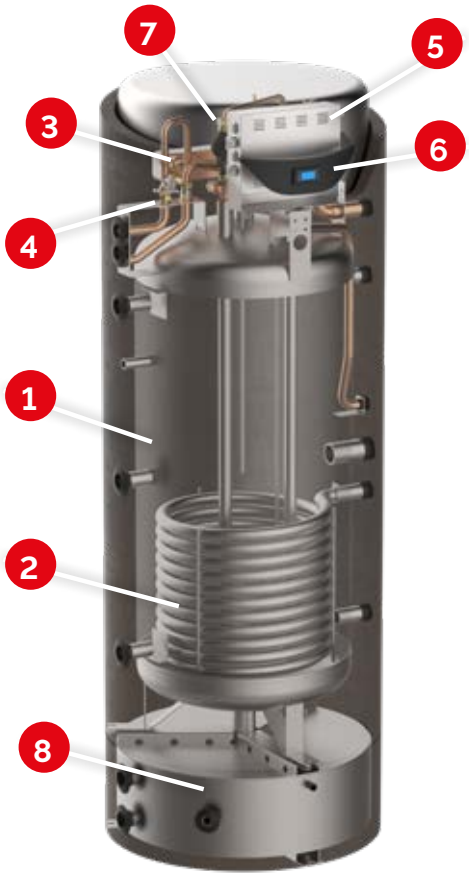


Aquamatic
Installation schema and components



Legend

1	IDEA Flex Galileus heat pump (outdoor unit)
2	IDEA Flex Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC
4	Built-in inertial tank AQUAMATIC
5	Built-in three way diverter valve
6	Safety group
7	Fiorini solar panel
8	Solar station no pump
9	DHW recirculation pump
10	Heating circuit 1
11	Heating circuit 2
12	Photovoltaic modules
13	Inverter for photovoltaic system



Components list

1	Storage tank
2	Coil (SOLAR and PLUS versions)
3	DHW exchanger
4	flow/temp gauge
5	electric board
6	electronic regulator
7	circulation pump
8	Built-in storage tank

AQUAMATIC
Available Versions

The AQUAMATIC system is available with three different storage capacities and in three different versions. The versions differ in the presence of a second heat exchanger for additional sources and in the possibility of managing the additional heat source through an electronic pump and the specially programmed software.

- **AQUAMATIC (1 source): see pag. 210**
- **AQUAMATIC Plus (2 sources): see pag. 210**
- **AQUAMATIC Solar (2 sources for solar circulation): see pag. 211**

Next to those three devices, an integrative resistor is also available, which can meet the highest heat requirements.

Code	Description	Primary pump	Primary exchanger	Electronic regulation	Additional exchanger	Additional cric. pump
842030104X	**AQUAMATIC 200**	✔	✔	✔		
842030105X	**AQUAMATIC 300**	✔	✔	✔		
842030106X	**AQUAMATIC 500**	✔	✔	✔		
842030107X	**AQUAMATIC "Plus" 300**	✔	✔	✔	✔	
842030108X	**AQUAMATIC "Plus" 500**	✔	✔	✔	✔	
842030109X	**AQUAMATIC "Solar" 300**	✔	✔	✔	✔	✔
842030110X	**AQUAMATIC "Solar" 500**	✔	✔	✔	✔	✔

The AQUAMATIC system is delivered packed in cardboard boxes on pallets.
It is equipped with electric cable with plug SHUCO, length 1.5 m.

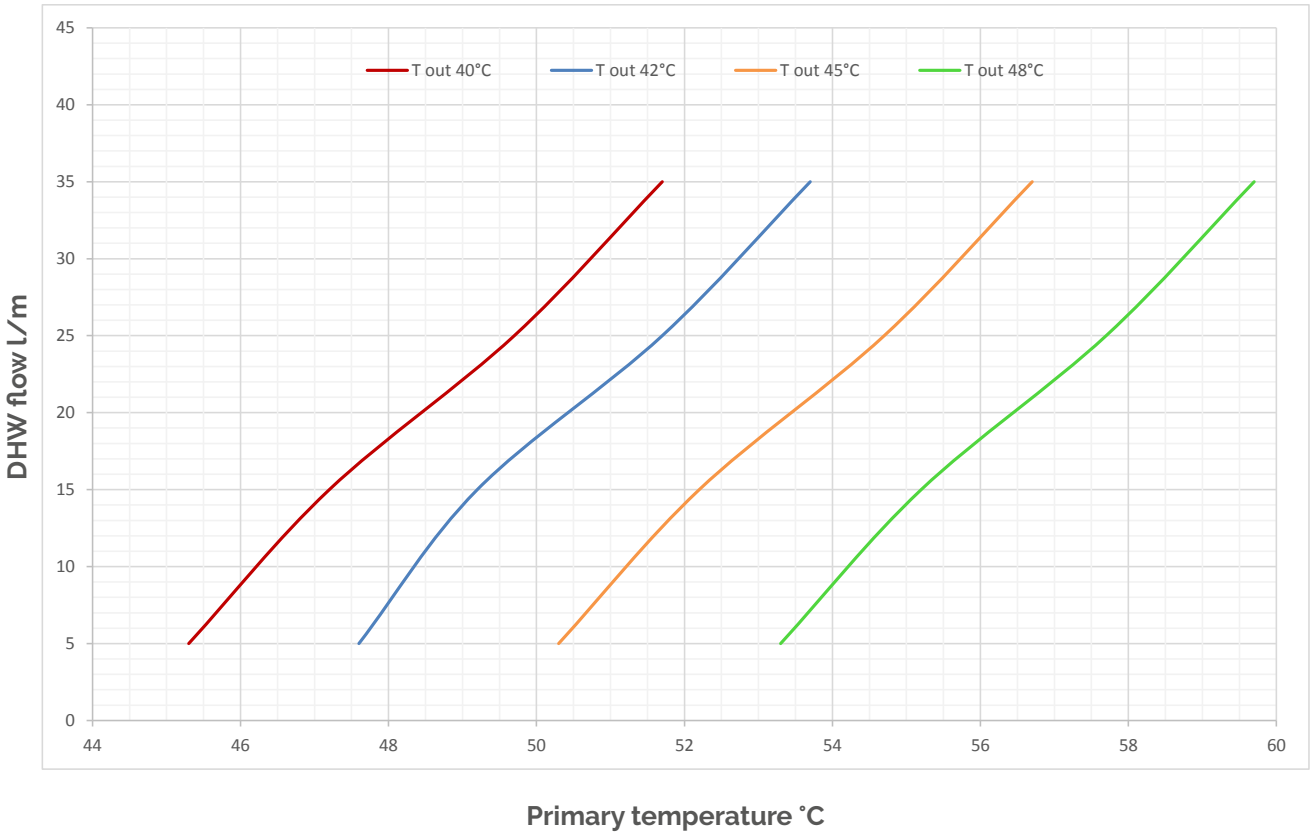
Technical information

		AQUAMATIC			AQUAMATIC PLUS		AQUAMATIC SOLAR	
		200	300	500	300	500	300	500
Electrical supply	V/Ph/Hz	230/1/50			230/1/50		230/1/50	
Absorbed power min/max	W	25/75			25/75		27/127	
Absorbed current min/max	A	0,14/0,53			0,14/0,53		0,18/1,05	
Min DHW flow rate at start-up	l/min	2			2		2	
Max DHW flow rate	l/min	35			35		35	
Max operating pressure primary circuit	bar	6			6		6	
Max operating pressure DHW circuit	bar	10			10		10	
Max operating temperature	°C	95			95		95	
Capacity of the tank	l	199	290	480	290	480	290	480
Deliverable flow rate*	l/m	18,5	18,5	18,5	18,5	18,5	18,5	18,5
Deliverable litres*	l	153	214	337	214	337	214	337
Empty weight	kg	75	89	116	96	131	101	136
Integr. Heat Exchanger Surf.	m^2	-	-	-	1,4	1,9	1,4	1,9
Sound pressure at 1 m	dB(A)	25			25		25	
Heat loss **	W	59	68	80	68	80	68	80
Energy class		B	B	B	B	B	B	B
Electronic regulation of the pump velocity		●			●		●	
Graphic display		●			●		●	
Settings for DHW temperature		●			●		●	
Possibility to set antilegionella treatments		●			●		●	

*Working conditions in accordance with EN 16417 (DHW 42°C, tank 50°C)
**Working conditions in accordance with UE N. 812/2013 and N.814/2013 (ambient air 20°C, tank 65°C)

Performance AQUAMATIC

Quantity of domestic water produced in l/m with different storage temperatures and different outlet temperatures

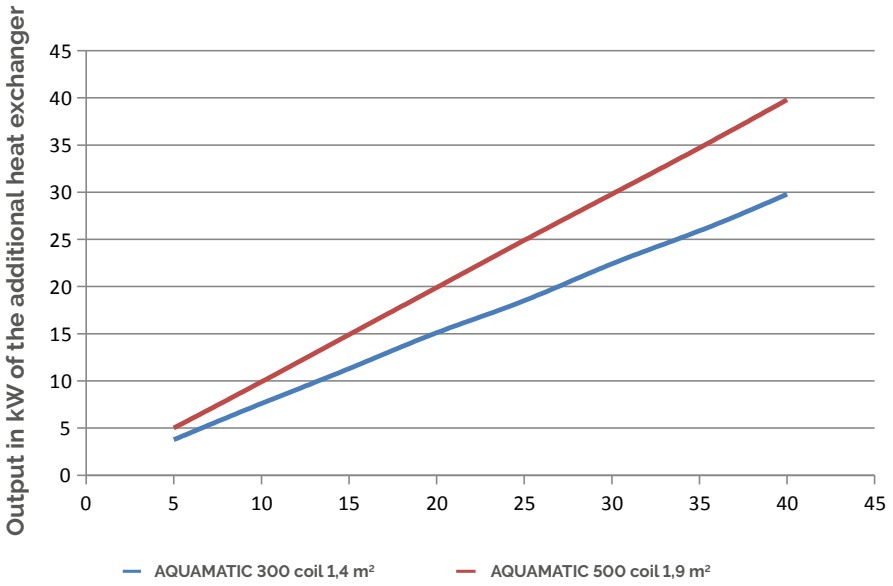


Deliverable DHW flow in function of the storage temperature fluctuations and the various outlet temperatures (can be set as setpoint for domestic hot water)
Inlet temperature domestic 10°C

For example, if Taccumulo =52°C
And TDHW =45°C, the AQUAMATIC guarantees a flow of approximately 14 l/min
And TDHW = 42°C, the AQUAMATIC guarantees a flow of approximately 26 l/min

Performance AQUAMATIC

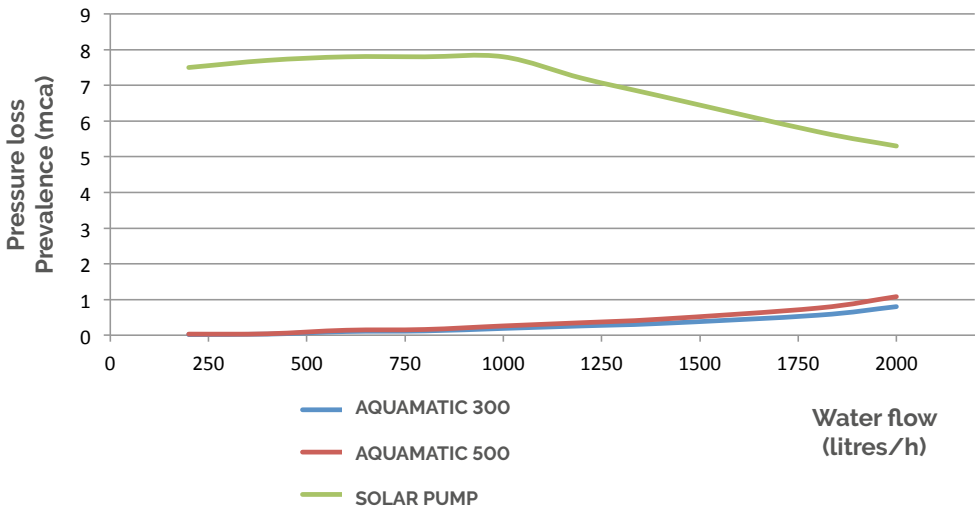
Output in kW of the additional heat exchanger in fucntion of the variation of the value ΔT between the temperature of the integrative source and the storage temperatore.
Only for AQUAMATIC PLUS and AQUAMATIC SOLAR.



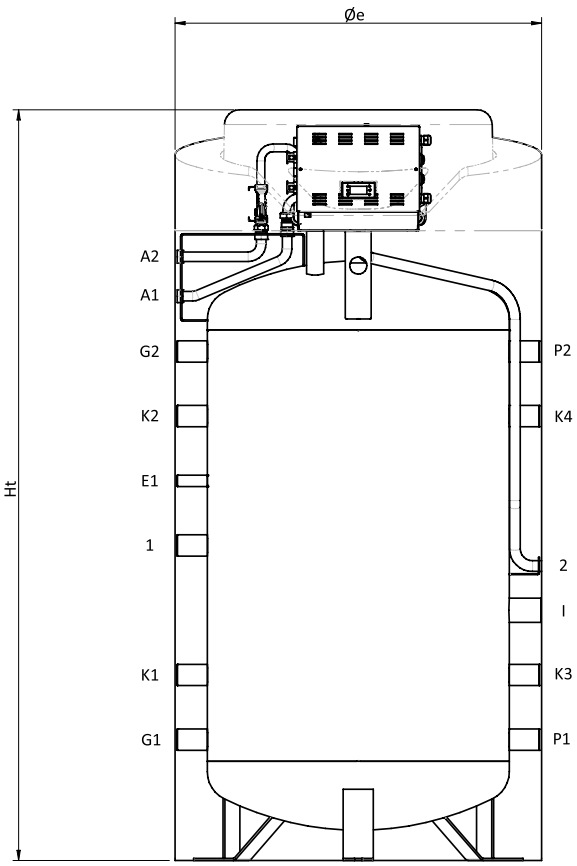
For example, if Taverage in tank = 30°C
Suppose the integrative coil is supplied with water at a temperature of 60°C (inlet) and that water cools to 40°C (outlet).
We can consider an average temperature on the integrative circuit of 50°C.
As such, we can refer to an indicative average DT of 50-30 = 20 K
In this case the performance of the additional heat exchangers would be:
AQUAMATIC 300: 15 kW on average
AQUAMATIC 500: 20 kW on average

ΔT : temperature difference between the average temperatures in the primary circuit (coil) and secondary circuit (tank).

Pressure loss in integrative coils and characteristic graphic of solar circulator



Dimensions Aquamatic



Couplings legend

A1	DHW inlet
A2	DHW outlet
E1	Service/inlet probe
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary circuit outlet
K2	Auxiliary circuit inlet
K3	Auxiliary system inlet
K4	Auxiliary system outlet
P1	To energy source
P2	From energy source
1	Coupling kit with deviation valve for stratification
2	Inlet resistor cable

Insulation

Capacity (l)	Type	Thick. (mm)
from 200 to 500	High density rigid polyurethane foam	70

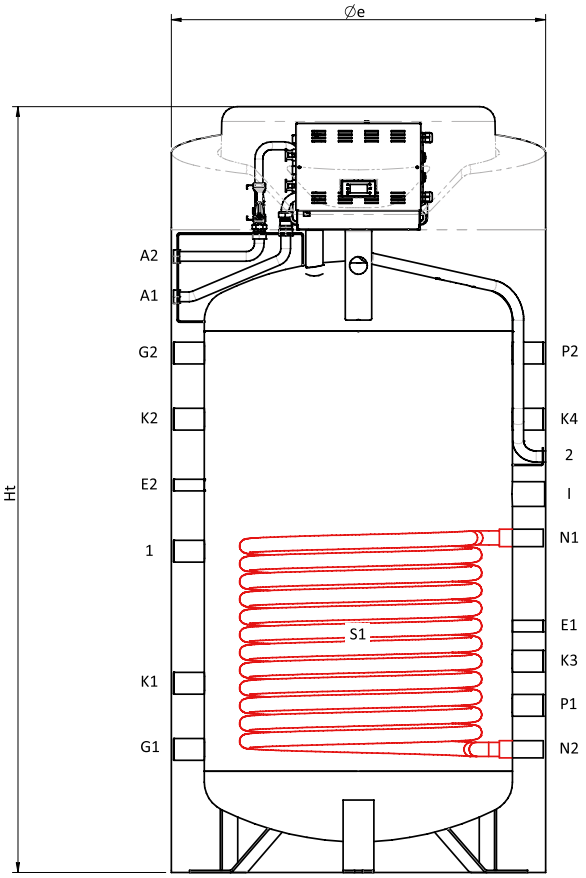
Couplings chart

Cap. l	A1 inch	A2 inch	E1 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	1 inch	2
200	3/4"	3/4"	1/2"	1"	1"	1"1/2	-	-	-	-	1"	1"	1"	Case Ø20
300	3/4"	3/4"	1/2"	1"	1"	1"1/2	-	-	-	-	1"	1"	1"	Case Ø20
500	3/4"	3/4"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	Case Ø20

Size chart

Cap. l	Øe mm	Ht mm	A1 mm	A2 mm	E1 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm	1 mm	2 mm
200	710	1315	915	970	629	255	780	405	-	-	-	-	225	780	518	525
300	710	1690	1190	1345	975	255	1145	405	-	-	-	-	225	1145	705	525
500	850	1740	1340	1395	880	280	1180	580	430	1030	430	1030	280	1180	730	683

Dimensions AQUAMATIC Plus



Couplings legend

A1	DHW inlet
A2	DHW outlet
E1	Service/inlet probe
E2	Service/inlet probe
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary circuit outlet
K2	Auxiliary circuit inlet
K3	Auxiliary system inlet
K4	Auxiliary system outlet
N1	Solar exchanger inlet
N2	Solar exchanger outlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
1	Coupling kit with deviation valve for stratification
2	Inlet resistor cable

Insulation

Capacity (l)	Type	Thick. (mm)
from 300 to 500	High density rigid polyurethane foam	70

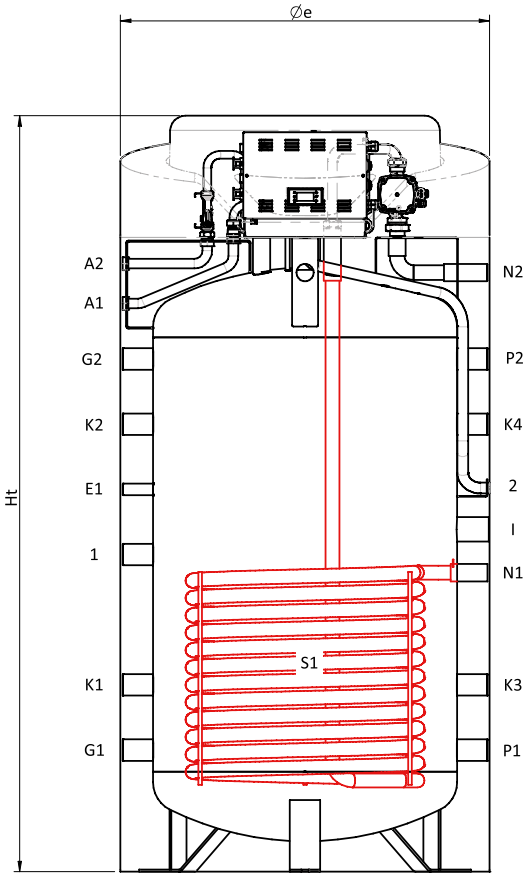
Couplings chart

Cap. l	A1 inch	A2 inch	E1 inch	E2 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	1 inch	2
300	3/4"	3/4"	1/2"	1/2"	1"	1"	1"1/2	-	-	-	-	3/4"	3/4"	1"	1"	1"	Case Ø20
500	3/4"	3/4"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	3/4"	3/4"	1"1/4	1"1/4	1"1/4	Case Ø20

Size chart

Cap. l	Øe mm	Ht mm	A1 mm	A2 mm	E1 mm	E2 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	1 mm	2 mm
300	710	1690	1290	1345	465	1005	355	1155	785	-	-	-	-	675	255	225	1155	705	905
500	850	1740	1340	1395	560	880	380	1180	860	430	1030	480	1030	760	280	280	1180	730	945

Dimensions AQUAMATIC Solar



Couplings legend

A1	DHW inlet
A2	DHW outlet
E1	Service/inlet probe
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary circuit outlet
K2	Auxiliary circuit inlet
K3	Auxiliary system inlet
K4	Auxiliary system outlet
N1	Solar exchanger inlet
N2	Solar exchanger outlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
1	Coupling kit with deviation valve for stratification
2	Inlet resistor cable

Insulation

Capacity (l)	Type	Thick. (mm)
from 300 to 500	High density rigid polyurethane foam	70

Couplings chart

Cap. l	A1 inch	A2 inch	E1 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	1 inch	2
300	3/4"	3/4"	1/2"	1"	1"	1"1/2	-	-	-	-	3/4"	3/4"	1"	1"	1"	Case Ø20
500	3/4"	3/4"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	3/4"	3/4"	1"1/4	1"1/4	1"1/4	Case Ø20

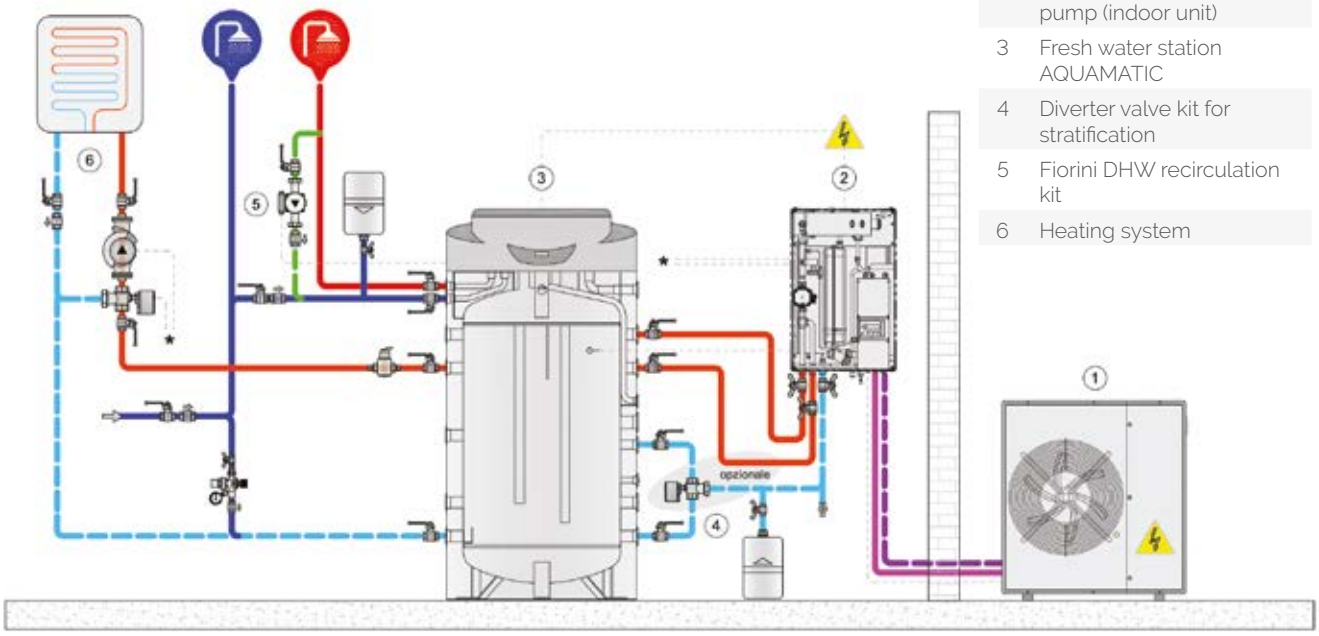
Size chart

Cap. l	Øe mm	Ht mm	A1 mm	A2 mm	E1 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	1 mm	2 mm
300	710	1690	1290	1345	1005	255	1155	695	-	-	-	-	584	1329	225	1155	705	815
500	850	1740	1340	1395	880	280	1180	788	430	1030	430	1030	688	1379	280	1180	730	883

Installation chart AQUAMATIC

Legend

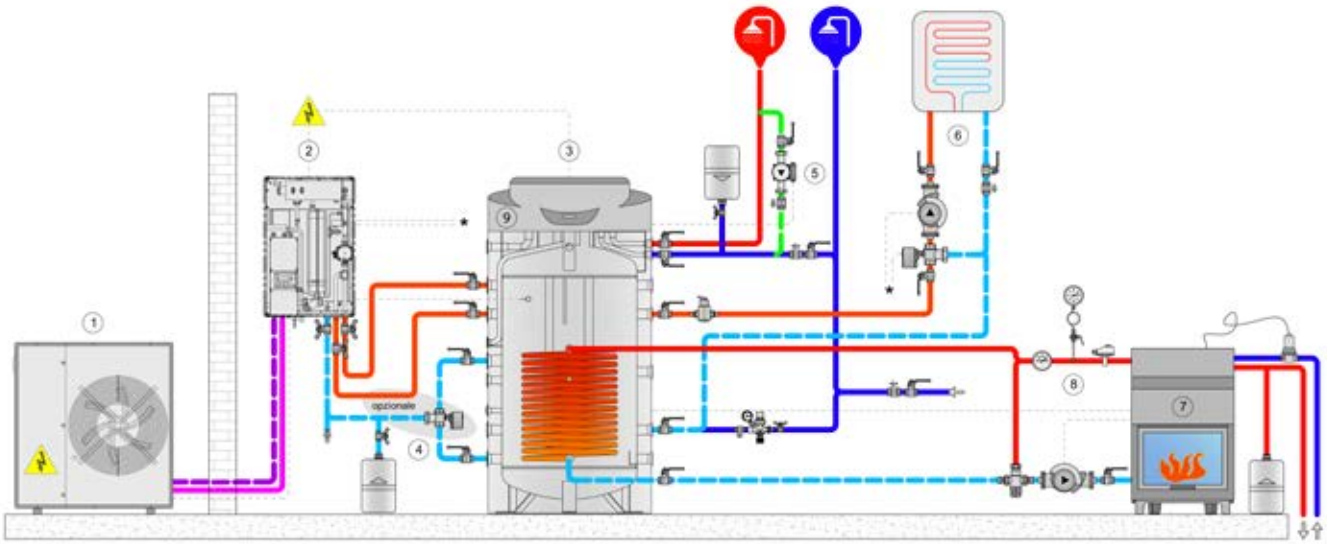
1	IDEA FLEX Galileus heat pump (outdoor unit)
2	IDEA FLEX Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC
4	Diverter valve kit for stratification
5	Fiorini DHW recirculation kit
6	Heating system



Installation chart AQUAMATIC Plus Example 1 (Heating fireplace / stove)

Legend

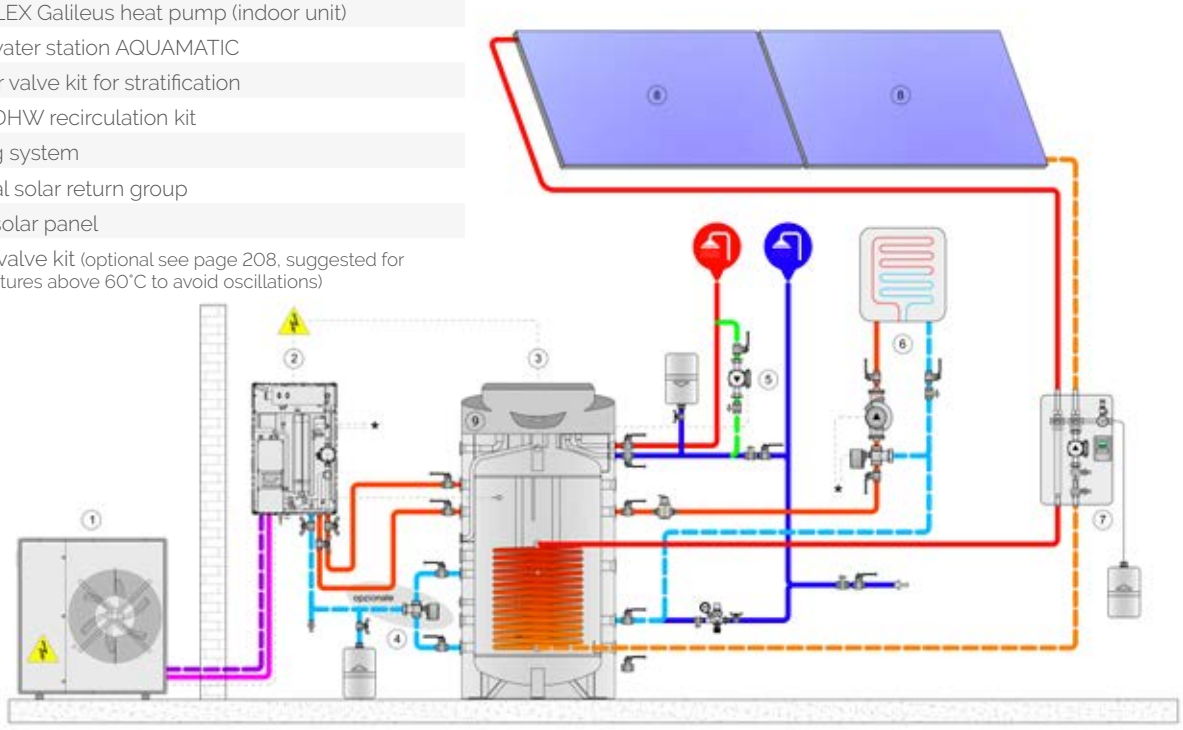
1	IDEA FLEX Galileus heat pump (outdoor unit)
2	IDEA FLEX Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC PLUS
4	Diverter valve kit for stratification
5	Fiorini DHW recirculation kit
6	Heating system
7	Heating fireplace / stove
8	Plant components for biomass generators
9	Mixing valve kit (optional see page 208, suggested for temperatures above 60°C to avoid oscillations)



Installation chart AQUAMATIC Plus Example 2 (Thermal solar)

Legend

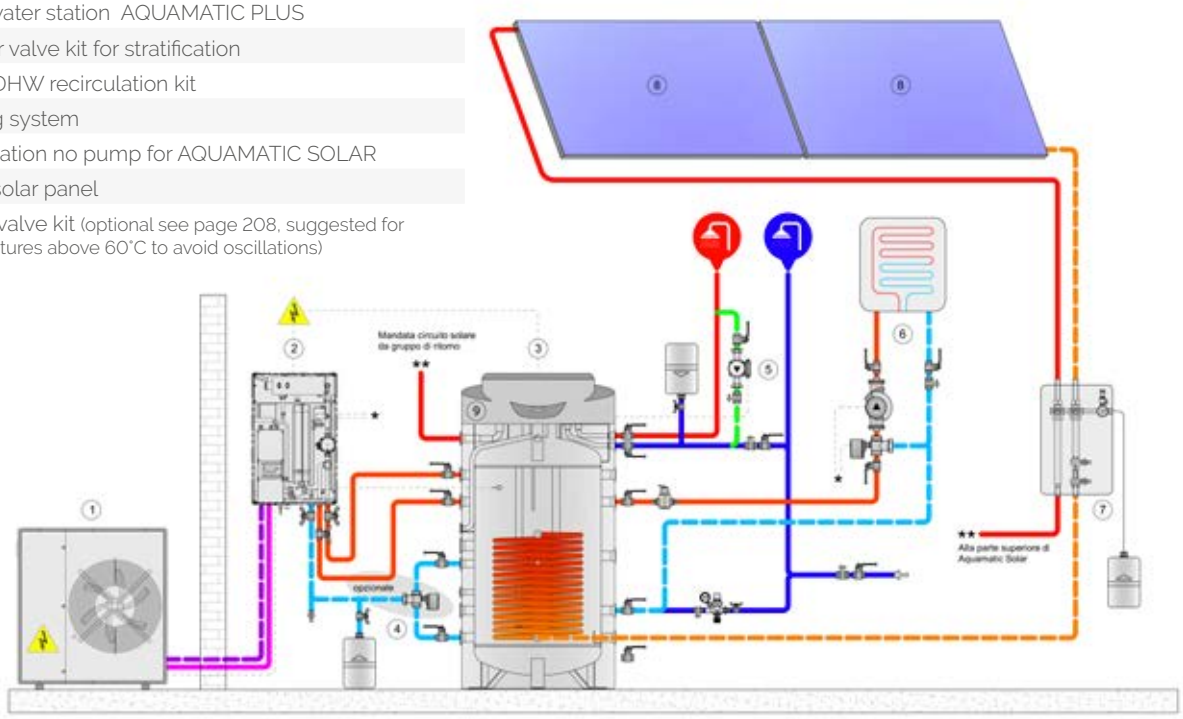
1	IDEA FLEX Galileus heat pump (outdoor unit)
2	IDEA FLEX Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC
4	Diverter valve kit for stratification
5	Fiorini DHW recirculation kit
6	Heating system
7	Thermal solar return group
8	Fiorini solar panel
9	Mixing valve kit (optional see page 208, suggested for temperatures above 60°C to avoid oscillations)



Installation chart AQUAMATIC Solar

Legend

1	IDEA FLEX Galileus heat pump (outdoor unit)
2	IDEA FLEX Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC PLUS
4	Diverter valve kit for stratification
5	Fiorini DHW recirculation kit
6	Heating system
7	Solar station no pump for AQUAMATIC SOLAR
8	Fiorini solar panel
9	Mixing valve kit (optional see page 208, suggested for temperatures above 60°C to avoid oscillations)



Standard Accessories AQUAMATIC

Several kits with accessories that can be connected to the AQUAMATIC are available.
Some of those can be supplied already assembled in our factory.

Kit Electrical Resistor

The kit with an electrical resistor (integrated) guarantees the a constant storage temperature, even in case of insufficient energy supply by the primary heat source. The resistor can be managed directly by the AQUAMATIC control unit, simply by activating it through the display.

The kit can be assembled in our factory or supplied after delivery.

It contains:
✔ 1200 W single-phased 230 V electrical resistor with regulation thermostate
✔ fuses and wiring for integration in the electrical switchboard

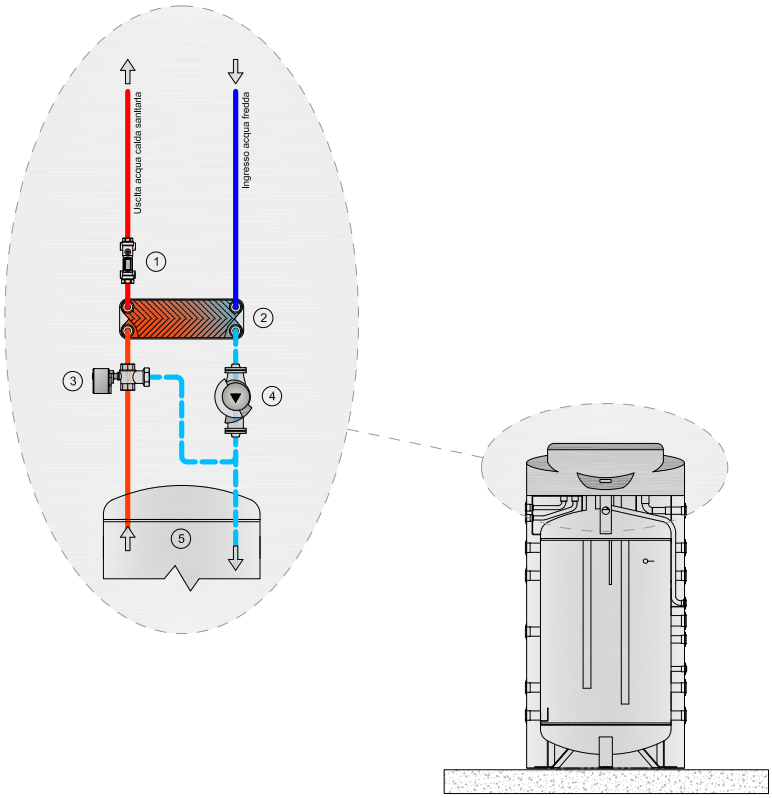
NB The AQUAMATIC has a small channel through the insulation of the tank in order to pass the cable for connecting the resistor to the electronic switchboard.

Kit mixing valve on primary circuit

The kit with mixing valve (integrated) makes it possible to regulate the inlet temperature of the domestic heat exchanger. In this way, especially in installations that can reach high temperatures in the primary circuit, the precision of the regulation of the production unit improves. This leads to a larger comfort and reduces the chalk formation in the domestic circuit. We recommend the use of this device when the temperature in the primary circuit teaches values higher than 60°C.

The kit can either be pre-assembled in our factory or supplied later on.

It contains:
✔ DN20 three way mixing valve
✔ Servo drive 24Vac/dc Signal 0.10 V
✔ kit with tubes for installing the kit to the top part of the AQUAMATIC
✔ temperature probe
✔ Pre-cabled gudgeon pin for connection to the electric switchboard



Legend

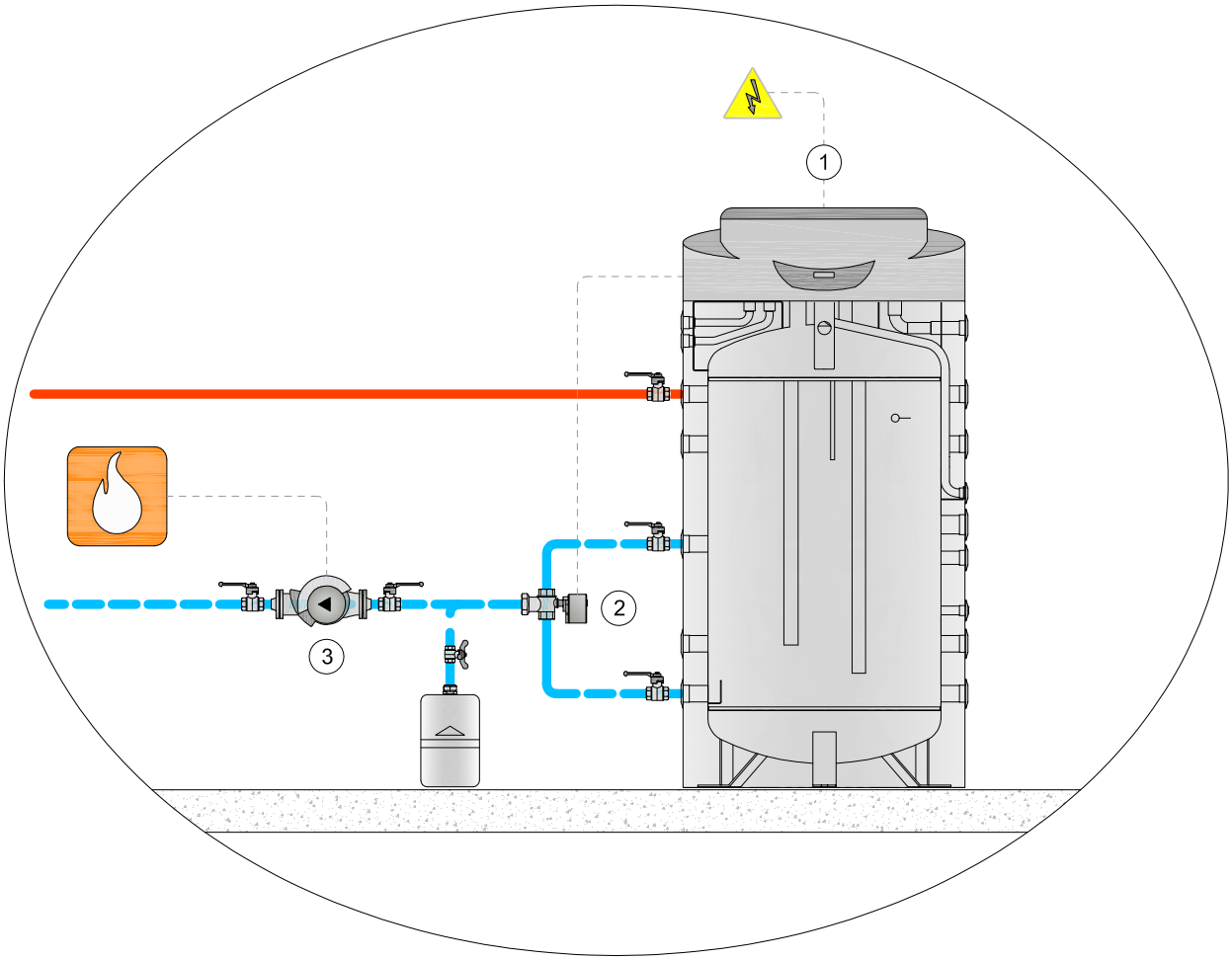
1	Flowmeter
2	Domestic plate heat exchanger
3	Primary mixing valve
4	Pump
5	Tank

Kit External deviation valve for stratification

The kit with external deviation valve makes it possible to take the water for the return to the heat pump from the lower parts of the tanks instead of the middle in function of the temperature difference between the two zones in the tank.
In this way the temperature of the water that returns to the heat pump makes it possible to produce hot water at a higher temperature than the storage temperature. This maximizes the efficiency of the entire heating installation.

N.B. In case of connection in series, you should provide a deviation valve kit for every AQUAMATIC.

Contains:
✔ DN32 three-way valve
✔ On/off servo drive 230V

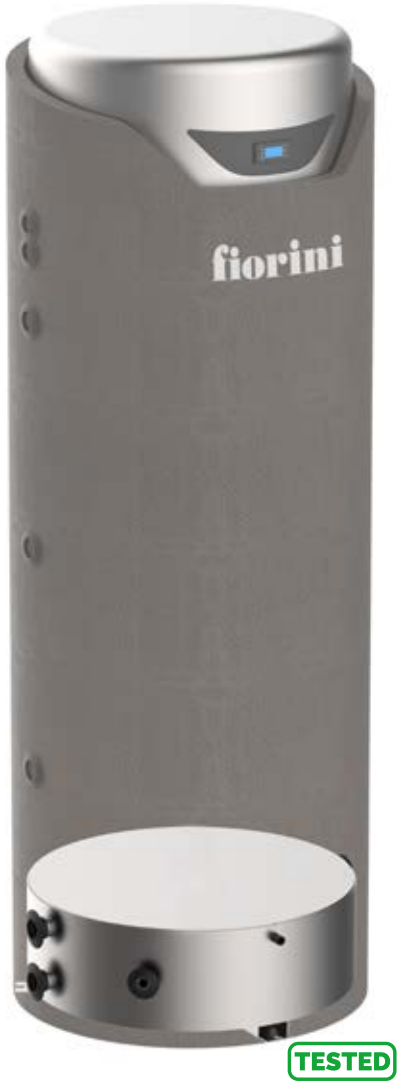


Legend

1	AQUAMATIC (all versions)
2	Kit External deviation valve for stratification
3	Pump AQUAMATIC (system)

Accessory – storage tank for installation

A tank that can be put onder the AQUAMATIC when you need an inertial flywheel dedicated exclusively to the heating installation of cool water installation. Reccommended in all case in which you have a heat pump as thermal source. Its installation makes it possible for the heat pump to operate at a low temperature when it has to reach the thermal demand of the installation. In this way the operation at high temperature is limited to the production of domestic hot water. Moreover, the tank serves as a thermal flywheel in summer mode in order to guarantee an optimal modulation of the heat pump.



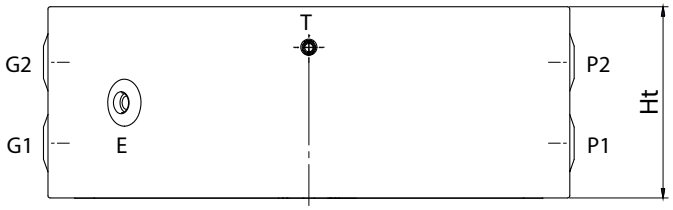
TESTED

✔ Energetic efficiency
✔ Easy installation
✔ Does not take a lot of space
✔ Same design as the AQUAMATIC

In carbon steel without internal treatments of the surface area, insulated with 30 mm thick rigid polyurethane, externally covered in thick coloured PVC. Two available capacities in function of the size of the selected AQUAMATIC. Supplied with manual air vent valve and coupling for probe pit.

✔ **Material:** carbon steel
✔ **insulation:** 30 mm thick rigid foam
✔ **external covering:** coloured PVC

User limitations
Min temperature -10 °C
Max temperature 95 °C
Max pressure 3 bar



Couplings legend

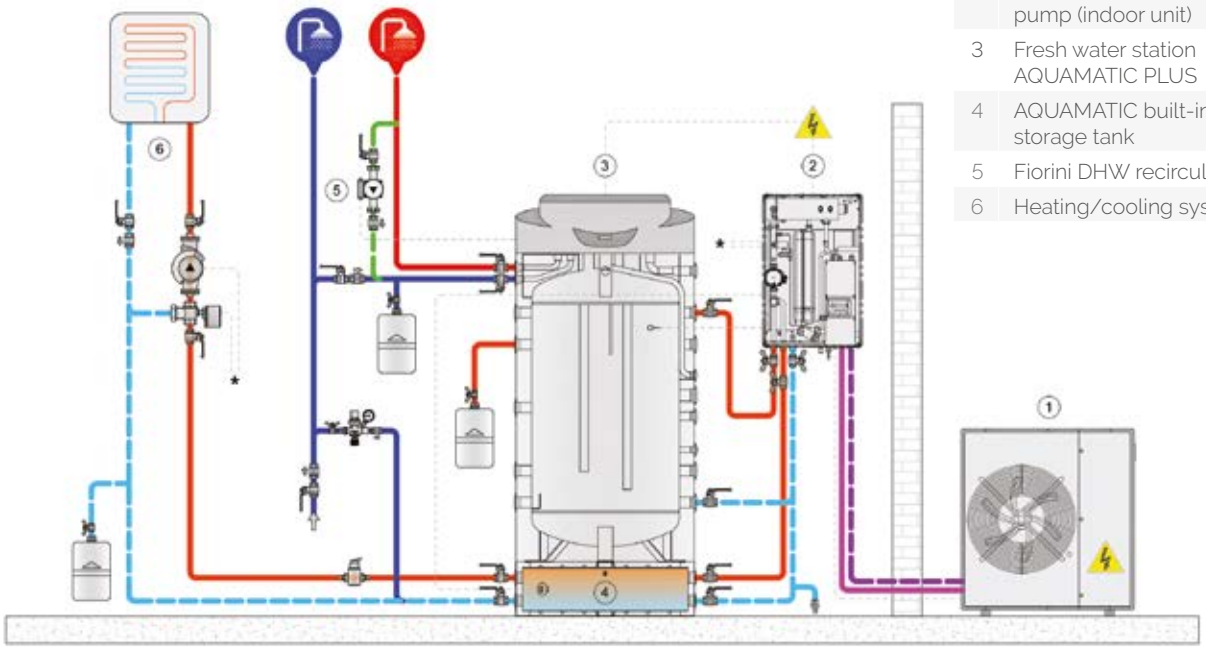
P1	To energy source
P2	From energy source
E	Probe
G1	From plant
G2	To plant
T	Vent

Chart with dimensions and couplings

Cod.	capacity l	Øe mm	Ht mm	P1 mm	P2 mm	G1 mm	G2 mm	E mm	T mm	P1 inch	P2 inch	E inch	G1 inch	G2 inch	T inch
817010158X	66	710	260	75	185	75	185	130	205	1"	1"	1/2"	1"	1"	1/4"
817010159X	93	850	260	75	185	75	185	130	205	1"1/4	1"1/4	1/2"	1"1/4	1"1/4	1"1/4

Installation chart accessory

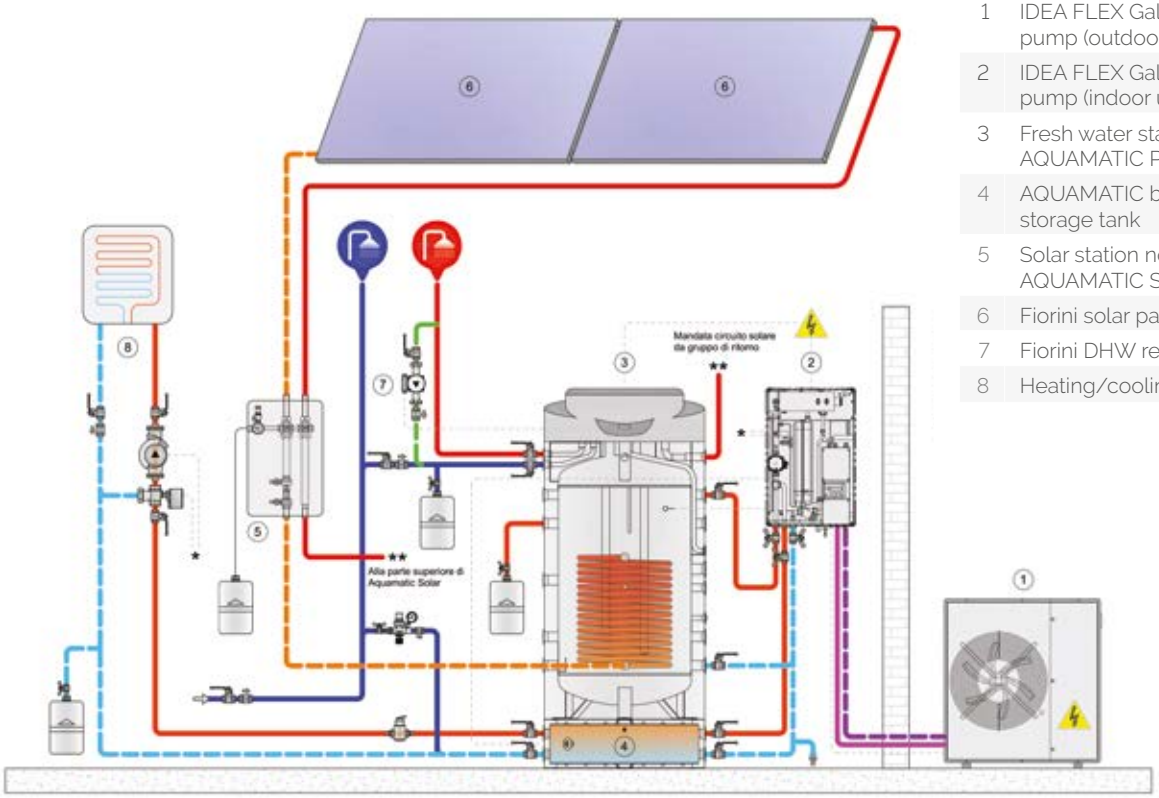
Accessory Storage with AQUAMATIC (1 source)



Legend

1	IDEA FLEX Galileus heat pump (outdoor unit)
2	IDEA FLEX Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC PLUS
4	AQUAMATIC built-in-storage tank
5	Fiorini DHW recirculation kit
6	Heating/cooling system

Accessory Storage with AQUAMATIC SOLAR



Legend

1	IDEA FLEX Galileus heat pump (outdoor unit)
2	IDEA FLEX Galileus heat pump (indoor unit)
3	Fresh water station AQUAMATIC PLUS
4	AQUAMATIC built-in-storage tank
5	Solar station no pump for AQUAMATIC SOLAR
6	Fiorini solar panel
7	Fiorini DHW recirculation kit
8	Heating/cooling system

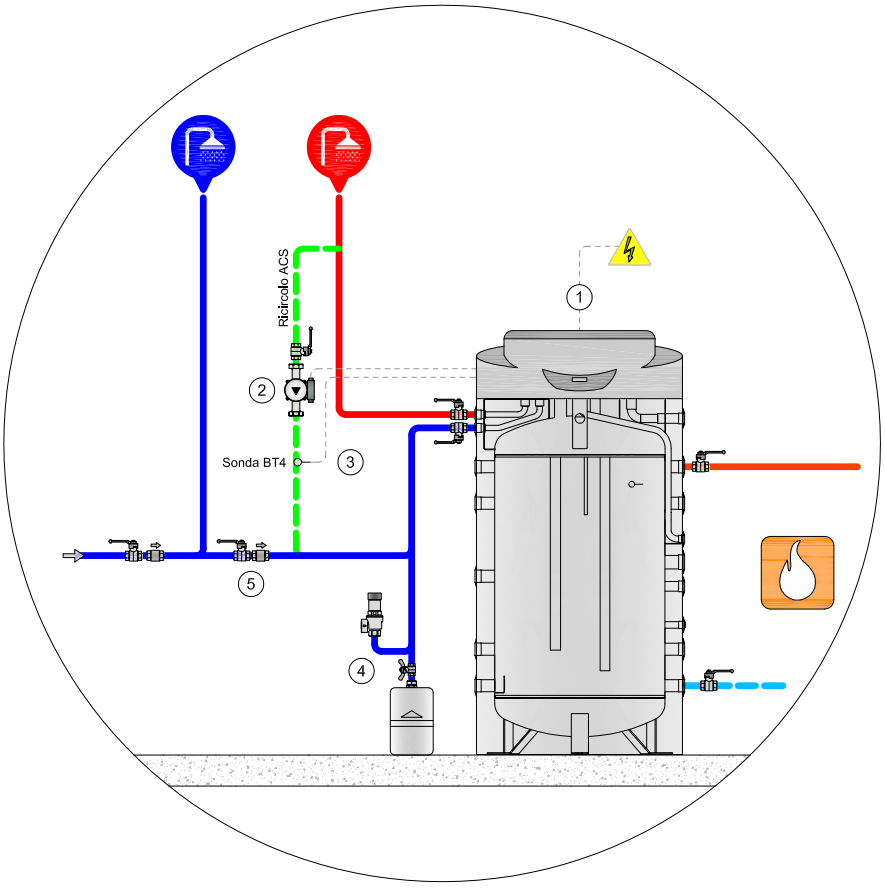
Recirculation kit

The recirculation kit makes it possible to check the pump of the domestic recirculation circuit (circulator not supplied). Possible settings:

✔ Programming the recirculation in time slots
✔ Programming the recirculation based on the temperature of the recirculation ring.
✔ Programming the recirculation based on a combinations of the two above-mentioned settings
✔ Recirculation pump always running.
The kit is supplied separately and not assembled.

It contains:
✔ Temperature probe to be put on the recirculation ring
✔ Instructions

Recirculation pump
The recirculation pump is not supplied with the kit because the device has to be selected based on the specifics of the installation. However, because it is controlled by the regulator of the AQUAMATIC group, it has to have the following features
✔ Power supply 230V/50hz/1ph
✔ Max absorption 200 W



Legend

1	AQUAMATIC (all versions)
2	Recirculation pump (not included)
3	NTC temprature probe
4	Safety group
5	Non-return valve

Kit serial port RS485 Modbus

Makes it possible to communicate with the supervision systems through the Modbus protocol

Kit web (remote control)

Makes it possible to check and monitor the device via internet

Solar unit without pump for AQUAMATIC SOLAR

Solar unit with double tube to couple with the AQUAMATIC SOLAR when a pre-assembled solar station is needed that integrates and completes the functions already present in the AQUAMATIC SOLAR.

The solar unit with double tube, completely assembled and tested, consists of:

Return circuit:
✔ Flow meter and regulator with couplings for the filling and emptying of the installation
✔ Ball valve with non-return valve which can be excluded by turning the handle with 45° (useful in the filling phase of the installation)
✔ 6 bar safety valve with manometer Ø50 mm 0-10 bar and drain outlet ¾"F
✔ coupling for expansion vessel ¾"M
✔ Thermometer 0-120°C

Flow circuit:
✔ Ball valve with non-return valve which can be excluded by turning the handle with 45° (useful in the filling phase of the installation)
✔ Thermometer 0-120°C
✔ Brass deaerator with manual vent valve
✔ Connecting hose and coupling

TESTED

Min/max flow	2-12 l/min
Max pressure	6 bar
Max temp	120 °C
Couplings	1" Male
Wheelbase	125 mm
Insulation box	in EPP
Dimensions	277x425x150 mm

Codes and prices for AQUAMATIC accessories

Code	Description	Price
829000209X	Kit resistor	
842030116X	Kit internal primary mixing valve	
842030120X	Kit external deviation valve for stratification	
842030119X	Recirculation kit (pump not included)	
817010158X	Accessory puffer 70 litres AQUAMATIC 200/300	
817010159X	Accessory puffer 90 litres AQUAMATIC 500	
838110069X	Solar station no pump	
452010010	Kit serial port RS485	
452010006	Kit web (remote control)	

SET 2.0 wall-mounted fresh Water Stations

A plug and play system for transferring heat from the technical water storage tank with a programmable control unit and a circulator. The SET 2.0 unit ensures the DHW production with a limited formation of chalk and at a temperature chosen by the user. The heat exchange is carried out by the AISI 316 stainless steel plate heat exchanger in a high performance and hygienic manner. The unit, connected to the water storage tank from which it takes energy, is composed of all necessary parts. Through a control unit with a graphical display the user can monitor the functioning or easily impose user parameters. The heart of the SET 2.0 unit is the special electronic control unit which keeps up the imposed DHW temperature by modulating the flow in the primary circuit.
In this way the following is guaranteed:
✔ max heat drop in the primary circuit in order the optimize the efficiency of the generator (solar thermal power, heat pump, biomass,etc.)
✔ precise and trustworthy management

Thanks to the high efficiency heat exchanger the unit is ideal for installations with heat pumps or solar panels that use water storage tanks for low temperatures (50-55°C)

Plus

✔ temperature management of the hot water
✔ easy and cheap in use
✔ high efficiency circulation pump (in accordance with the 2005-35/CE directive)
and with an electronic control of the number of turns
✔ synoptically graphical display with the indication of the temperatures in the installation and of the power
✔ easy Plug and Play installation
✔ insulated pipe fittings
✔ vessel with a metal structure and thermoform panels for mounting to the wall
✔ possibility to manage the sanitary recirculation pump
✔ two models are available: one with an electronic entry level (S)
and one with electronics with more options (L)

Available accessories see pag. 223

Model	Control unit	Code	Price	Packed	
				Dimensions cm	Weight kg
SET 2.0 - 25	S	842030034X		77x45x39	25
SET 2.0 - 35	S	84203A018X		77x45x39	28
SET 2.0 - 40	S	842030035X		77x45x39	31
SET 2.0 - 25	L	842030090X		77x45x39	25
SET 2.0 - 35	L	84203A024X		77x45x39	28
SET 2.0 - 40	L	842030088X		77x45x39	31

Available versions

Fiorini offers two versions of the SET 2.0 fresh water station. The difference between the two is in the control unit: one version with a limited number of functions (SET 2.0 S) and another version with many functions and control settings (SET 2.0 L).

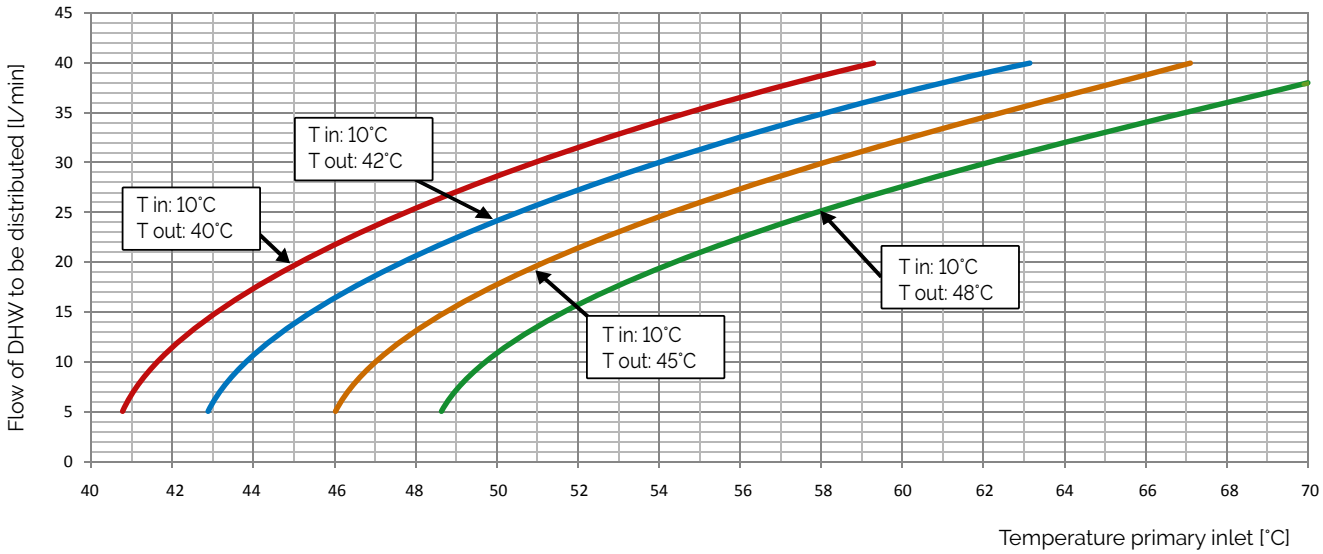
Below the main features of the two units are indicated.

	SET 2.0	
	S	L
Efficient, electronic regulation of the velocity of the pump	✔	✔
Graphical display	✔	✔
Imposing the temperature of the DHW	✔	✔
Imposing the max temperature of the DHW. This is a safety option which stops the unit in case the max value is reached.	✔	✔
Possibility to control the recirculation pump for sanitary purposes by fixing the activation times of the pump and the temperature of the recirculation circuit	✔	✔
*Anti-legionella: carry out anti-legionella treatments through thermal shocks along the DHW adduction line	✔	✔
Solar: control and command the circulator of a solar power device		✔
Management of the heat generator: activate and deactivate a heat generator when the temperature in the tank is below the set point		✔
Management kit in series		✔
Management kit Mixing valve on the primary circuit		✔
Management kit stratification of the tank		✔
*Anti-legionella heating: activation of an integrative heat source when the anti-legionella treatment is carried out		✔
Consumption accounting functions		✔

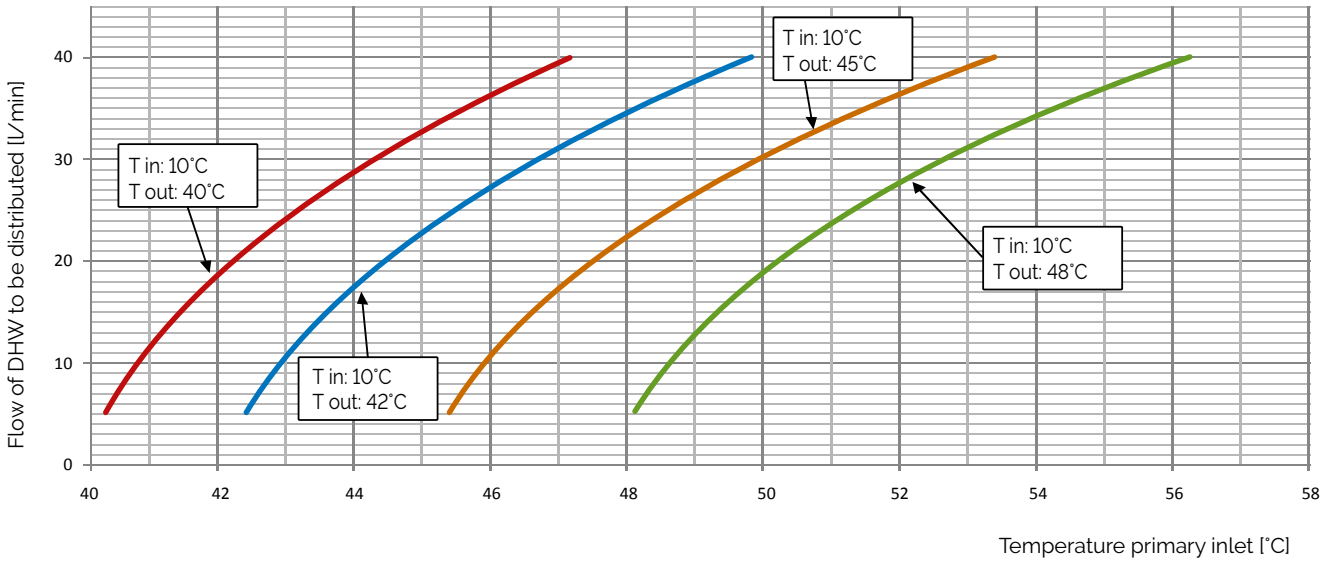
*Anti-legionella function only if available heat soruce greater than 65°C.

SET 2.0 (S and L) thermal performance

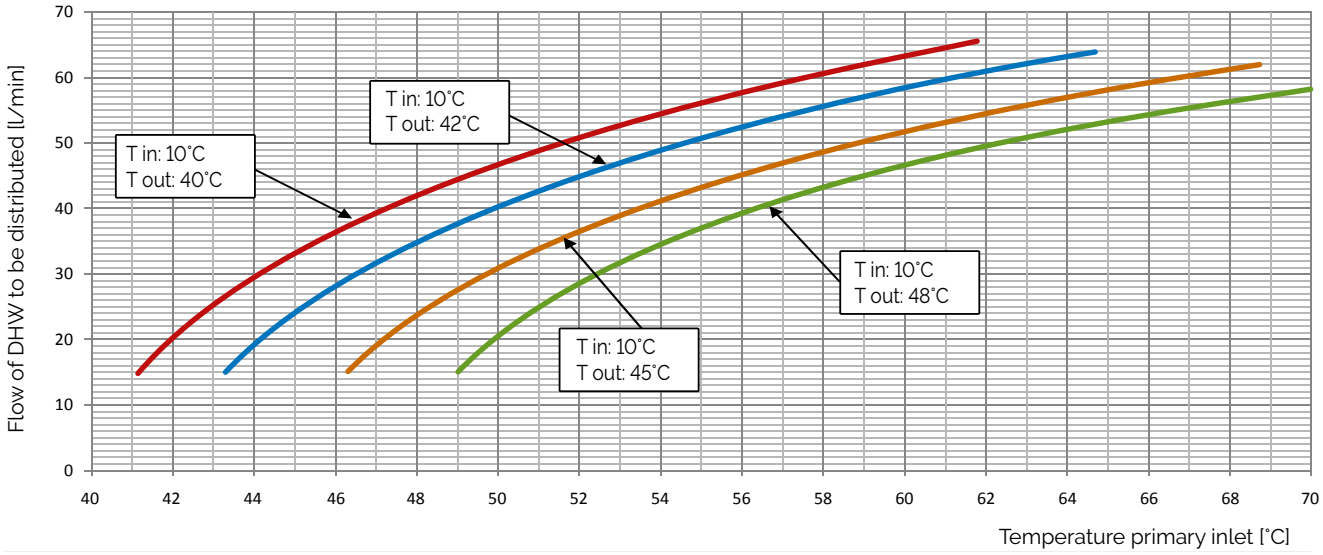
SET 2.0 - 25



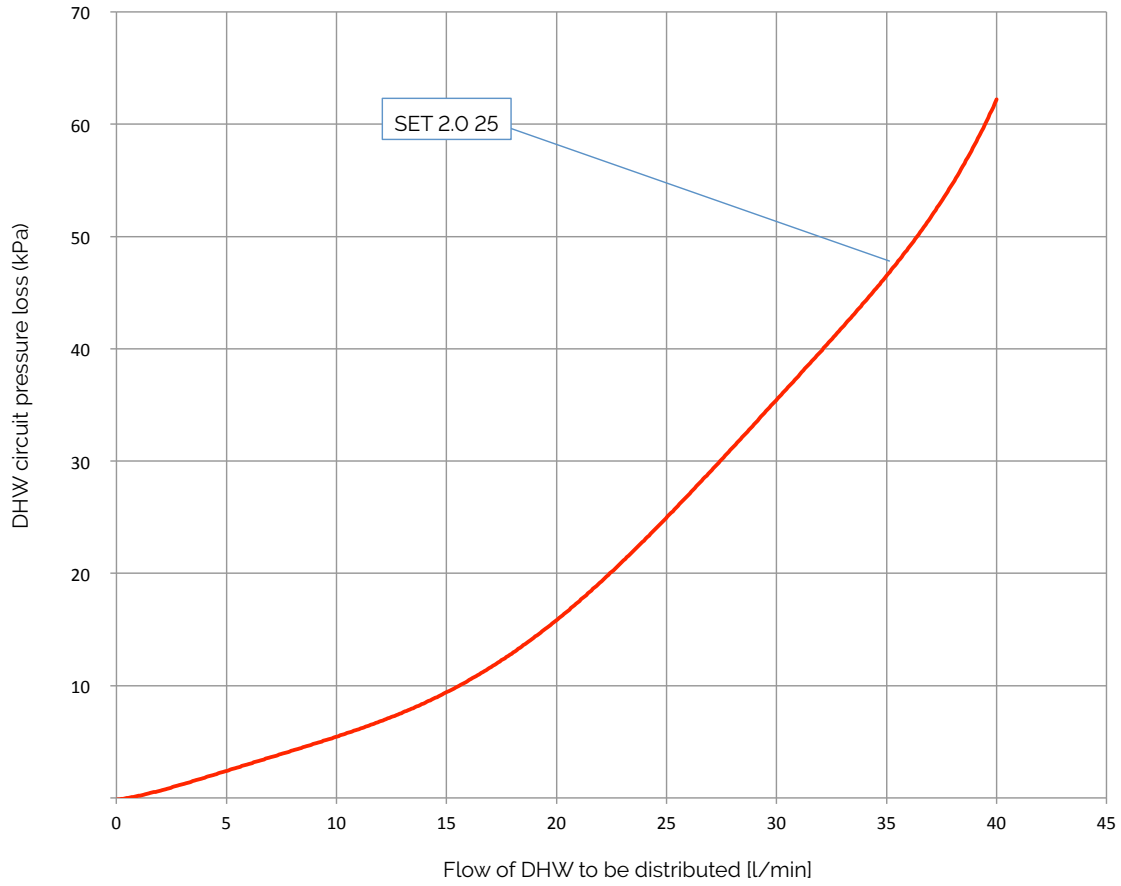
SET 2.0 - 35

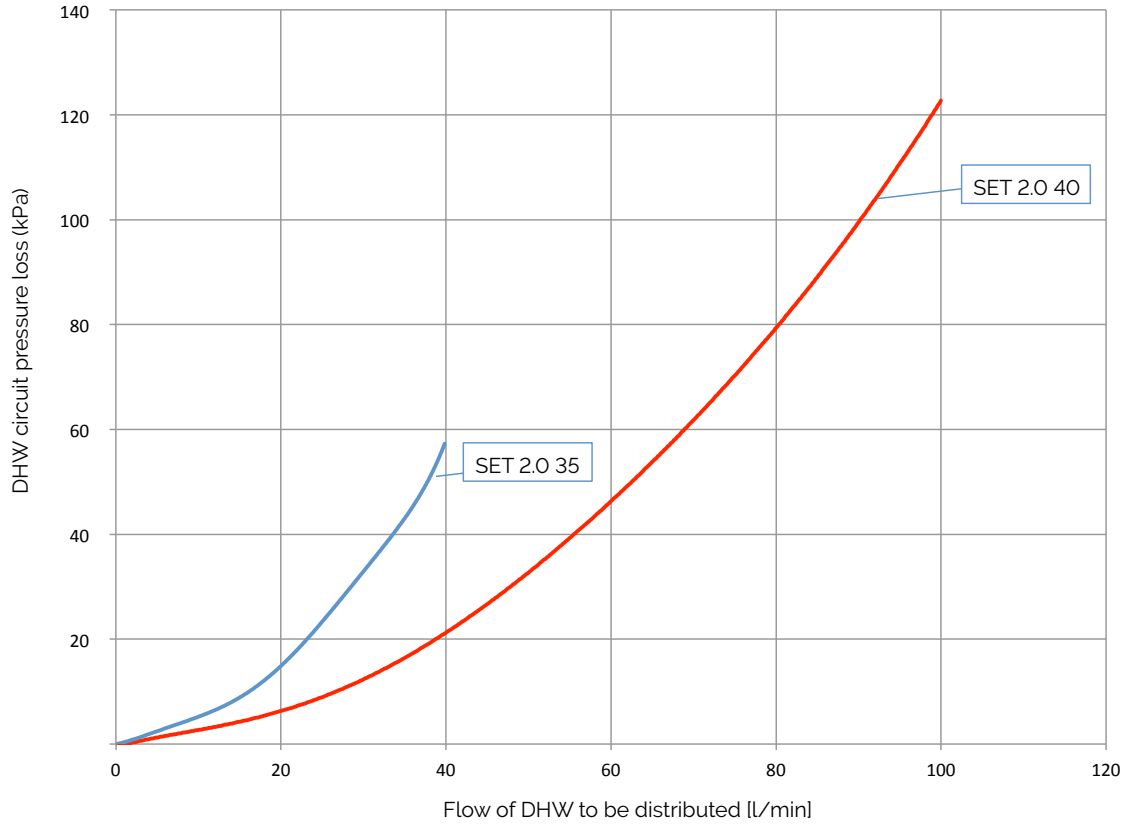


SET 2.0 - 40

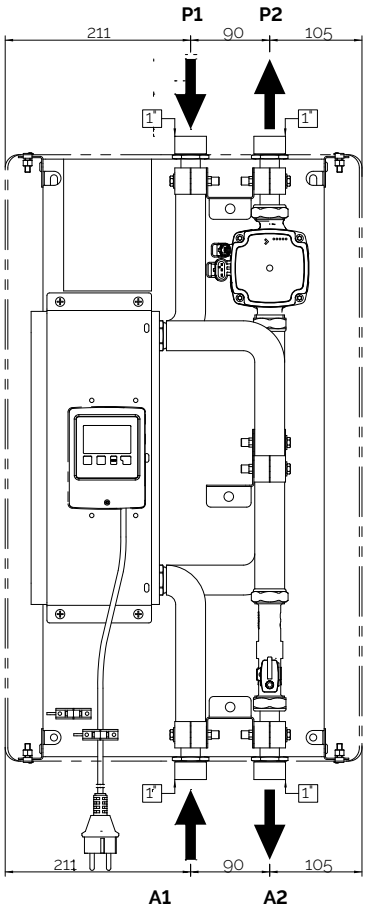


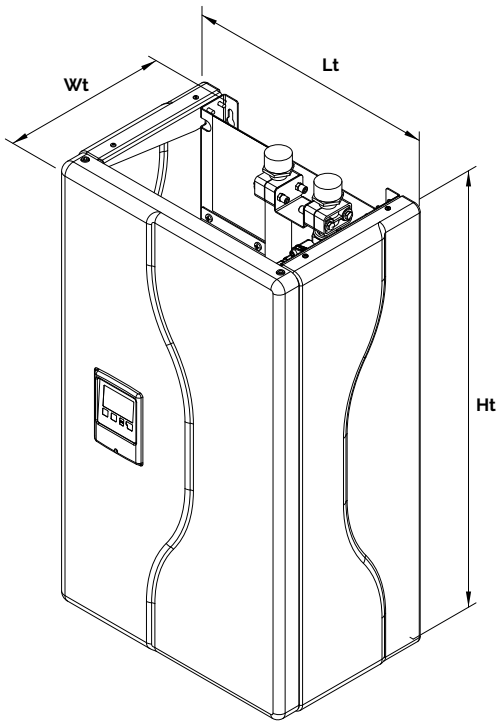
SET 2.0 (S and L) thermal performance





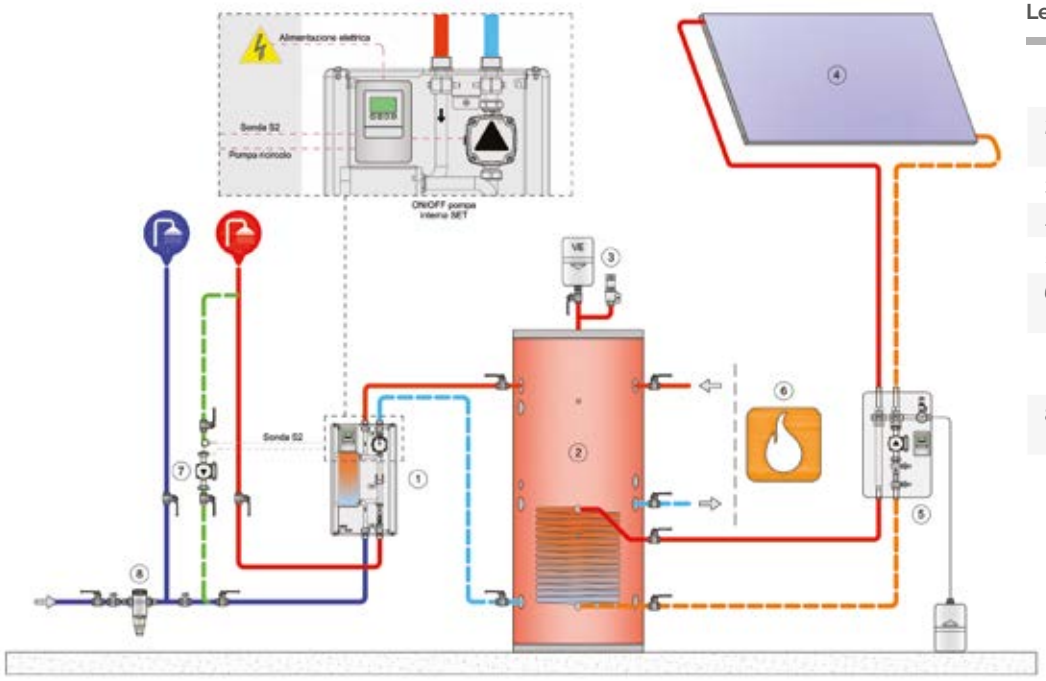
Dimensions





technical information	SET 2.0 (S e L)		
	25	35	40
Electrical supply (V/Ph/Hz)		230/1/50	
Power of primary pump min/max (W)		2/52	
Absorption of primary pump min/max (A)		0.04/0.52	
Max power of the recirculation pump (can be managed from the control unit)(pump not supplied)		460	
Primary flow (l/h)	2000	2800	2800
Residual prevalence of the primary circuit (m.c.a.)	2,0	2,5	1,0
Weight unpacked/packed (kg)	15/22	18/25	20/27
Volume of the primary circuit (l)	1,1	1,62	1,6
Volume of the domestic circuit (l)	0,85	1,75	1,4
Max operating pressure primary circuit (bar)		5	
Max operating pressure DHW circuit (bar)		10	
Couplings primary circuit (inch)		1" GAS M	
Couplings secondary circuit (inch)		1" GAS M	
Max operating temperature (°C)		95	
Category of electrical protection		IP40	
Type of plug (electrical connection)		Schuko 10-16A/250V	
Length of the electric cable (m)		1,5	
Min DHW ignition flow (l/min)	2	2	5
Max DHW flow (l/min)	40	40	100
Size (HtxLtxWt)		690x406x270 mm	

Installation chart
in combination with the water storage tank



Legend

1	SET fresh water station
2	Fiorini PFB water storage tank
3	Safety group
4	Solar panel
5	Thermal solar return
6	Additional heating source
7	DHW recirculation pump
8	Cold water bacteriostatic filter

Equipment

The SET 2.0 fresh water station is delivered in a cardboard box with:
✔ Fresh water station with electric cable with a Schuko plug
✔ Template to facilitate making the holes in the wall for anchoring the fresh water station
✔ Pegs and screws to anchor the fresh water station to the wall

Accessories on request

Several accessory kits are available that can be combined with the SET 2.0 fresh water station. Some can only be coupled with the SET 2.0L. Below you can consult the compatibility chart.

Description	Set 2.0 S	Set 2.0 L	Uscite digitali*
kit to connect the SET in series		✔	1
recirculation kit	✔	✔	1
kit with mixing valve on the primary circuit		✔	2
kit storage tank stratification (with external valve)		✔	1

* The L control unit handles up to 3 digital outputs: check the availability of free outputs and the requirements of the various accessories.

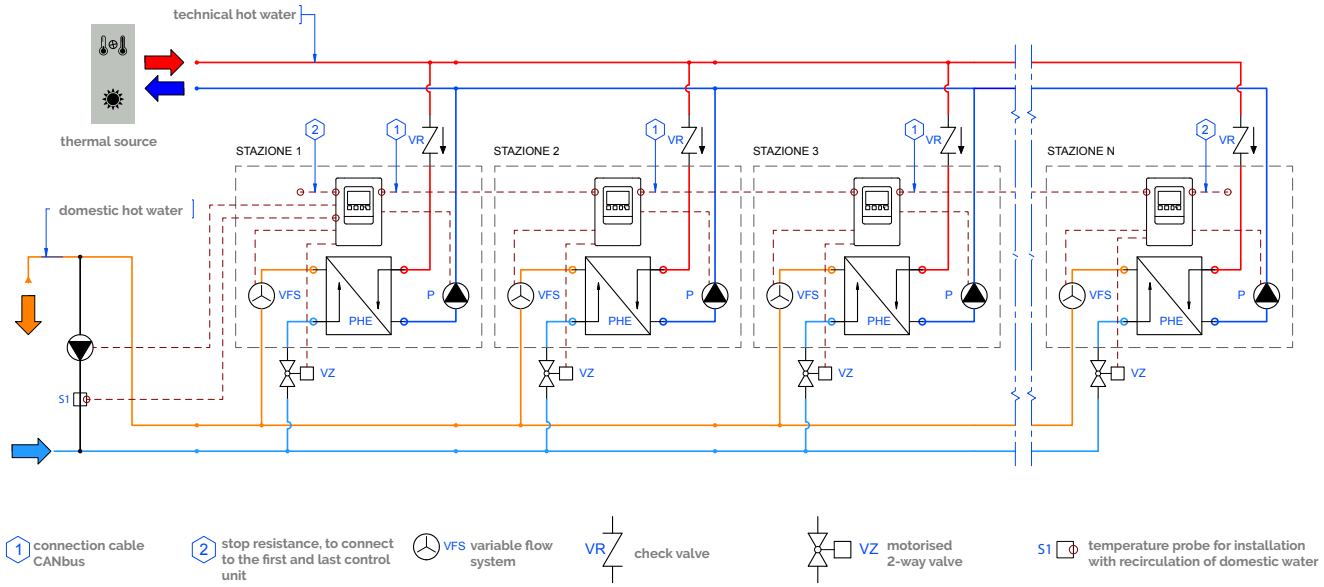
Kit to connect the SET in series

The kit to connect the SET in series is the option for all applications in which the need for Domestic hot water is very variable. In this way it is possible to connect max 8 fresh water stations and ensure a DHW production of min 2 l/m and max 800 l/min*. The electronic control units that are mounted on every fresh water station enables communication between the stations via Modbus (only the L version). As such, the electronics decide how many and which fresh water stations are activated, depending on the user conditions.

Advantages and benefits:

✔ variable DHW production: from 2 to 800 l/min*
✔ trustworthy. Because the control unit carries out diagnoses by itself, in case of malfunctioning of one of the stations, the station is automatically deactivated and another station is activated. In this way the DHW distribution continues.
✔ regulation of the temperature is even more precise. The regulation makes it possible to activate the right number of fresh water stations based on the flow and the temperature of the DHW. In this way, every fresh water station always operates in circumstances that approach the nominal circumstances and the precision and efficiency of the regulation is improved.
✔ The system with the fresh water system in series can be expanded. You can add more units, even after the initial installation.
✔ The programmed maintenance of the fresh water stations can be executed without interrupting the DHW distribution.
✔ every fresh water station operates for an equal number of hours which guarantees a long life span of the system.

Installation chart



Installation of the Kit

Install one kit for every fresh water station. The kit is supplied in parts, non-assembled and is composed of:
✔ one motorized zone valve with a fast 230V motor
✔ one pipe fitting for the coupling
✔ one CanBus cable
✔ the instructions

***** The production by several SET connected in series depends on the temperature in the primary circuit and the DHW production. The flow of DHW to be distributed by the stations connected in series equals the sum of the flow of the fresh water stations indicated in the section hydraulic performance

Recirculation kit

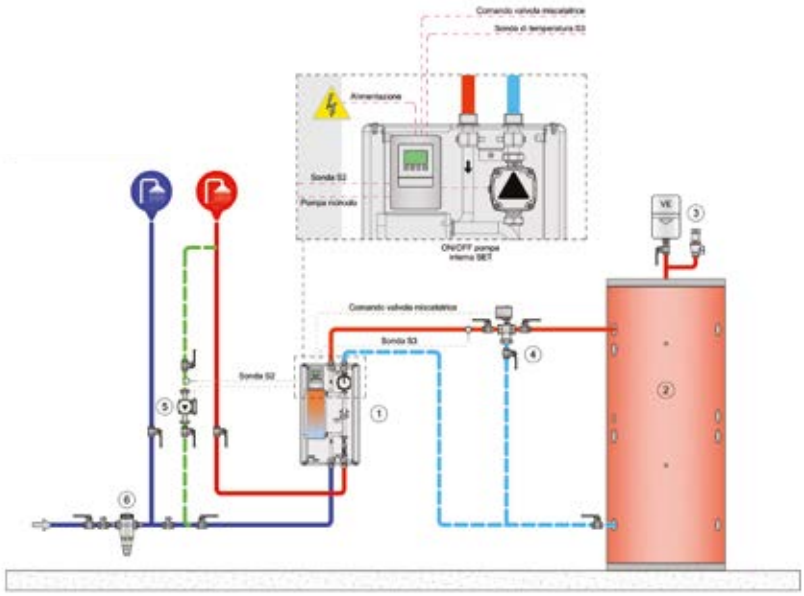
The recirculation kit offers multiple possibilities for the electronic control unit to control the pump of the sanitary recirculation circuit (circulator not supplied).

Possible settings
✔ Programming the recirculation in time slots. The recirculation pump is activated only during the indicated time slots and when the recirculation temperature is below the programmed temperature
✔ recirculation pump is always activated

Composition of the kit
The kit is supplied in parts, non-assembled and is composed of:
✔ temperature probe to be put on the recirculation ring
✔ instructions

Recirculation pump
The recirculation pump is not supplied with the kit because the pump has to be selected on the basis of the specifics of your installation.
However, because the pump is to be controlled by the SET regulator, it has to have the following features
✔ power supply 230V/50hz/1ph
✔ max power 185 W

Kit with mixing valve on the primary circuit



Legend

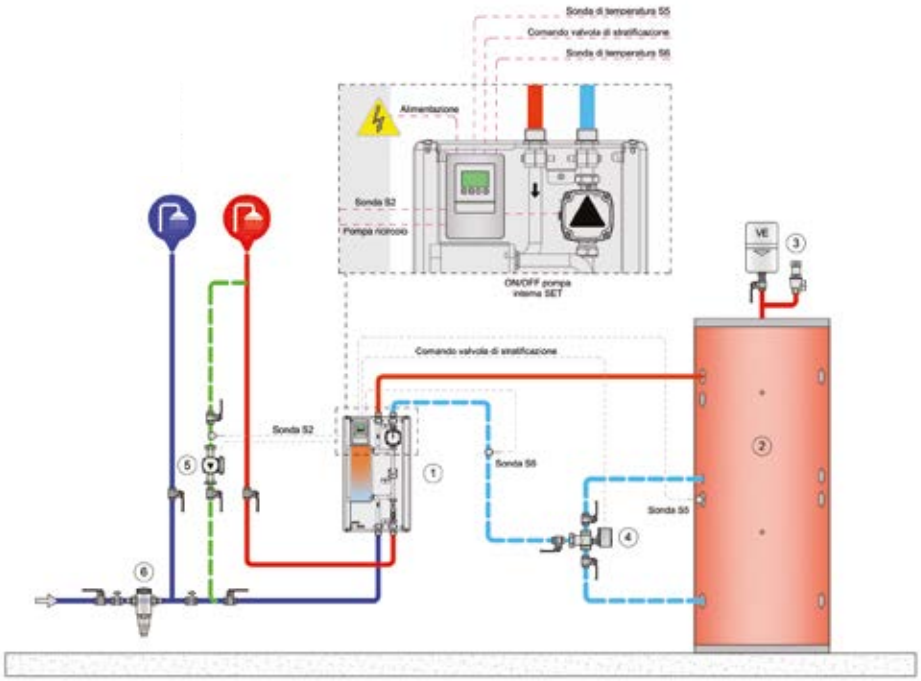
1	SET fresh water station
2	Fiorini water storage tank
3	Safety group
4	Mixing valve
5	DHW recirculation pump
6	Cold water bacteriostatic filter

The kit helps regulate the temperature at the entrance of the fresh water station. In this way, especially in installations that can reach high temperatures in the primary circuit, the precision of the regulation is improved, which guarantees better comfort.

Composition of the kit
The kit is supplied in parts, non-assembled and is composed of:
✔ S3 temperature probe to be placed at the entrance of the exchanger on the primary circuit
✔ instructions
✔ MIxing valve

Kit with stratification valve for the storage tank

The kit makes it possible to direct the return from the fresh water station to the lower part instead of the mid part of the storage tank. Because of this, the stratification phenomenon in the storage tank is favoured and the efficiency of the entire heating system is maximized.



Legend

1	SET fresh water station
2	Fiorini water storage tank
3	Safety group
4	Stratification valve for the storage tank
5	DHW recirculation pump
6	Cold water bacteriostatic filter

Composition of the kit
The kit is supplied in parts, non-assembled and is composed of:
✔ S5 temperature probe to be placed in the middle of the storage tank
✔ S6 temperature probe on the return of the primary circuit
✔ instructions
✔ Stratification valve

Codes and prices for the accessories of SET 2.0 wall-mounted

	External accessories	Digital output*	Price
842030089X	KIT SET 2.0 SERIES	1	
842030099X	Recirculation kit SET 2.0 (NO PUMP)	1	
842030097X	Kit with mixing valve SET 2.0 DN40	2	
842030095X	Kit storage tank stratification (with external diverter valve) SET 2.0 DN40	1	

* The L control unit handles up to 3 digital outputs: check the availability of free outputs and the requirements of the various accessories.

Mounted
DHW fresh water station

A plug and play system for transferring heat from the technical water storage tank with a programmable control unit and a circulator. The SET unit ensures the DHW production with a limited formation of chalk and at a temperature chosen by the user. The heat exchange is carried out by the AISI 316 stainless steel plate heat exchanger in a high performance and hygienic manner. The unit, connected to the water storage tank from which it takes energy, is composed of all necessary parts. Through a control unit with a graphical display the user can monitor the functioning or easily impose user parameters. The heart of the SET unit is the special electronic control unit which keeps up the imposed DHW temperature by modulating the flow in the primary circuit.

TESTED

The mounted SET unit is available in several sizes (60, 70, 80, 100, 120 and 200*)
*: DHW production of 10 to 45C with a temperature of 55°C in the primary circuit

The innovative and qualifying element of the SET unit is the electronic control unit which guarantees the DHW temperature through the modulation of the flow in the primary circuit.

In this way the following is guaranteed:

✔ max heat drop in the primary circuit in order the optimize the efficiency of the generator (solar thermal power, heat pump, biomass,etc.)
✔ precise and trustworthy management
Thanks to the high efficiency heat exchanger the unit is ideal for installations with heat pumps or solar panels that use water storage tanks for low temperatures (50-55°C)

Plus
✔ regulation of the hot water temperature
✔ easy and cheap in use
✔ high efficiency circulation pump (in accordance with the 2005-35/CE directive) and with an electronic control of the number of turns
✔ synoptically graphical display with the indication of the temperatures in the installation and of the power
✔ easy Plug and Play installation
✔ insulated pipe fittings
✔ vessel with a metal structure and thermoform panels for mounting to the wall
✔ possibility to manage the sanitary recirculation pump

Codes and prices for Mounted SET see pag. 228
Available accessories see pag. 234

Functions of the regulator

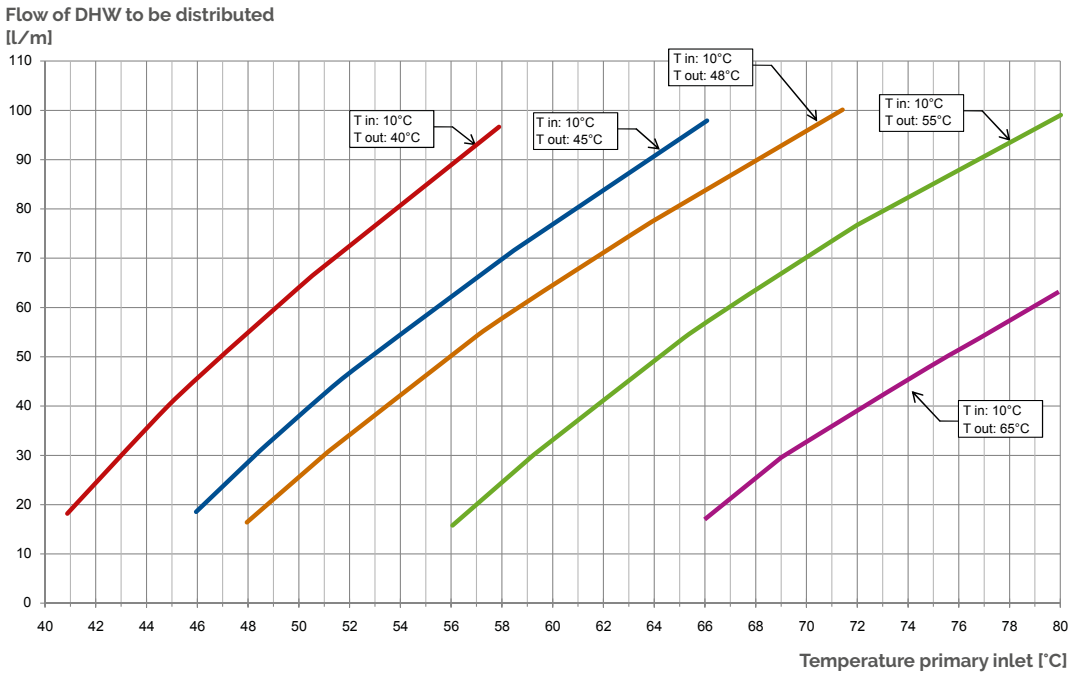
The SET fresh water station is equipped with a regulator that can execute the following functions:

Efficient, electronic regulation of the velocity of the pump
Graphical display
Imposing the temperature of the DHW
Imposing the max temperature of the DHW. This is a safety option which stops the unit in case the max value is reached.
Management kit in series
Management kit Mixing valve on the primary circuit
Management kit stratification of the tank
Possibility to control the recirculation pump for sanitary purposes by fixing the activation times of the pump and the temperature of the recirculation circuit
Anti-legionella: carry out anti-legionella treatments through thermal shocks along the DHW adduction line
AL heating: activation of an integrative heat source when the anti-legionella treatment is carried out
Comfort function: when activated, the exchanger is kept warm in order to guarantee a fast recuperation
Anti-chalk protection: when activated, the circulator keeps on running even when the DHW distribution time is up in order to reduce chalk formation
Solar: control and command the circulator of a solar power device
Management of the heat generator: activate and deactivate a heat generator when the temperature in the tank is below the set point
Consumption accounting functions

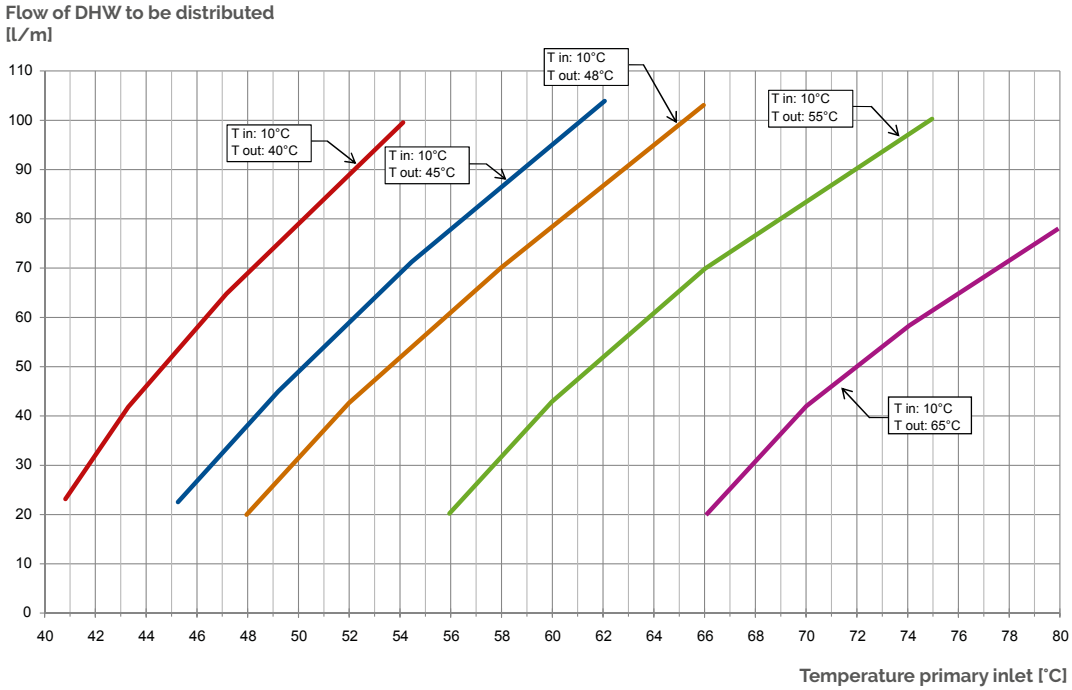
			Packed	
Code	Description	Price	Dimensions cm	Weight kg
842030004X	SET 60 - DHW FRESH WATER STATION		110x60x100	166
842030005X	SET 70 - DHW FRESH WATER STATION		110x60x100	168
842030006X	SET 80 - DHW FRESH WATER STATION		110x60x100	189
842030007X	SET 100 - DHW FRESH WATER STATION		110x60x100	193
842030008X	SET 120 - DHW FRESH WATER STATION		110x60x100	198
842030016X	SET 200 - DHW FRESH WATER STATION		139,2x63,4x125	200

Mounted SET 2.0 thermal performance

SET 60 performance

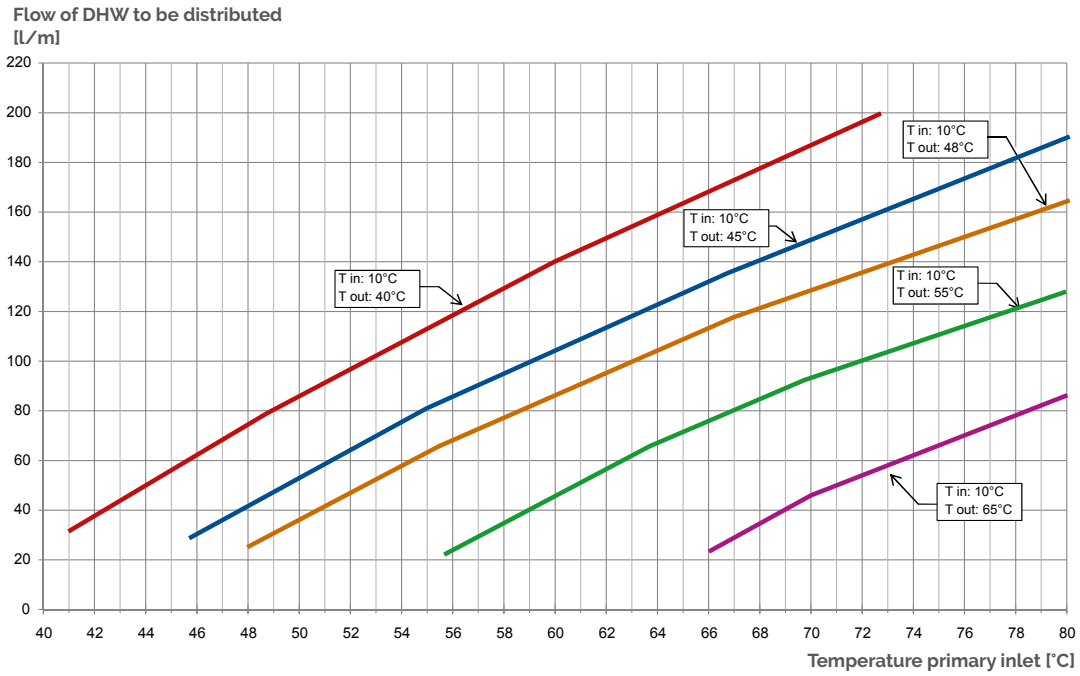


SET 70 performance

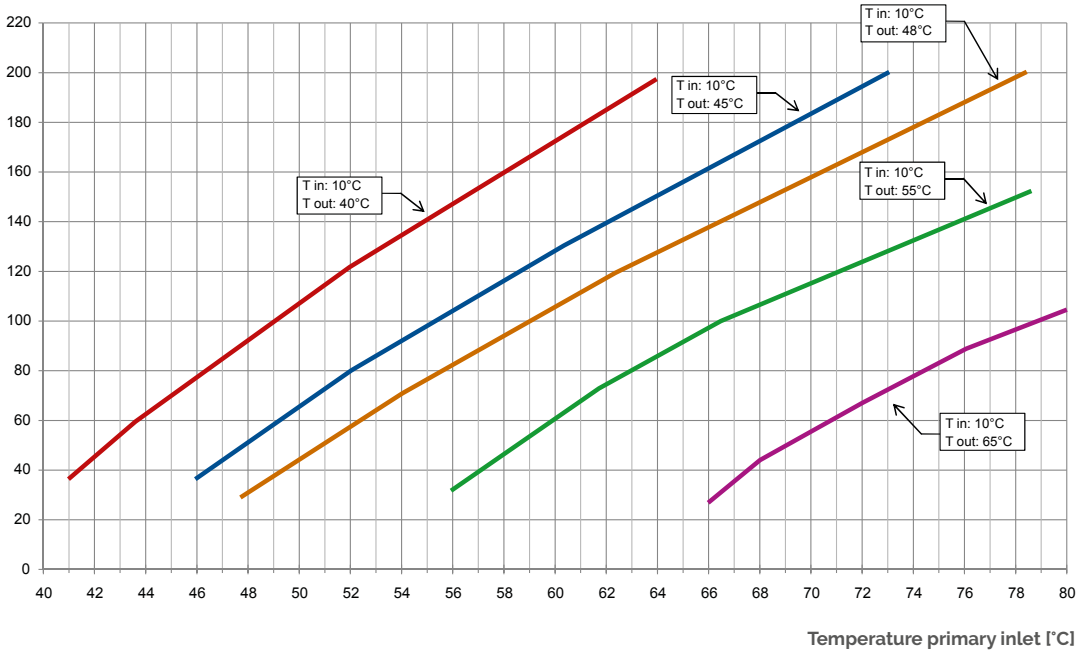


Mounted SET thermal performance

SET 80 performance

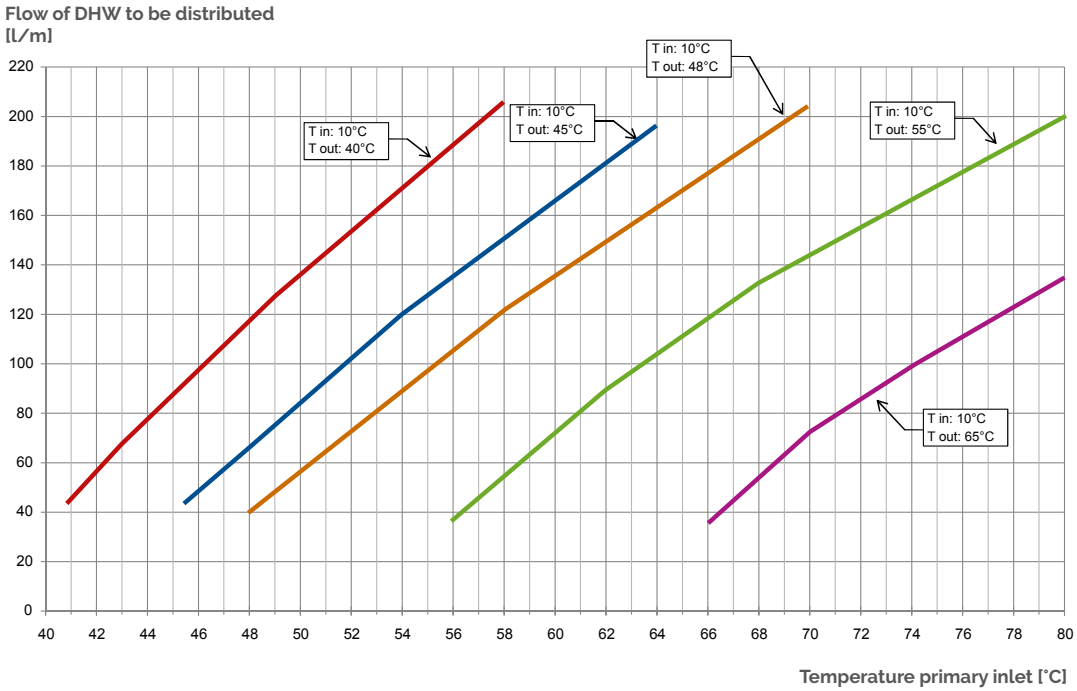


SET 100 performance

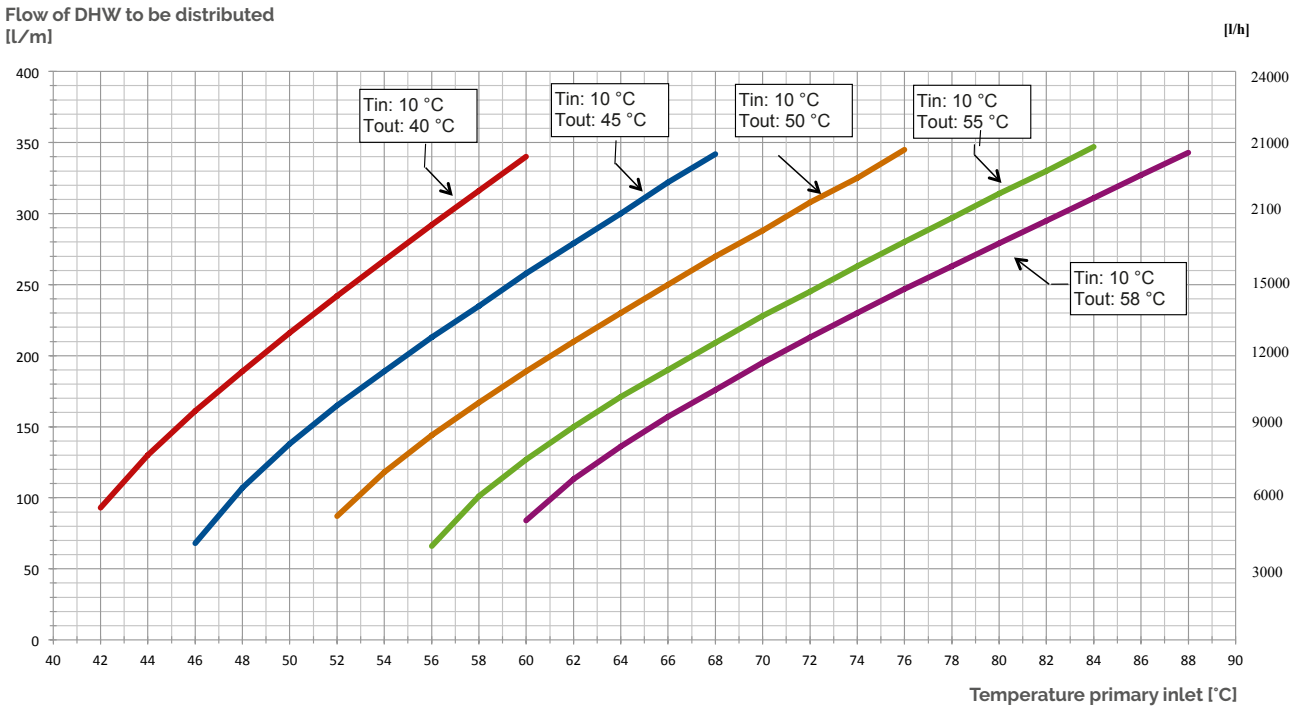


Mounted SET thermal performance

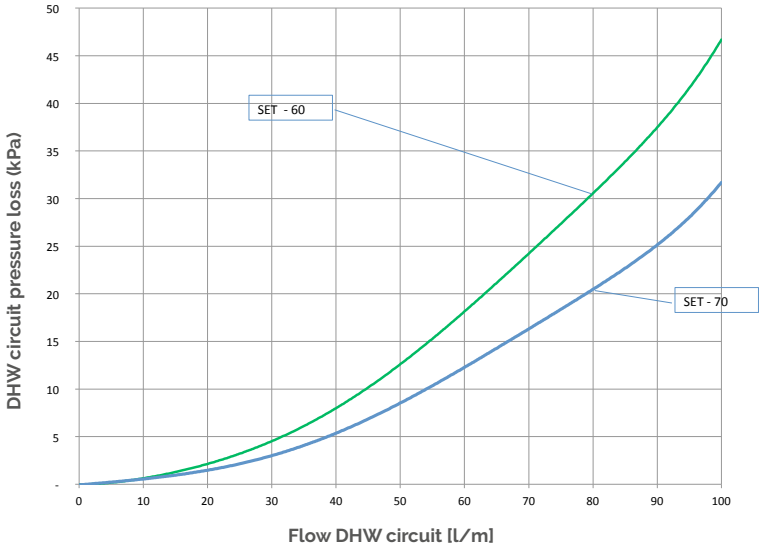
SET 120 performance

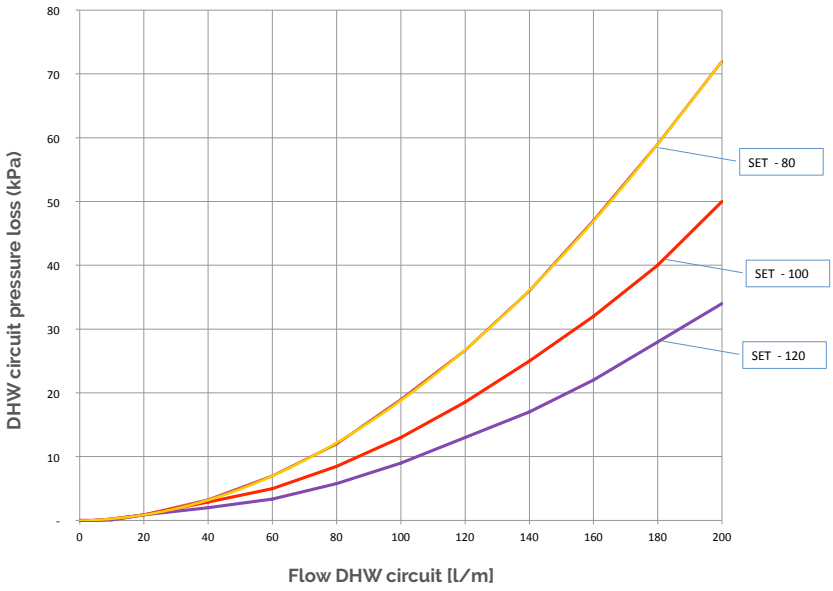


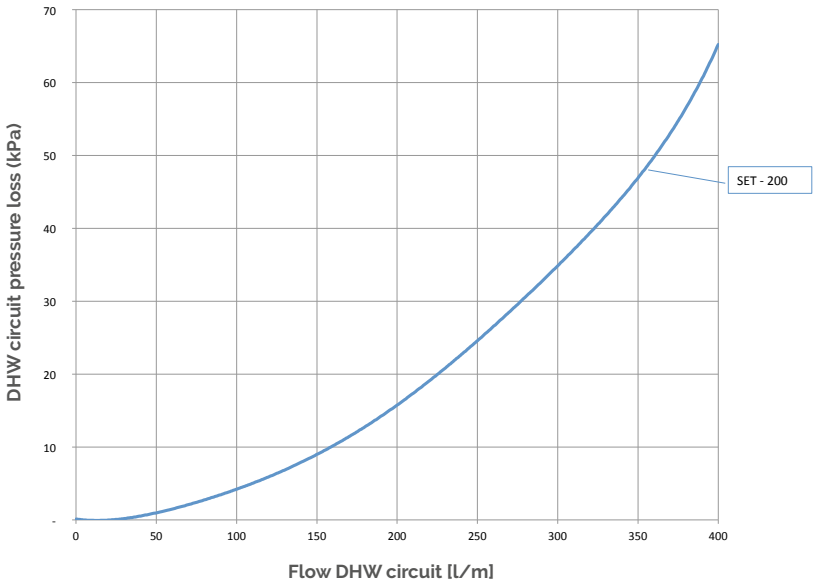
SET 200 performance



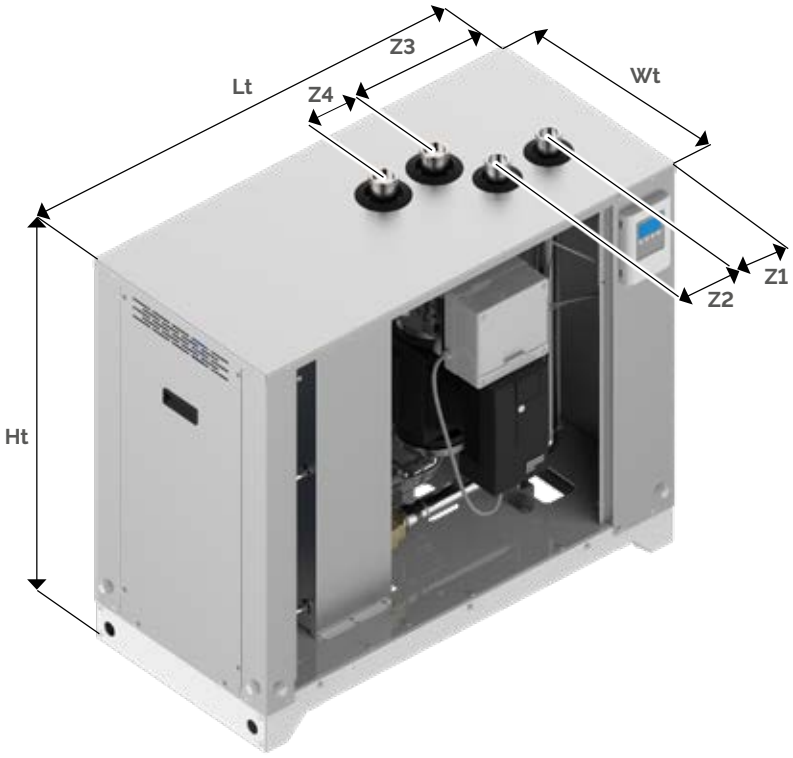
Hydraulic performance SET







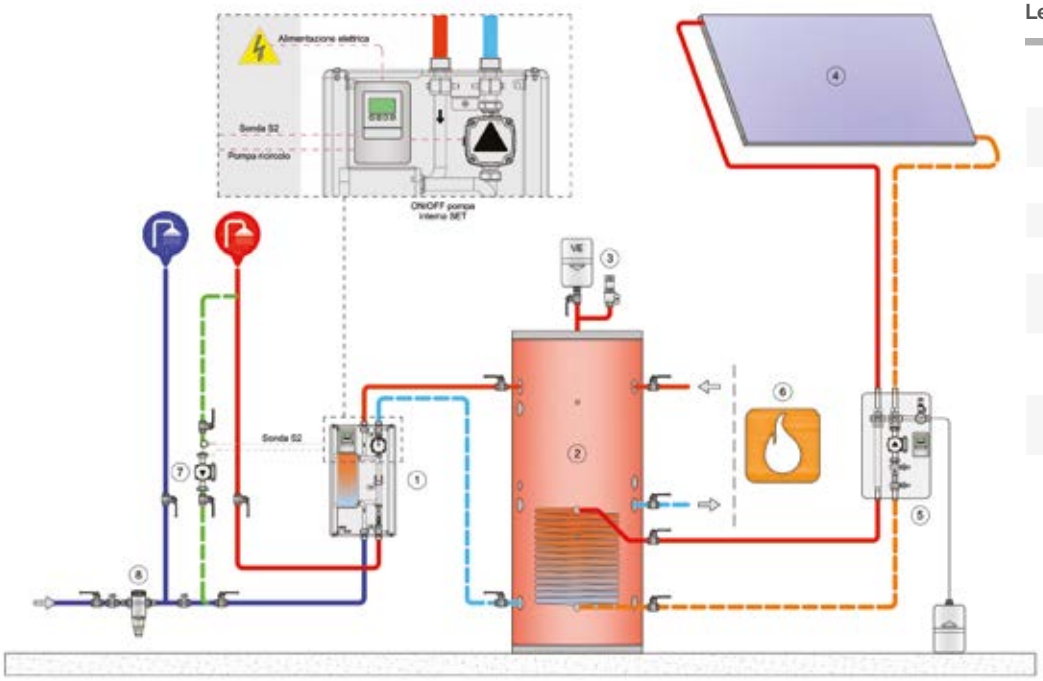
Dimensions



Model	Lt mm	Ht mm	Wt mm	Z1 mm	Z2 mm	Z3 mm	Z4 mm
SET 60	1004	871	484	153	125	346	125
SET 70	1004	871	484	153	125	346	125
SET 80	1004	871	484	153	125	346	125
SET 100	1004	871	484	153	125	346	125
SET 120	1004	871	484	153	125	346	125
SET 200	1220	1100	550	90	125	389	125

	MOUNTED SET					
Technical information	60	70	80	100	120	200
Electrical supply (V/Ph/Hz)	230/1/50					
Power of primary pump max (W)	310			450		600
Absorption of primary pump max (A)	1,37			2,01		2,7
Max power of the recirculation pump (can be managed from the control unit)(pump not supplied)	460					
Primary flow (litres/h)	6700	8200	9000	11000	14000	22000
Residual prevalence of the primary circuit (m.c.a.)	2,0	4,0	2,0	2,0	4,0	2,0
Volume of the primary circuit (l)	2,66	2,90	3,15	3,87	4,84	6,55
Volume of the domestic circuit (l)	2,54	2,14	3,06	3,77	4,71	6,37
Max operating pressure primary and DHW (bar)	6					
Couplings primary circuit (inch)	1" 1/2 GAS M					2" 1/2 GAS M
Couplings secondary circuit (inch)	1" 1/4 GAS M					2" GAS M
Max operating temperature (°C)	95					
Category of electrical protection	IP40					
Min DHW ignition flow (l/min)	5	5	10	10	10	20
Max DHW flow (l/min)	100	100	200	200	200	400

Installation chart
In combination with the water storage tank



Legend

1	SET fresh water station
2	Fiorini PFB water storage tank
3	Safety group
4	Solat thermal
5	Solat thermal return
6	Heating from additional source
7	DHW recirculation pump
8	Cold water bacteriostatic filter

Equipment

The mounted SET fresh water station is delivered in a cardboard box with:
✔ Fresh water station with electric switchboard for connection to the electric grid
✔ User guide

Accessories on request

Several accessory kits are available that can be combined with the SET fresh water station.

Description	L	Digital output
kit to connect the SET in series	✔	1
recirculation kit	✔	1
kit with mixing valve on the primary circuit	✔	2
kit storage tank stratification (with external diverter valve)	✔	1

* The L control unit handles up to 3 digital outputs: check the availability of free outputs and the requirements of the various accessories.

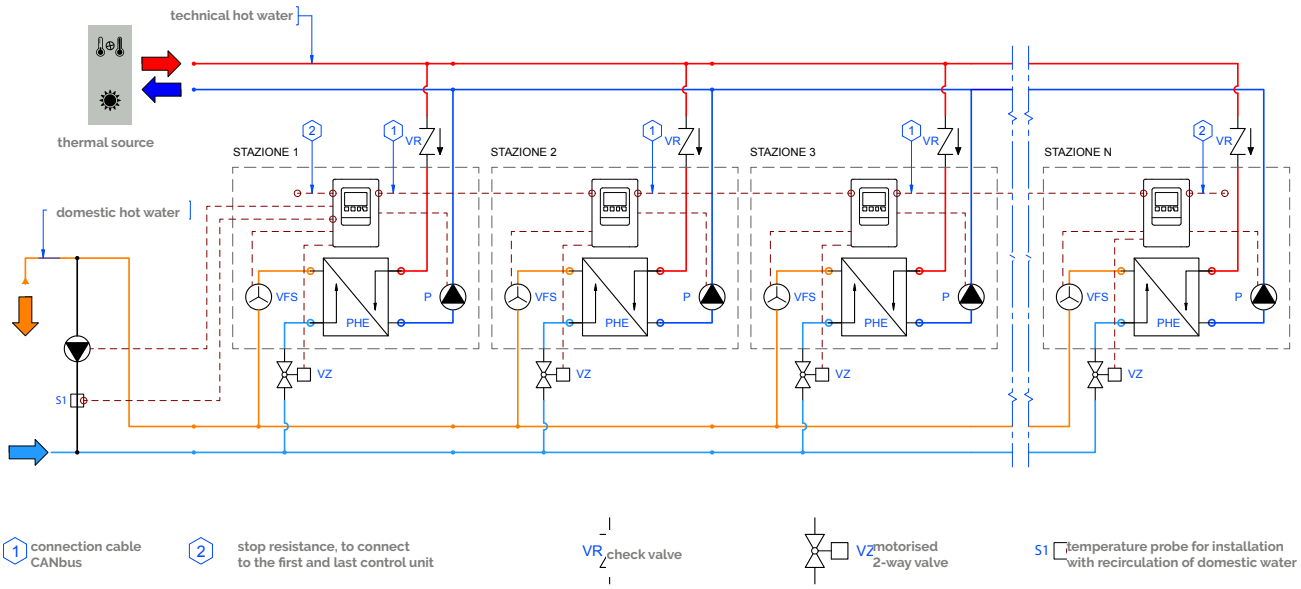
Kit to connect the SET in series

The kit to connect the SET in series is the option for all applications in which the need for domestic hot water is very variable, for example in sport centres, etc. In this way it is possible to connect max 8 fresh water stations and ensure a DHW production of min 5 l/m and max 3200 l/min*. The electronic control units that are mounted on every fresh water station enables communication between the stations via Modbus. As such, the electronics decide how many and which fresh water stations are activated, depending on the user conditions.

Advantages and benefits

✔ variable DHW production: from 5 to 3200 l/min
✔ The production by several SET connected in series depends on the temperature in the primary circuit and the production of DHW. The DHW flow that is to be distributed by a system in series is equal to the sum of the flow of all fresh water station as indicated in the graphic Hydraulic Performance
✔ trustworthy. Because the control unit carries out diagnoses by itself, in case of malfunctioning of one of the stations, the station is automatically deactivated and another station is activated. In this way, every fresh water station always operates in circumstances that approach the nominal circumstances and the precision and efficiency of the regulation is improved.
✔ The installation with the fresh water system in series can be expanded. You can add more units, even after the initial installation.
✔ The programmed maintenance of the fresh water stations can be executed without interrupting the DHW distribution.
✔ Every fresh water station operates for an equal number of hours which guarantees a long life span of the system.
✔ Regulation of the temperature is even more precise. The regulation makes it possible to activate the right number of fresh water station based on the flow and the temperature of the DHW.

Installation chart



Installation of the Kit

Install one kit for every fresh water station. The kit is supplied in parts, non-assembled and is composed of:

✔ one motorized zone valve with a fast 230V motor
✔ one CanBus cable
✔ the instructions

Recirculation kit

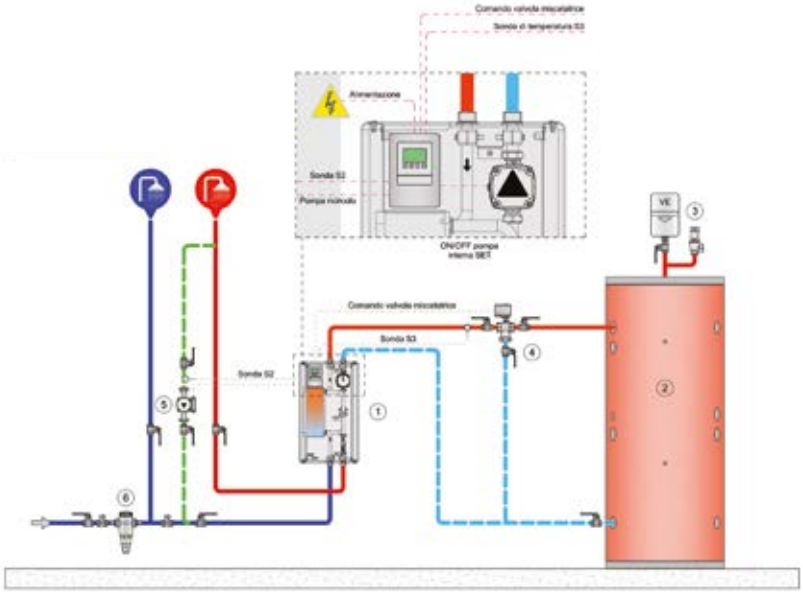
The recirculation kit makes it possible to opt for one of the multiple option offered by the electronic control station to control the pump of the sanitary recirculation circuit (circulator not supplied).

Possible settings
✔ Programming the recirculation in time slots. The recirculation pump is activated only during the indicated time slots and when the recirculation temperature is below the programmed temperature
✔ recirculation pump is always activated
✔ activation of the recirculation pump after a brief sampling period.
This option activates the recirculation pump only when strictly necessary, as such heating the domestic circuit without wasting drinking water.

Composition of the kit
The kit is supplied in parts, non-assembled and is composed of:
✔ temperature probe to be put on the recirculation ring
✔ instructions

Recirculation pump
The recirculation pump is not supplied with the kit because the pump has to be selected on the basis of the specifics of your installation. However, because the pump is to be controlled by the SET regulator, it has to have the following features
✔ power supply 230V/50hz/1ph
✔ max power 185 W

Kit with mixing valve on the primary circuit



Legend

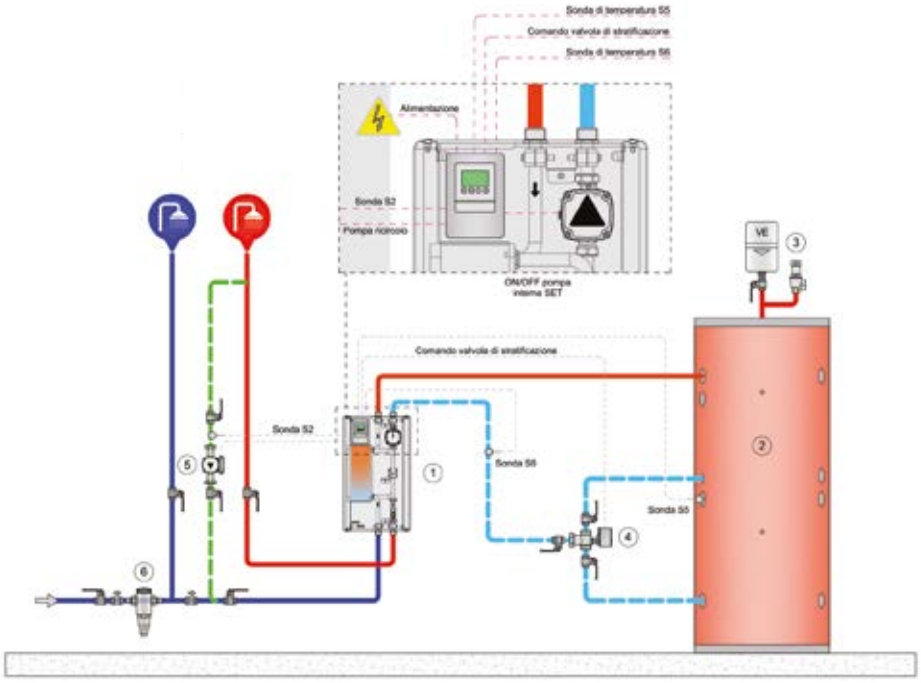
1	SET fresh water station
2	Fiorini water storage tank
3	Safety group
4	Mixing valve
5	DHW recirculation pump
6	Cold water bacteriostatic filter

The kit helps regulate the temperature at the entrance of the fresh water station. In this way, especially in installations that can reach high temperatures in the primary circuit, the precision of the regulation is improved, which guarantees higher comfort.

Composition of the kit
The kit is supplied in parts, non-assembled and is composed of:
✔ S3 temperature probe to be placed at the entrance of the exchanger on the primary circuit
✔ instructions
✔ Mixing valve

Kit with stratification valve for the storage tank

The kit makes it possible to direct the return from the fresh water station to the lower part instead of the mid part of the storage tank. Because of this, the stratification phenomenon in the storage tank is favoured and the efficiency of the entire heating system is maximized.



Legend

1	SET fresh water station
2	Fiorini water storage tank
3	Safety group
4	Kit stratification valve
5	DHW recirculation pump
6	Cold water bacteriostatic filter

Composition of the kit
The kit is supplied in parts, non-assembled and is composed of:
✔ S6 temperature probe to be placed in the middle of the storage tank
✔ S6 temperature probe on the return of the primary circuit
✔ instructions
✔ Stratification valve

Codes and prices for the accessories of SET 2.0 wall-mounted

	External accessories	Digital output*	Price
842030092X	KIT SET 2.0 SERIES DN32 Models 60 - 70 -80 -100 -120	1	
842030140X	KIT SET 2.0 SERIES DN50 Model 200	1	
842030099X	Recirculation kit SET 2.0 (NO PUMP)	1	
842030096X	Kit storage tank with stratification with external diverter valve) SET 2.0 DN40	1	
842030098X	Kit with mixing valve SET 2.0 DN40	2	

* The L control unit handles up to 3 digital outputs: check the availability of free outputs and the requirements of the various accessories.

Water storage tanks

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PUFFER
Hot Water storage tanks

The Puffer tanks are inertial tanks for heating installations which store non-domestic hot water. They are used in all devices powered by discontinuous power sources (e.g. solar panels, wood burners, boiler stoves, etc.) or wherever the volume of water stored in the device must be increased (e.g. devices with heat pumps, combined heat and power units, biomass burners, etc.). Several versions are available, to be used with one or more energy sources:

PFA Regular storage tank
PFB Storage tank fitted with smooth tube heat exchanger to add an additional power source (e.g. solar).
PFC Storage tank fitted with two smooth tube heat exchangers to add two additional power sources (e.g. solar and boiler stove).

TESTED

Materials
All storage tanks are made of carbon steel sheets, externally varnished

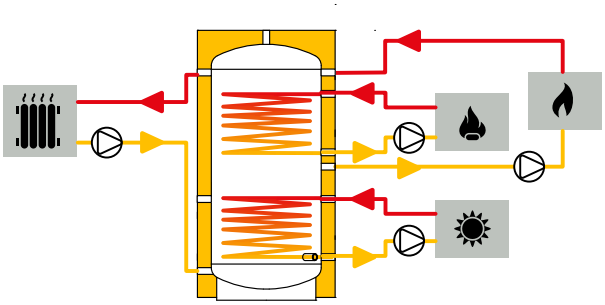
Insulation

Capacity (l)	Type
from 300 to 1000	Highly rigid polyurethane foam
from 1500 to 5000	Polyester Fiber
from 6000	Flexible polyurethane foam

Operational limits

Model	Storage tank		S1 Coil Circuit		S2 Coil Circuit	
	max. temperature	max. pressure	max. temperature	max. pressure	max. temperature	max. pressure
PFA	95°C	6 bar	-	-	-	-
PFB	95°C	6 bar	99°C	9 bar	-	-
PFC	95°C	6 bar	99°C	9 bar	99°C	9 bar

Standard Accessories: see pag 274
Special versions: see pag 277



PUFFER
Product code

PFA series

capacity l	code	price	energy label	packed dimensions cm	weight kg
300	817010119X		B	64x64x180	55
500	817010120X		C	77x77x184	77
750	817010216X		C	95x95x178	117,5
1000	817010002		C	129x129x216	125
1500	817010003		C	125x125x229	194
2000	817010004		C	136x136x261	263
2500	817010101X			147x147x234	296
3000	817010102X			147x147x284	346
4000	817010103X			163x163x293	492
5000	817010104X			183x183x299	582
6000	817010129X			282x203x217,5	684
8000	817010130X			352x203x217,5	823
10000	817010131X			427x203x217,5	973

PFB series

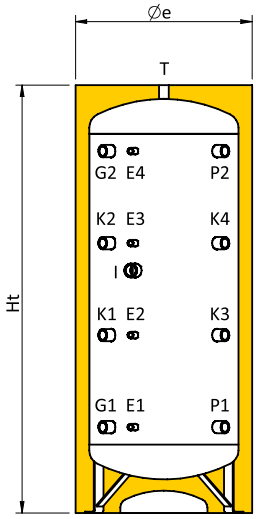
capacity l	code	price	energy label	packed dimensions cm	weight kg
300	819010129X		B	64x64x180	65
500	819010130X		C	77x77x184	98
750	819010202X		C	95x95x178	144,5
1000	819010003		C	129x129x216	153
1500	819010004		C	125x125x229	237
2000	819010005		C	136x136x261	315
2500	819010135X			147x147x234	352
3000	819010136X			147x147x284	413
4000	819010137X			163x163x293	571
5000	819010138X			183x183x299	672

PFC series

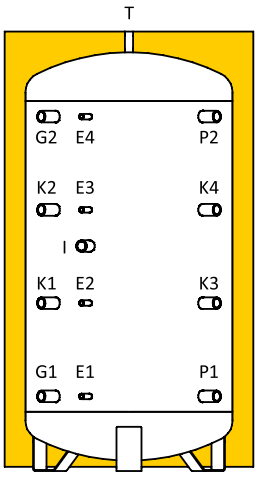
capacity l	code	price	energy label	packed dimensions cm	weight kg
300	819010149X		B	64x64x180	77
500	819010150X		C	77x77x184	111
750	819010203X		C	95x95x178	162,5
1000	819010006		C	129x129x216	181
1500	819010007		C	125x125x229	268
2000	819010008		C	136x136x261	346
2500	819010155X			147x147x234	383
3000	819010156X			147x147x284	460
4000	819010157X			163x163x293	628
5000	819010158X			183x183x299	730

PUFFER
Size PFA

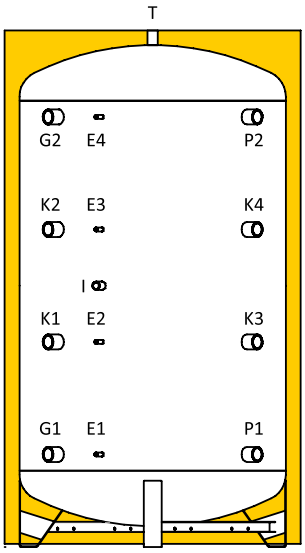
300 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



6.00 ≤ cap. ≤ 10.000



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
P1	To energy source
P2	From energy source
T	Vent

Couplings chart

Cap. l	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	T inch
300	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
500	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
750	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2
1000	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2
1500	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"
2000	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"
2500	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	2"	2"	1"
3000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	2"	2"	1"
4000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	2"	2"	1"
5000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	2"	2"	1"
6000	1/2"	1/2"	1/2"	1/2"	3"	3"	1"1/2	3"	3"	3"	3"	3"	3"	2"
8000	1/2"	1/2"	1/2"	1/2"	3"	3"	1"1/2	3"	3"	3"	3"	3"	3"	2"
10000	1/2"	1/2"	1/2"	1/2"	3"	3"	1"1/2	3"	3"	3"	3"	3"	3"	2"

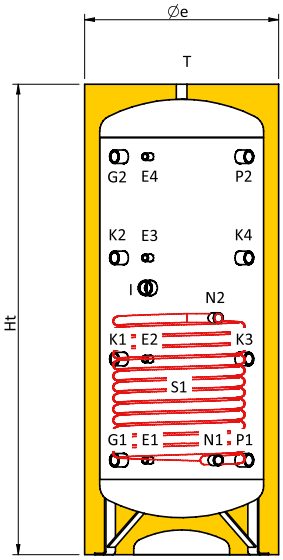
Size chart

Cap. l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm
300	610	1680	1790	325	695	1065	1435	325	1435	880	695	1065	695	1065	325	1435
500	760	1735	1895	355	725	1095	1465	355	1465	985	725	1095	725	1095	355	1465
750	910	1765	1990	395	745	1095	1445	395	1445	920	745	1095	745	1095	395	1445
1000	1010	2000	2245	330	770	1210	1650	330	1650	990	770	1210	770	1210	330	1650
1500	1250	2145	2475	360	810	1260	1710	360	1710	1085	810	1260	810	1260	360	1710
2000	1350	2475	2815	390	930	1470	2010	390	2010	1200	930	1470	930	1470	390	2010
2500	1450	2220	2655	425	865	1305	1745	425	1745	1145	865	1305	865	1305	425	1745
3000	1450	2720	3085	435	1035	1635	2235	435	2235	1435	1035	1635	1035	1635	435	2235
4000	1600	2810	3235	480	1080	1680	2280	480	2280	1430	1080	1680	1080	1680	480	2280
5000	1800	2870	3390	510	1110	1710	2310	510	2310	1510	1110	1710	1110	1710	510	2310
6000	2000	2790	3435	635	1155	1675	2195	635	2195	1415	1155	1675	1155	1675	635	2195
8000	2000	3490	4025	625	1385	2145	2905	625	2905	1615	1385	2145	1385	2145	625	2905
10000	2000	4240	4690	625	1635	2645	3655	625	3655	2365	1635	2645	1635	2645	625	3655

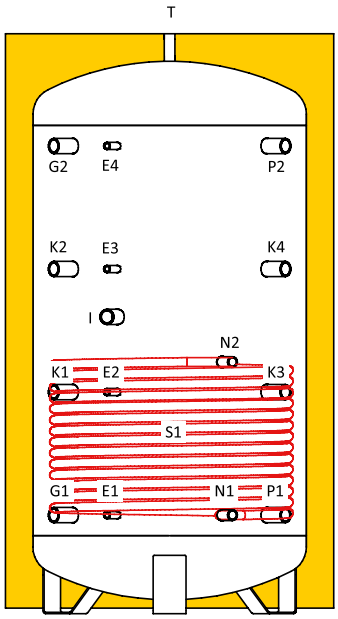
R*: reversal quota

PUFFER
Size PFB

300 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
G1	Ingresso da impianto
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
P1	To energy source
P2	Ingresso da fonte energetica
S1	From energy source
T	Vent

Couplings chart

Cap. l	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	T inch
300	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	1"1/4	1"1/4	1"1/4
500	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	1"1/4	1"1/4	1"1/4
750	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1"1/2
1000	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1"1/2
1500	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1"
2000	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1"
2500	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"
3000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"
4000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"
5000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	2"	2"	1"

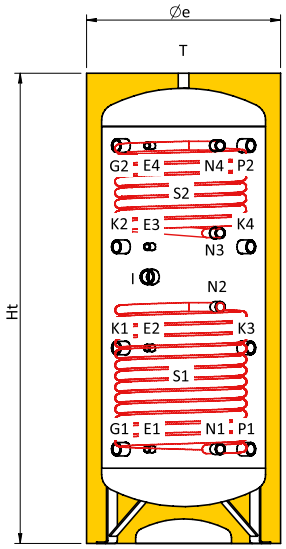
Size chart

Cap. l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	S1 m²
300	610	1680	1790	325	695	1065	1435	325	1435	880	695	1065	695	1065	325	685	325	1435	1
500	760	1735	1895	355	725	1095	1465	355	1465	985	725	1095	725	1095	355	875	355	1465	1,9
750	910	1765	1990	395	745	1095	1445	395	1445	920	745	1095	745	1095	395	875	395	1445	2,5
1000	1010	2000	2245	330	770	1210	1650	330	1650	990	770	1210	770	1210	330	890	330	1650	3,1
1500	1250	2145	2475	360	810	1260	1710	360	1710	1085	810	1260	810	1260	360	920	360	1710	3,8
2000	1350	2475	2815	390	930	1470	2010	390	2010	1200	930	1470	930	1470	390	990	390	2010	4,6
2500	1450	2220	2655	425	865	1305	1745	425	1745	1145	865	1305	865	1305	425	985	425	1745	5
3000	1450	2720	3085	435	1035	1635	2235	435	2235	1435	1035	1635	1035	1635	435	1115	435	2235	6
4000	1600	2810	3235	480	1080	1680	2280	480	2280	1430	1080	1680	1080	1680	480	1160	480	2280	7
5000	1800	2870	3390	510	1110	1710	2310	510	2310	1510	1110	1710	1110	1710	510	1190	510	2310	8

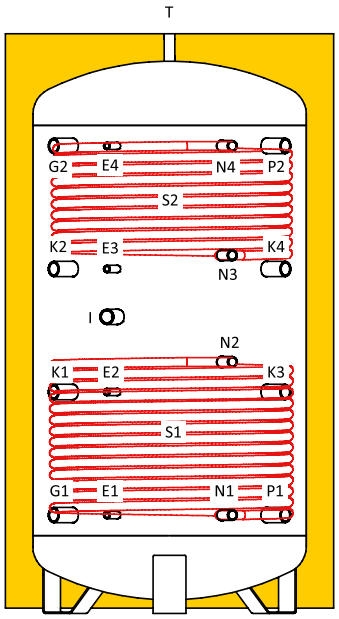
R*: reversal quota

PUFFER
Size PFC

300 ≤ cap. ≤ 1.000



1.500 ≤ cap. ≤ 5.000



Couplings legend

E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
S2	Upper exchanger
T	Vent

Couplings chart

Cap. l	E1 inch	E2 inch	E3 inch	E4 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	N3 inch	N4 inch	P1 inch	P2 inch	T inch
300	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	1"	1"	1"1/4	1"1/4	1"1/4
500	1/2"	1/2"	1/2"	1/2"	1"1/4	1"1/4	1"1/2	1"1/4	1"1/4	1"1/4	1"1/4	1"	1"	1"	1"	1"1/4	1"1/4	1"1/4
750	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1"1/2
1000	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1"1/2
1500	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1"
2000	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1"
2500	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"
3000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"
4000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"
5000	1/2"	1/2"	1/2"	1/2"	2"	2"	1"1/2	2"	2"	2"	2"	1"	1"	1"	1"	2"	2"	1"

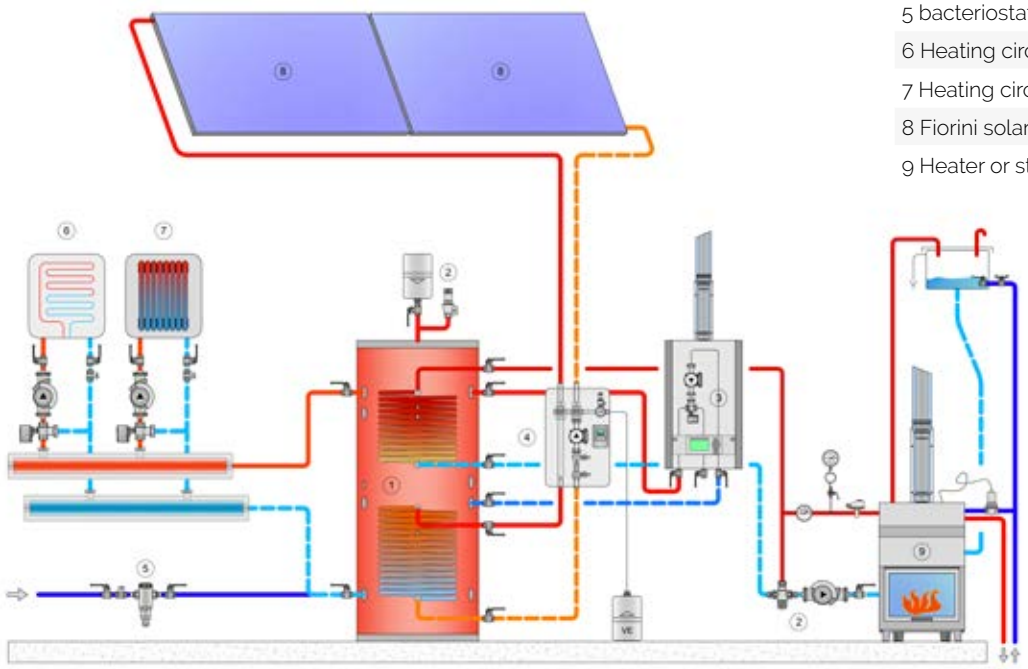
Size chart

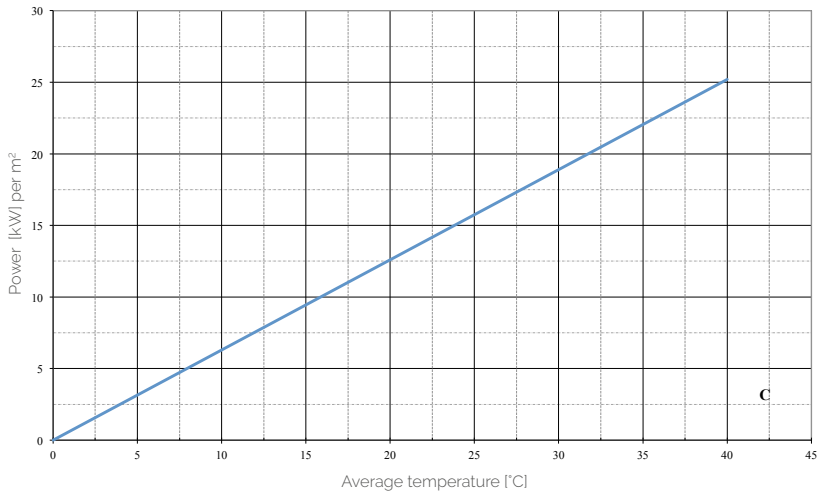
Cap. l	Øe mm	Ht mm	R* mm	E1 mm	E2 mm	E3 mm	E4 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	N3 mm	N4 mm	P1 mm	P2 mm	S1 m²	S2 m²
300	610	1680	1790	325	695	1065	1435	325	1435	880	695	1065	695	1065	325	685	685	1075	325	1435	1	1
500	760	1735	1895	355	725	1095	1465	355	1465	985	725	1095	725	1095	355	875	875	1145	355	1465	1,9	1,2
750	910	1765	1990	395	745	1095	1445	395	1445	920	745	1095	745	1095	395	875	875	1210	395	1445	2,5	1,5
1000	1010	2000	2245	330	770	1210	1650	330	1650	990	770	1210	770	1210	330	890	1210	1650	330	1650	3,1	2,5
1500	1240	2140	2475	360	810	1260	1710	360	1710	1085	810	1260	810	1260	360	920	920	1310	360	1710	3,8	2,8
2000	1340	2470	2815	390	930	1470	2010	390	2010	1200	930	1470	930	1470	390	990	990	1650	390	2010	4,6	2,8
2500	1450	2220	2655	425	865	1305	1745	425	1745	1145	865	1305	865	1305	425	985	985	1305	425	1745	5	4
3000	1450	2720	3085	435	1035	1635	2235	435	2235	1435	1035	1635	1035	1635	435	1115	1115	1755	435	2235	6	4,2
4000	1600	2810	3235	480	1080	1680	2280	480	2280	1430	1080	1680	1080	1680	480	1160	1160	1800	480	2280	7	5
5000	1800	2870	3390	510	1110	1710	2310	510	2310	1510	1110	1710	1110	1710	510	1190	1190	1910	510	2310	8	5

R*: reversal quota

PUFFER
Installation chart

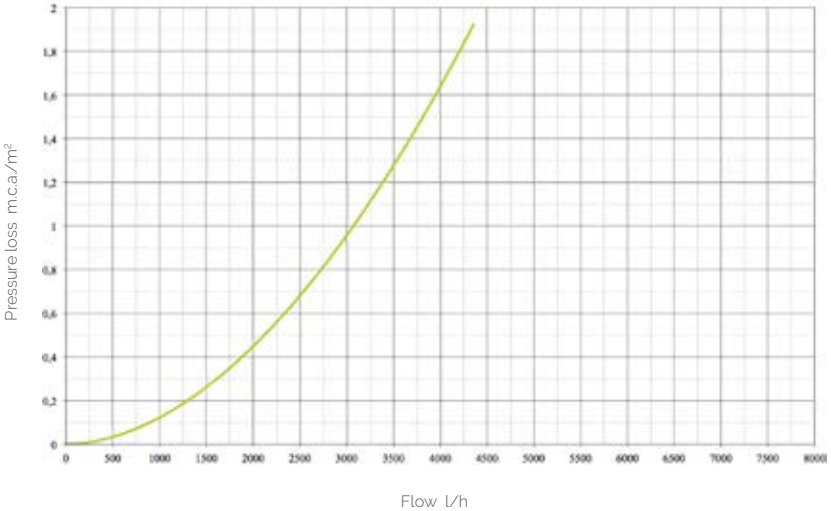
List of components
1 PFC Fiorini Puffer
2 Safety unit
3 Heating by alternative source
4 solar thermal return unit
5 bacteriostatic cold water filter
6 Heating circuit 1
7 Heating circuit 2
8 Fiorini solar collectors
9 Heater or stove with open vessel





Fixed coil power

The chart indicates maximum exchanged power by the fix internal coil depending on the temperature difference between water into the coil and water into the tank.

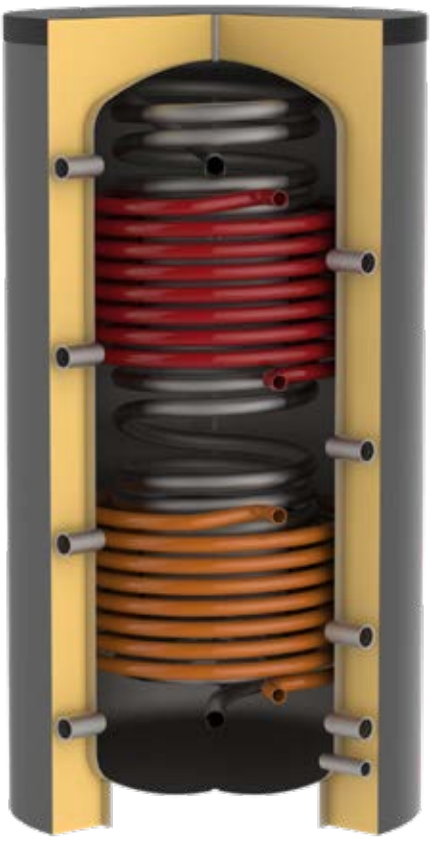


Pressure loss in the fixed coil

The pressure loss indicated in the chart refers to a surface area of 1 m2 of the coil. Multiply this value with the exchange surface in order to come to the total pressure loss.

COMBI PLUS
Combi storage tank

The COMBI PLUS range consists of inertial tanks for installations which use discontinuous energy sources, such as solar power systems, biomass systems and wood burning systems. Thanks to the internal exchanger with a stainless steel corrugated tube with a large surface, the instantaneous DHW production is guaranteed. There are three versions of which several capacities are available, from 600 to 2000 litres.



TESTED

COMBI PLUS A: equipped with n°1 internal fixed exchanger with a stainless steel corrugated tube for instantaneous DHW production

COMBI PLUS B: equipped with n°2 internal fixed heat exchangers, one with a stainless steel corrugated tube for instantaneous DHW production and another for coupling to an additional heat source.

COMBI PLUS C: equipped with n°3 internal fixed heat exchangers, one with a stainless steel corrugated tube for instantaneous DHW production and two in carbon steel for coupling to other additional heat sources

Materials

The inertial tanks are made of high quality material, in particular:
Coil for domestic use: AISI 316L stainless steel
Tank and integration coil: S 235 JR carbon steel

External protective treatment: enamelling with industrial varnish

Insulation

Capacity (l)	Type
from 600 to 2000	Polystyrene Graphite + Polyester Fiber

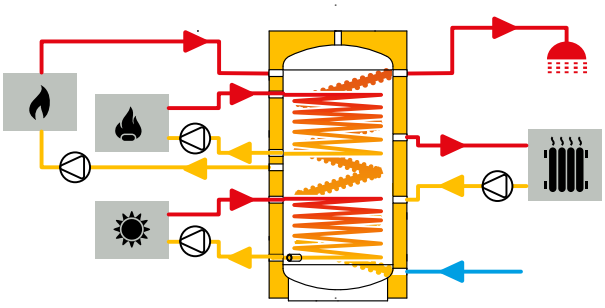
Operational limits

Storage tank		S1 Coil Circuit		S2-S3 Coil Circuit	
max. temperature	max. pressure	max. temperature	max. pressure	max. temperature	max. pressure
90°C	3 bar	90°C	6 bar	90°C	16 bar

Supplied accessories: Adjustable height feet for sizes up to 500 l, safety valve and thermometer for sizes up to 1000 l, magnesium sacrificial anode for all sizes.

Standard accessories: see pag 274

Special versions: see pag 277



COMBI PLUS
Combi storage tank

COMBI PLUS A

capacity l	code	price	energy label	packed dimensions cm	packed weight kg
600	842020178X		C	97x97x205	195
750	842020179X		C	105x105x203	210
1000	842020180X		C	105x105x242	238
1500	842020181X		C	115x115x283	330
2000	842020182X		C	135x135x265	378

COMBI PLUS B

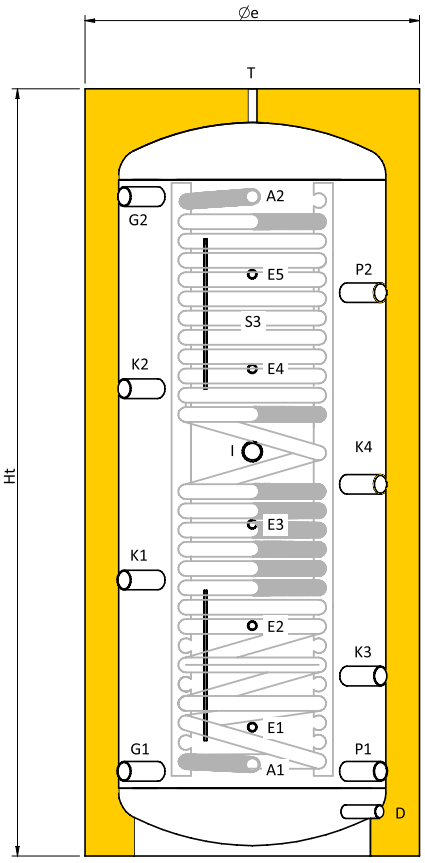
capacity l	code	price	energy label	packed dimensions cm	packed weight kg
600	842020148X		C	97x97x205	205
750	842020149X		C	105x105x203	232
1000	842020150X		C	105x105x242	246
1500	842020151X		C	115x115x283	371
2000	842020152X		C	135x135x265	404

COMBI PLUS C

capacity l	code	price	energy label	packed dimensions cm	packed weight kg
600	842020153X		C	97x97x205	220
750	842020154X		C	105x105x203	254
1000	842020155X		C	105x105x242	278
1500	842020156X		C	115x115x283	411
2000	842020157X		C	135x135x265	455

COMBI PLUS A
Dimensions

600 ≤ cap. ≤ 2.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
E5	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
P1	To energy source
P2	From energy source
S3	DHW exchanger
T	Vent

Couplings chart

Cap. l	A1 inch	A2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	E5 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	P1 inch	P2 inch	T inch
600	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1/2"
750	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1/2"
1000	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1/2"
1500	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1/2"
2000	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1/2"

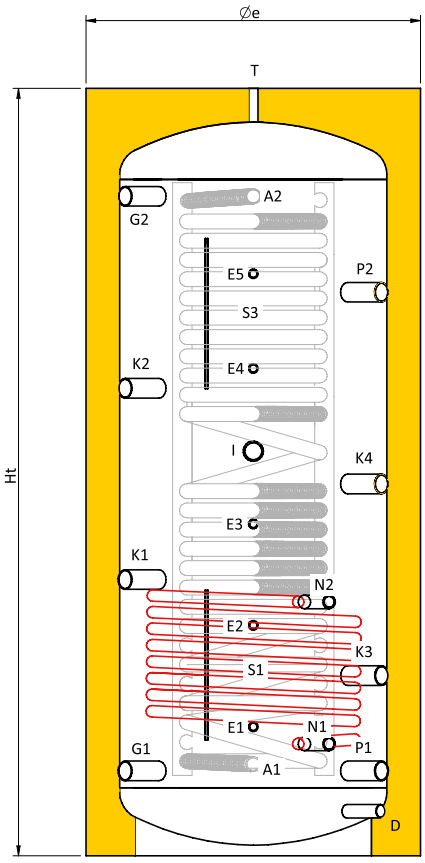
Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	E4 mm	E5 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	P1 mm	P2 mm	S3 m²
600	860	1930	2115	270	1560	420	643	865	1215	1410	275	1555	1030	701	1129	488	915	275	1342	5,65
750	950	1900	2125	285	1570	395	585	765	1165	1420	265	1565	950	698	1132	482	915	265	1348	5,65
1000	950	2305	2495	285	1965	395	695	995	1440	1735	265	1965	1220	831	1397	548	1114	265	1681	6,95
1500	1100	2665	2885	400	2260	510	875	1240	1680	2020	380	2260	1440	1015	1640	705	1325	380	1950	6,95
2000	1300	2475	2800	380	2030	610	840	1070	1530	1830	380	2030	1310	925	1475	655	1205	380	1750	8

R*: reversal quota

COMBI PLUS B
Dimensions

600 ≤ cap. ≤ 2.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
E5	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
S3	DHW exchanger
T	Vent

Couplings chart

Cap. l	A1 inch	A2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	E5 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	P1 inch	P2 inch	T inch
600	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1/2"
750	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1/2"
1000	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1/2"
1500	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1/2"
2000	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"1/2	1"1/2	1/2"

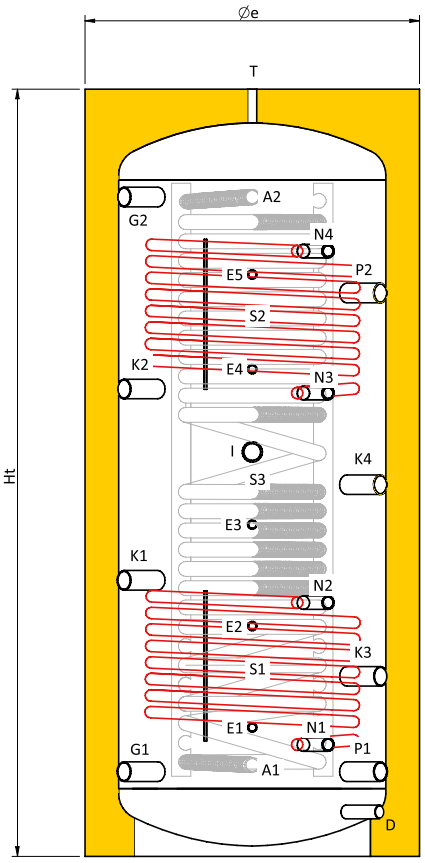
Size chart

Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	E4 mm	E5 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	P1 mm	P2 mm	S1 m²	S3 m²
600	860	1930	2115	270	1560	420	643	865	1215	1410	275	1555	1030	701	1129	488	915	345	745	275	1342	1,4	5,65
750	950	1900	2125	285	1570	395	585	765	1165	1420	265	1565	950	698	1132	482	915	345	765	265	1348	1,8	5,65
1000	950	2305	2495	285	1965	395	695	995	1440	1735	265	1965	1220	831	1397	548	1114	345	765	265	1681	1,8	6,95
1500	1100	2665	2885	400	2260	510	875	1240	1680	2020	380	2260	1440	1015	1640	705	1325	460	1260	380	1950	3	6,95
2000	1300	2475	2800	380	2030	610	840	1070	1530	1830	380	2030	1310	925	1475	655	1205	450	1250	380	1750	4,5	8

R*: reversal quota

COMBI PLUS C
Dimensions

600 ≤ cap. ≤ 2.000



Couplings legend

A1	DHW inlet
A2	DHW outlet
D	Drain
E1	Probe / Thermometer
E2	Probe / Thermometer
E3	Probe / Thermometer
E4	Probe / Thermometer
E5	Probe / Thermometer
G1	From plant
G2	To plant
I	Electrical resistor
K1	Auxiliary
K2	Auxiliary
K3	Auxiliary
K4	Auxiliary
N1	Lower exchanger outlet
N2	Lower exchanger inlet
N3	Upper exchanger outlet
N4	Upper exchanger inlet
P1	To energy source
P2	From energy source
S1	Lower exchanger
S2	Upper exchanger
S3	DHW exchanger
T	Vent

Couplings chart

Cap. l	A1 inch	A2 inch	D inch	E1 inch	E2 inch	E3 inch	E4 inch	E5 inch	G1 inch	G2 inch	I inch	K1 inch	K2 inch	K3 inch	K4 inch	N1 inch	N2 inch	N3 inch	N4 inch	P1 inch	P2 inch	T inch
600	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1/2"
750	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1/2"
1000	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1/2"
1500	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1/2"
2000	1"1/4	1"1/4	1"	1/2"	1/2"	1/2"	1/2"	1/2"	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2	1"	1"	1"	1"	1"1/2	1"1/2	1/2"

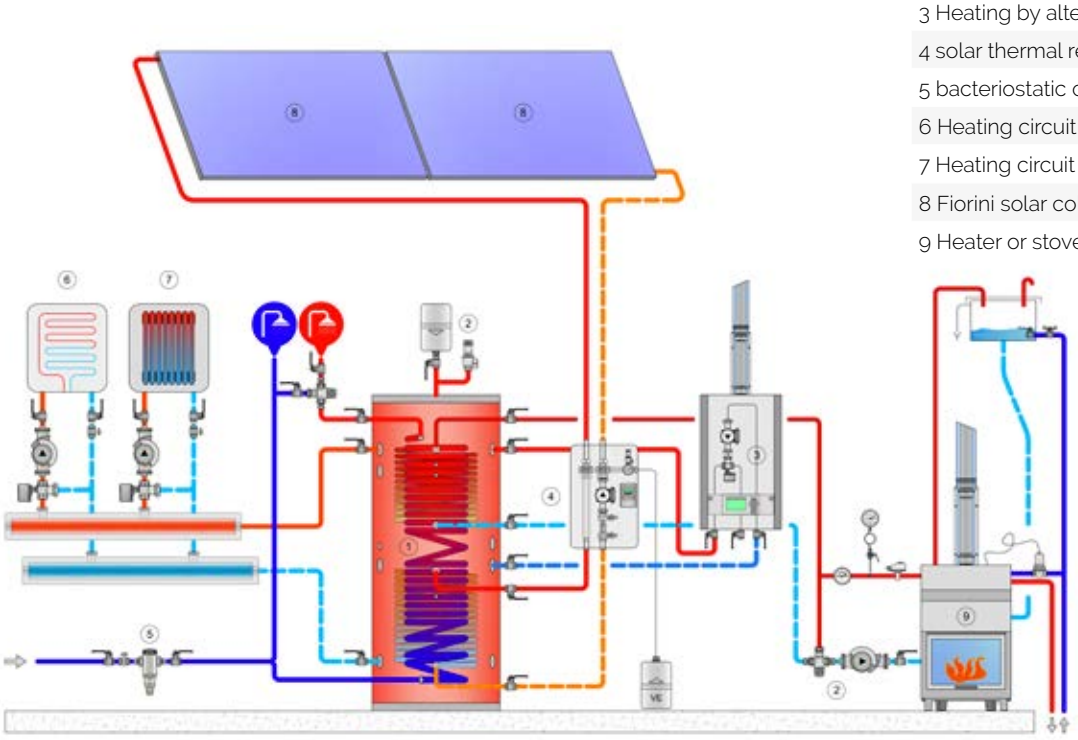
Size chart

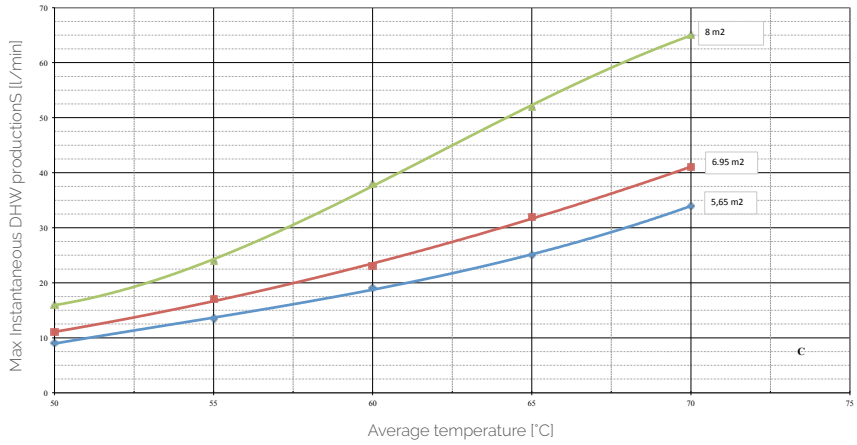
Cap. l	Øe mm	Ht mm	R* mm	A1 mm	A2 mm	E1 mm	E2 mm	E3 mm	E4 mm	E5 mm	G1 mm	G2 mm	I mm	K1 mm	K2 mm	K3 mm	K4 mm	N1 mm	N2 mm	N3 mm	N4 mm	P1 mm	P2 mm	S1 m²	S2 m²	S3 m²
600	860	1930	2115	270	1560	420	643	865	1215	1410	275	1555	1030	701	1129	488	915	345	745	1105	1505	275	1342	1,4	1,4	5,65
750	950	1900	2125	285	1570	395	585	765	1165	1420	265	1565	950	698	1132	482	915	345	765	1075	1495	265	1348	1,8	1,8	5,65
1000	950	2305	2495	285	1965	395	695	995	1440	1735	265	1965	1220	831	1397	548	1114	345	765	1385	1805	265	1681	1,8	1,8	6,95
1500	1100	2665	2885	400	2260	510	875	1240	1680	2020	380	2260	1440	1015	1640	705	1325	460	1260	1590	2190	380	1950	3	2,4	6,95
2000	1300	2475	2800	380	2030	610	840	1070	1530	1830	380	2030	1310	925	1475	655	1205	450	1250	1410	1960	380	1750	4,5	3	8

R*: reversal quota

COMBI PLUS
Installation chart

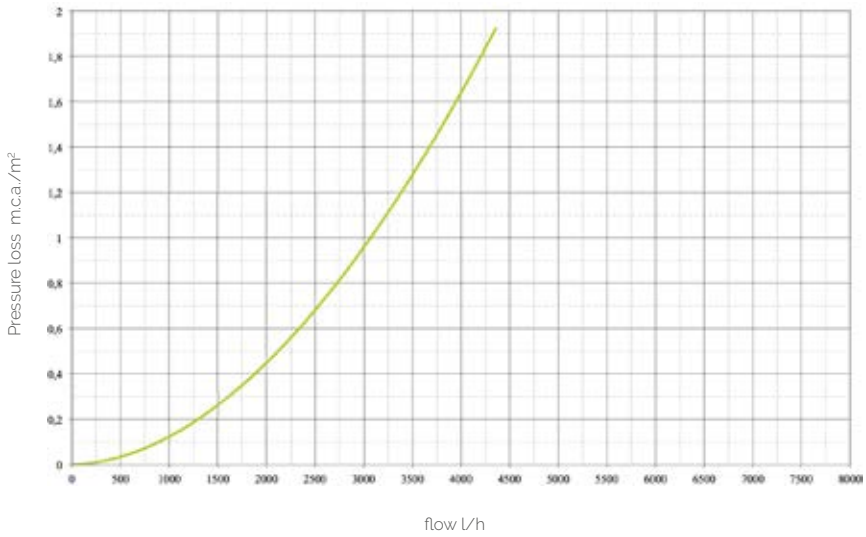
List of components
1 PFC Fiorini Puffer
2 Safety unit
3 Heating by alternative source
4 solar thermal return unit
5 bacteriostatic cold water filter
6 Heating circuit 1
7 Heating circuit 2
8 Fiorini solar collectors
9 Heater or stove with open vessel





Instantaneous DHW production

The chart indicates the maximum instantaneous DHW production (10-45C) through the stainless steel coil in function of the storage temperature in the tank

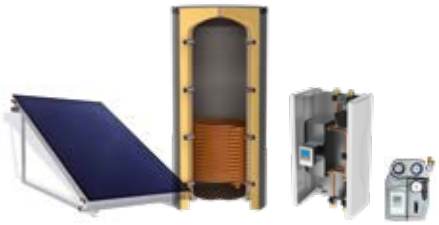


Pressure loss in the fixed coil

The pressure loss indicated in the chart refers to a surface area of 1 m^2 of the coil. Multiply this value with the exchange surface in order to come to the total pressure loss.

Solar Thermal Systems

Contents



Thermal Solar Kit for DHW production

HOT WATER AND SOLAR HEATING SYSTEM

Solar energy is an inexhaustible source of energy that can be easily used both in hot water preparation and in the heating process. Solar energy helps protect the environment and ensures significant energy savings.

OUR SOLUTIONS

Fiorini has designed two product lines: the Aqua Sun line for domestic hot water production and the Combi Sun line for domestic hot water production and heating. Both solutions are available in different versions which are realized based on the user's consumption and the heating system typology, in order to meet a wide range of needs.

WHY THE SOLAR THERMAL KIT

In order to facilitate the choice for the most efficient solution and to make the installation of a solar thermal system easier, faster and therefore cheaper we conceived a series of devices which have many benefits and satisfy users' needs (single housing, multi-family houses, artisanal or commercial activities, accommodation facilities).

Thermal Solar Kit for DHW production

ADVANTAGES

✪ Saving money. The technology we use ensures high efficiency. Acqua Sun and Combi Sun solutions make your working environment or your household more energy-efficient which saves you money every day. The solar Thermal Kit is not expensive and can be written off.

✪ Value of the property. The installation of a system based on renewable energy can improve the energetic classification of the household and working environments which makes the property value and commercial value increase.

✪ Respect for the environment. Solar energy is clean and eco-friendly. It helps reducing polluting emissions.

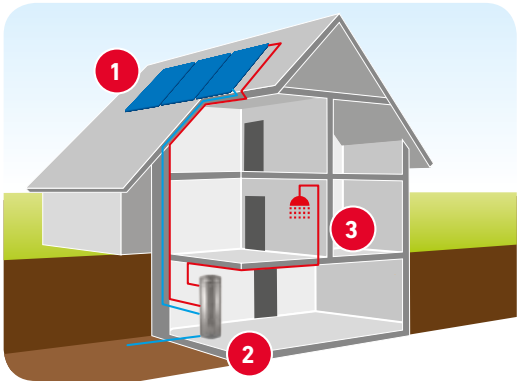
✪ Energy autonomy. Solar energy is an energy source which is always available and it is not subject to restrictions or conditioning. For this reason, it helps reaching energy autonomy. Consequently, thermal energy production is low-cost and not subject to price increases.

✪ Fast and easy installation. The production of devices in a Kit facilitates the assembly which also reduces installation time.

✪ Minimal maintenance. The equipment (collectors, regulators, pumps) and accessories require minimal maintenance.

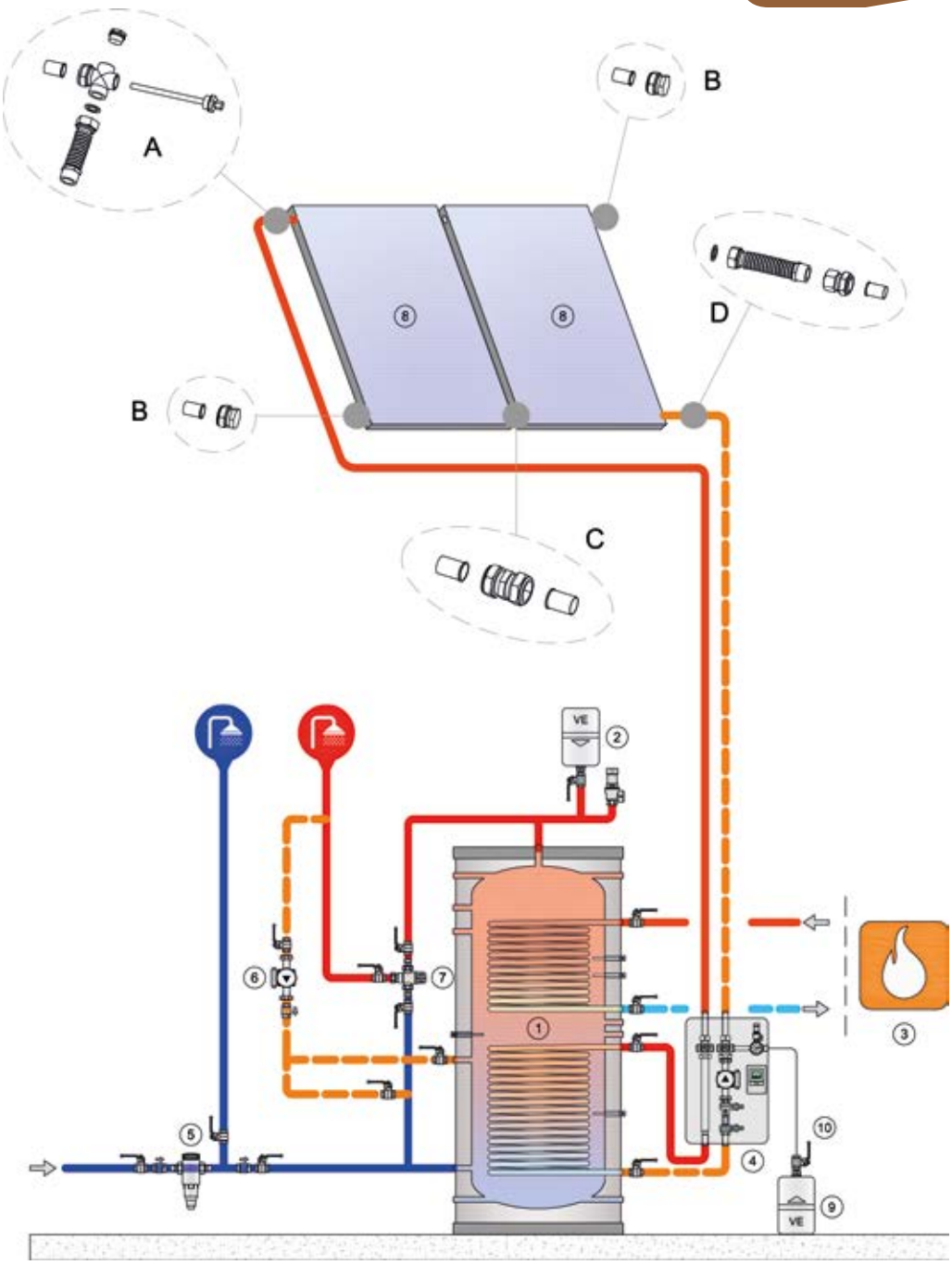
AQUA SUN Thermal Solar kit for DHW production

The Aqua Sun Kit is the easiest and most efficient way to produce hot water using solar power. There are two versions of the Aqua Sun systems which correspond to different daily needs (see 'daily needs' chart).



Principles

1. The sun heats the solar liquid in the solar collectors
2. The solar liquid reaches the storage tank and heats the water with help of the exchanger.
3. The hot water is available for domestic use.



List of components

A) kit outlet for the assembly of the collectors

B) kit plug for the assembly of the collectors

C) connection between collectors

D) kit inlet for the assembly of the collectors

List of components

1. Fiorini domestic water storage tank
2. safety unit
3. heating from alternative source
4. return unit solar thermal system
5. bacteriostatic cold water filter
6. sanitary recirculation pump
7. DHW thermostatic mixer
8. Fiorini solar collectors
9. solar expansion vessel
10. kit to fix the expansion vessel

AQUA SUN Thermal Solar kit for DHW production

Rif.		Series Code Price Energy label Composition Number of persons*	Aqua Sun 1 838111114X C 1 H2000+SMART2 200 x 2		Aqua Sun 1.1 838111115X C 1 H2500+SMART2 200 x 3	
8	Solar collector		1xH2000	pag. 260	1xH2500	pag. 262
A+B+D	Kit for basic connections		1 piece		1 piece	
C	Joint		-		-	
4	Solar station for pumping and regulation		S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0	pag. 268
-	Anti-freeze liquid		20 litres	pag. 279	20 litres	pag. 279
9	Expansion vessel		18 litres	pag. 279	18 litres	pag. 279
10	Set for fixing the vessel		SSTOAS	pag. 279	SSTOAS	pag. 279
1	Solar power water heater		SMART2 200	pag. 148	SMART2 200	pag. 148

Rif.		Series Code Price Energy label Composition Number of persons*	Aqua Sun 2 838111116X C 2 H2000+SMART2 SOLAR KIT x 4		Aqua Sun 2.1 838111123X C 2 H2500+SMART2 SOLAR KIT x 5	
8	Solar collector		2xH2000	pag. 260	2xH2500	pag. 262
A+B+D	Kit for basic connections		1 piece		1 piece	
C	Joint		1 piece		1 piece	
4	Solar station for pumping and regulation		S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0	pag. 268
-	Anti-freeze liquid		20 litres	pag. 279	20 litres	pag. 279
9	Expansion vessel		18 litres	pag. 279	18 litres	pag. 279
10	Set for fixing the vessel		SSTOAS	pag. 279	SSTOAS	pag. 279
1	Solar power water heater		SMART 2 SOLAR KIT 300 l	pag. 152	SMART 2 SOLAR KIT 300 l	pag. 152

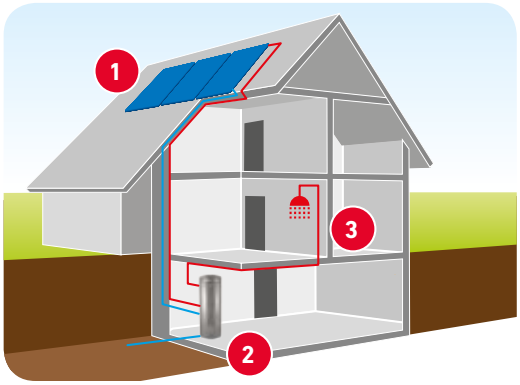
Rif.		Series Code Price Energy label Composition Number of persons*	Aqua Sun 3 838111117X C 3 H2000+SMART2 500 x 6		Aqua Sun 3.1 838111118X C 3 H2500+SMART2 500 x 7	
8	Solar collector		3xH2000	pag. 260	3xH2500	pag. 262
A+B+D	Kit for basic connections		1 piece		1 piece	
C	Joint		2 pieces		2 pieces	
4	Solar station for pumping and regulation		S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0	pag. 268
-	Anti-freeze liquid		20 litres	pag. 279	20 litres	pag. 279
9	Expansion vessel		18 litres	pag. 279	18 litres	pag. 279
10	Set for fixing the vessel		SSTOAS	pag. 279	SSTOAS	pag. 279
1	Solar power water heater		SMART2 500	pag. 148	SMART2 500	pag. 148

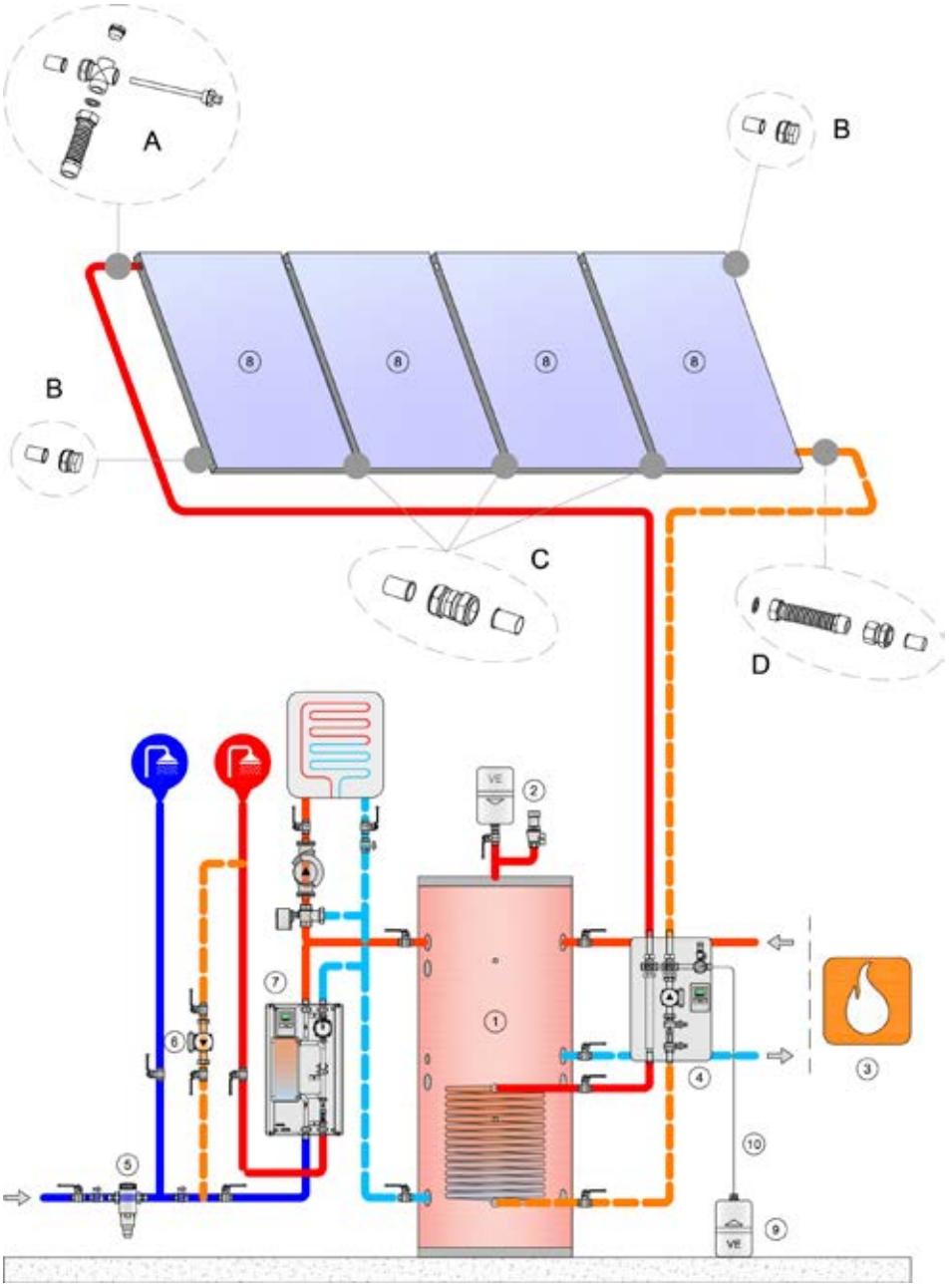
Thermal Solar power kit for DHW production and heating – COMBI SUN

The Combi Sun kit is the solution which makes it possible to heat domestic water and water for the heating system. There are three versions of the Combi Sun system which correspond to different daily needs and different compositions/surfaces.

Principles

1. The sun heats the solar fluid in the solar collectors.
2. The solar fluid reaches the storage tank and heats the water with the exchanger.
3. The hot water in the storage tank can be used to heat domestic water and to heat the surroundings.





List of components

A) kit outlet for the assembly of the collectors

B) kit plug for the assembly of the collectors

C) connection between collectors

D) kit inlet for the assembly of the collectors

List of components

1. Fiorini domestic water storage tank
2. safety unit
3. heating from alternative source
4. return unit solar thermal system
5. bacteriostatic cold water filter
6. sanitary recirculation pump
7. DHW thermostatic mixer
8. Fiorini solar collectors
9. solar expansion vessel
10. kit to fix the expansion vessel

Thermal Solar power kit for DHW production and heating – COMBI SUN

		Series Code Price Energy label Composition	Combi Sun 4 838111120X C 4 H2500+PFB800+SET25		Combi Sun 6 838111121X C 6 H2500+PFB1000+SET25		Combi Sun 8 838111122X C 8 H2500+PFB1500+SET40	
Rif.		Residence*	small		medium		large	
8	Solar collector		4xH2500	pag. 262	6xH2500	pag. 262	8xH2500	pag. 262
A+B+D	Kit for basic connections		1 piece		1 piece		2 piece	
C	Joint		3 pieces		5 pieces		6 pieces	
4	Solar station for pumping and regulation		S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0	pag. 268	S2 SOLAR 30 - 25/6.0	pag. 268
	Anti-freeze liquid		40 litres	pag. 279	60 litres	pag. 279	60 litres	pag. 279
9	Expansion vessel		25 litres	pag. 279	50 litres	pag. 279	50 litres	pag. 279
10	Set for fixing the vessel		SSTOAS	pag. 279	N.D.	pag. 279	N.D.	pag. 279
1	Puffer storage tank		PFB 800	pag. 240	PFB 1000	pag. 240	PFB 1500	pag. 240
7	SET 2.0 fresh water station		SET 25 2.0	pag. 218	SET 25 2.0	pag. 218	SET 40 2.0	pag. 218

N.A. Not Available

H2000 - High efficiency flat plate solar panels with aluminium tank

H2000 high performance solar collector – 2 m² with an aluminium frame for vertical and horizontal installation

The new solar collector is made of profiles in high quality anticorrosive aluminium (Al Mg). Closing system with integrated perimeter gasket in vulcanized EPDM, resistant to temperature swings and UV rays. Solar glass with antireflex safety, high transparency and a low iron content. Insulation in qualitative mineral wool without formaldehyde and adhesives. Absorber covered in highly selective vacuum aluminium. Connections. The collector can be installed on a roof, integrated or placed on a structure. Performance and quality tested.

Features

Unique and intelligent design

Unbeatable price/quality ratio

Precise manufacturing: construction on a motorized product line

Intelligent fixing system: reduced installation time

Several installation possibilities: up to 6 connected collectors, on tile, flat roofs…

	H2000 Vertical	
Gross surface	**code**	**price**
2 m²	821120058X	

Available models	
Article	**External dimensions**
H2000	1730 x 1170 x 83 mm

	Set for coupling collectors H2000/H2500	
	code	**price**
base	843070274X	
joint	843070275X	
expansion	843070277X	

Connection options

Parallel connection

Max 6 collectors

Series connection

Based on pressure drop

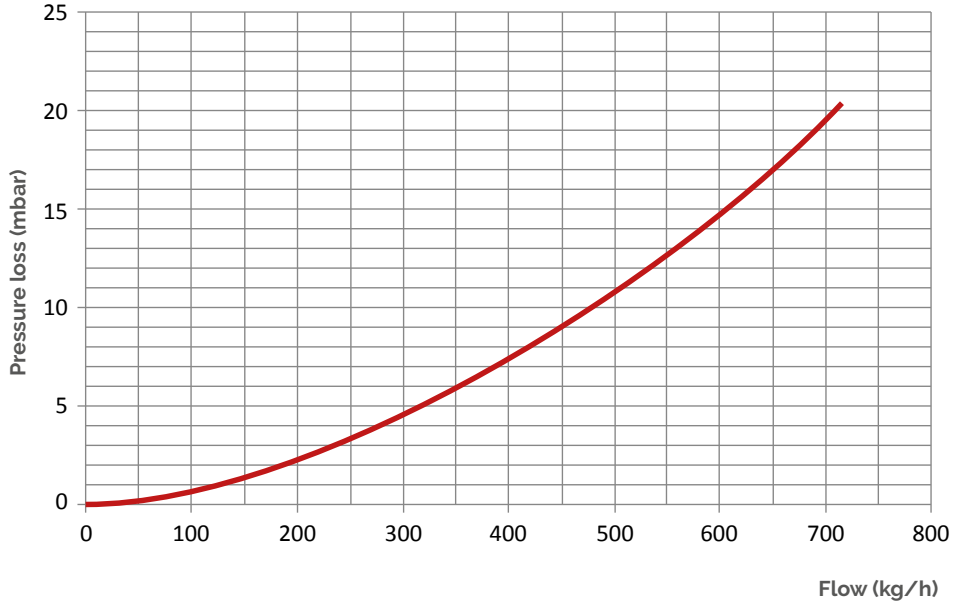
Combined connection

Based on pressure drop

H2000 - High efficiency flat plate solar panels with aluminium tank

Technical information	
Gross surface (m^2)	2,02
Exposed surface (m^2)	1,84
Net surface (m^2)	1,84
Capacity (l)	1,56
Flow	high flow/low flow
Glass thickness	3,2 mm
Glass transmission coefficient	91%
Thickness of insulation	40 mm piano
Absorber	covered in highly selective vacuum aluminium
Absorption	95%
Emission	5%
Connections	4 x 22 mm
Operating pressure	10 bar
Testing pressure	15 bar
Max temperature	192°C
Weight	35 kg
Certificates	EN 12975 + Keymark
Warranty	10 years (glass not included)

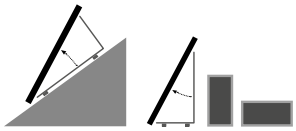
Efficiency coefficient	Opening	Absorber
η_0	0,814	0,814
a_1	4,061	4,061
a_2	0,013	0,013



Assembly

On the roof
Horizontal, vertical
Fixing kit, frames and accessories

Integrated
Horizontal, vertical
Set with connecting plates and accessories



Supported
Frame for horizontal or vertical structure

H2500 - High efficiency flat plate solar panels with aluminium tank

H2500 high performance solar collector – 2,5 m² with an aluminium frame for vertical and horizontal installation

The new solar collector is made of profiles in high quality anticorrosive aluminium (Al Mg). Closing system with integrated perimeter gasket in vulcanized EPDM, resistant to temperature swings and UV rays. Solar glass with antireflex safety, high transparency and a low iron content. Insulation in qualitative mineral wool without formaldehyde and adhesives. Absorber covered in highly selective vacuum aluminium. Connections. The collector can be installed on a roof, integrated or placed on a structure. Performance and quality tested.

Features

Unique and intelligent design

Unbeatable price/quality ratio

Precise manufacturing: construction on a motorized product line

Intelligent fixing system: reduced installation time

Several installation possibilities: up to 6 connected collectors, on tile, flat roofs…

	H2500 Vertical	
Gross surface	**code**	**price**
2.51 m2	821120067X	

Available models	
Article	**External dimensions**
H2500	2150 x 1170 x 83 mm

	Set for coupling collectors H2000/H2500	
	code	**price**
base	843070274X	
joint	843070275X	
expansion	843070277X	

Connection options

Parallel connection

Series connection

Based on pressure drop

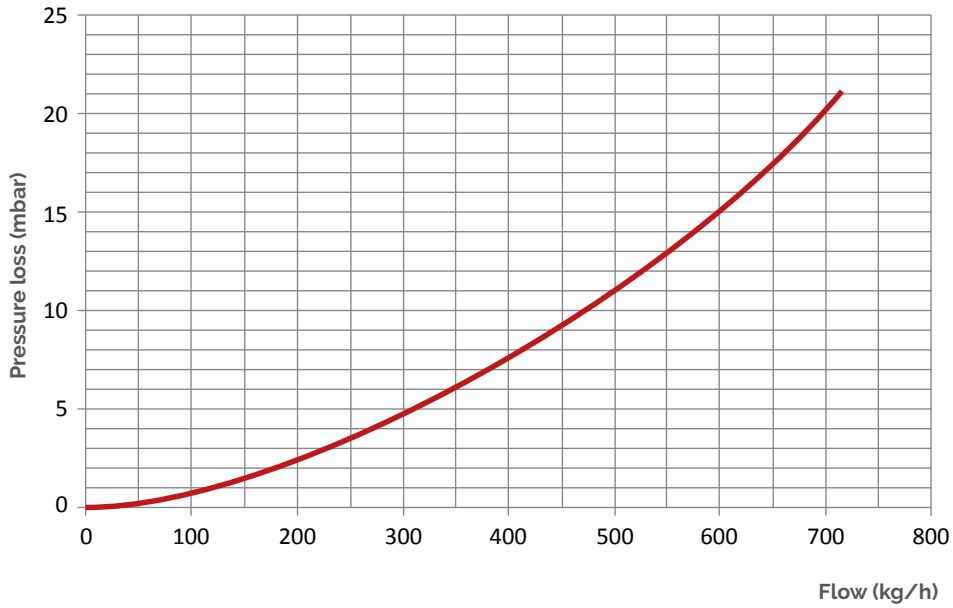
Combined connection

Based on pressure drop

H2500 - High efficiency flat plate solar panels with aluminium tank

Technical information	
Gross surface (m^2)	2,51
Exposed surface (m^2)	2,31
Net surface (m^2)	2,31
Capacity (l)	1,95
Flow	high flow/low flow
Glass thickness	3,2 mm
Glass transmission coefficient	91%
Thickness of insulation	50 mm piano
Absorber	covered in highly selective vacuum aluminium
Absorption	95%
Emission	5%
Connections	4 x 22 mm
Operating pressure	10 bar
Testing pressure	15 bar
Max temperature	192°C
Weight	35 kg
Certificates	EN 12975 + Keymark
Warranty	10 years (glass not included)

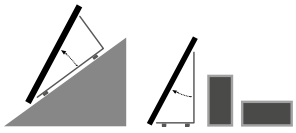
Efficiency coefficient	Opening	Absorber
η_0	0,807	0,807
a_1	4,04	4,04
a_2	0,012	0,012



Assembly

On the roof
Horizontal, vertical
Fixing kit, frames and accessories

Integrated
Horizontal, vertical
Set with connecting plates and accessories



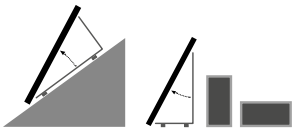
Supported
Frame for horizontal or vertical structure

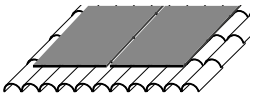
Assembly and materials

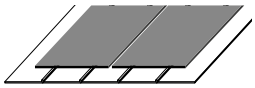
Assembly and materials

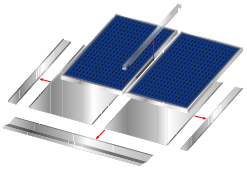
A broad range of installation solutions All models of the collector are available in several versions in terms of installation, fixing and materials. Depending on the functional characteristics and the type of roof (flat roof, pitched roof with tile, on sheet, etc.) it is possible to choose from a broad range of solutions to ensure the maximum structural strength of the system and efficient heat exchanging of the collector. Custom solutions are meant to match the solar power system with the rest of the architecture to minimize the visual impact and structural obstructions.

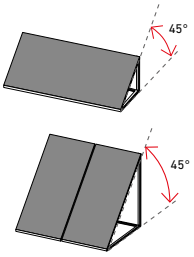
Installation	On the roof			Integrated	On a frame		
Models	On tile	On frame (roof)	Stainless steel sheet	Galvanized steel sheet	Stainless steel structure	Galvanized steel structure	Aluminium structure
H2000	✔	✔	✔	✔	✔	✔	✔
H2500	✔	✔	✔	✔	✔	✔	✔

Installation	
 On the roof vertical/horizontal installation kit, frame and accessories	On tile System for fixing the solar collector on a tiled pitched roof by means of sturdy hooks and frames. On sheet System for fixing the solar collector on a pitched sheet roof, with resistant aluminium structures and shaped welded stainless steel clamps.
 Integrated vertical/horizontal coupling sheets and accessories	Plates for integrated mounting, rain and snow-proof, grooved and shaped for a perfect concordance between the collector and the tiles.
 On a frame vertical/horizontal frame	Supporting structure for mounting the solar collector in 45° from the flat surface. Suitable with flat and pitched roof.



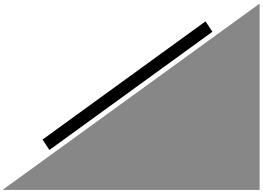


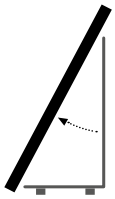


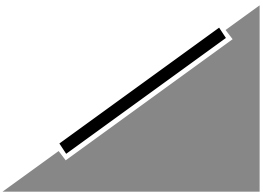


Collector fixing systems

Standard solar collector fixing systems H2000/H2500						
Arrangement			Vertical		Horizontal	
Installation		Num. Panels	code	price	code	price
On the roof	On tile	■	843070210X			**
		■■	843070211X			**
		■■■	843070212X			**
		■■■■	843070213X			**
		■■■■■	843070214X			**
		■■■■■■	843070215X			**
	On tile/sheet	■	843070301X			**
		■■	843070294X			**
		■■■	843070293X			**
		■■■■	843070302X			**
		■■■■■	843070303X			**
		■■■■■■	843070304X			**
On support (structure to be put on flat surfaces)	45° pitched aluminium	■	843070242X			**
		■■	843070243X			**
		■■■	843070244X			**
		■■■■	843070245X			**
		■■■■■	843070246X			**
		■■■■■■	843070247X			**
Integrated in tile	H2000	■	843070368X			N.D.
		■■	843070369X			N.D.
		■■■	843070370X			N.D.
		■■■■	843070371X			N.D.
		■■■■■	843070372X			N.D.
		■■■■■■	843070373X			N.D.
	H2500	■	843070305X			N.D.
		■■	843070306X			N.D.
		■■■	843070307X			N.D.
		■■■■	843070308X			N.D.
		■■■■■	843070309X			N.D.
		■■■■■■	843070310X			N.D.

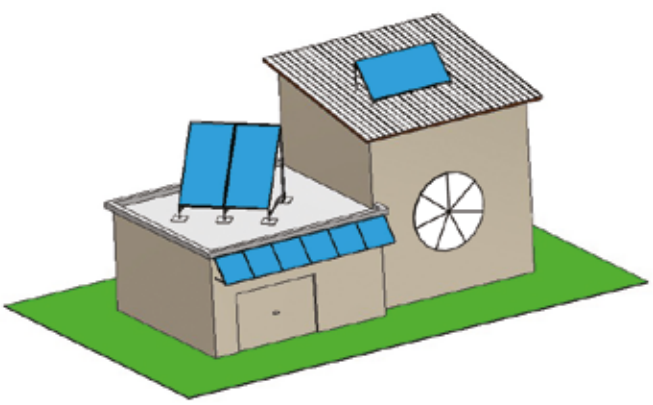






** ask for a quote

Examples of installation

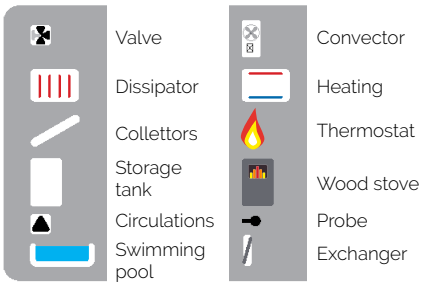


MTDC Solar regulator

The MTDC differential controller is an electronic regulator for solar power systems. It is equipped with a large LED screen which enables an efficient control of the solar power system. A very useful wizard will guide you during the start-up of the system. Step by step the wizard program will configure your system using one of the various pre-set hydraulic diagrams indicated in the following list.

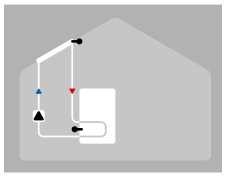
Technical data	
Temperature sensor Pt1000	3
Relay outputs 230VAC	1
0-10V or PWM outputs	1
Power supply	230 VAC
Protection Category	IP 40

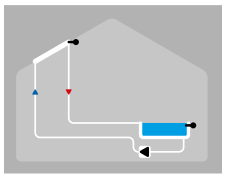
Code	Price
822130020	

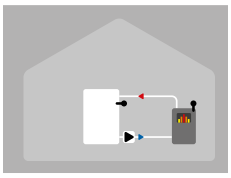


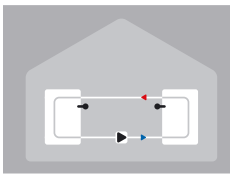
Pre-set installations

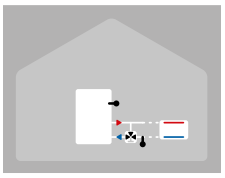
TESTED

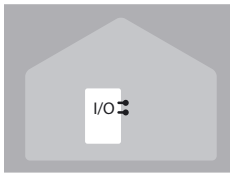

Solar + tank


Solar + pool


Wood-fired boiler with tank

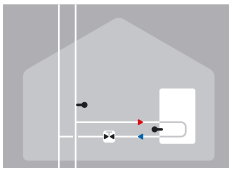

Tank recharge

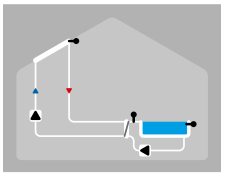

Solar with heating circuit

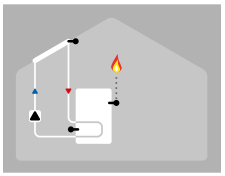


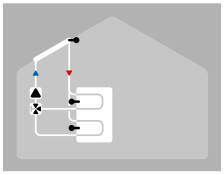
Thermostat

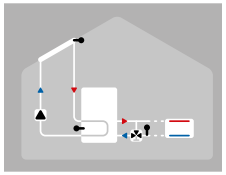
Universal temperature

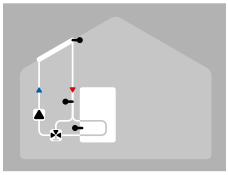

Cut-off valve

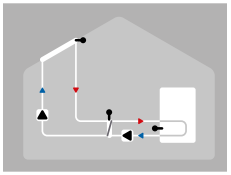

Solar with heat exchanger (sensor on secondary) and pool

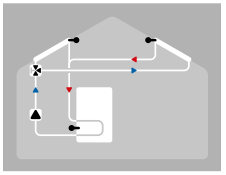

Solar with thermostat (auxiliary heating)

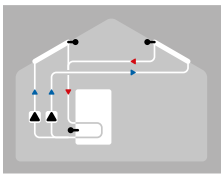

Solar with double zone tank

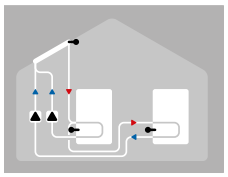

Solar with heating circuit

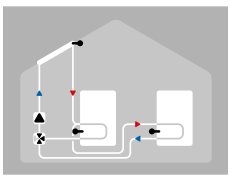

Solar with bypass

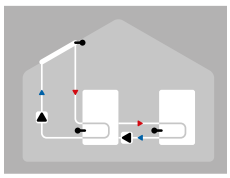

Solar with exchanger

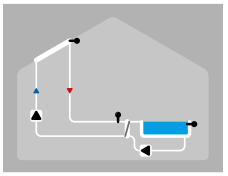

Solar with two collectors

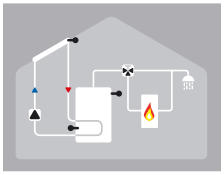

Solar with two collectors and two pumps

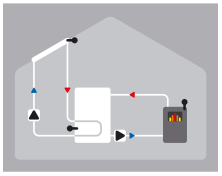

Solar with two tanks and two pumps

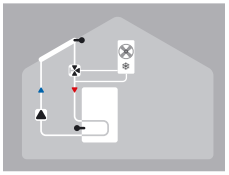

Solar with two tanks and valve

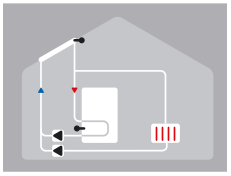

Solar with storage tank

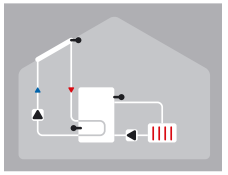

Solar with pool and exchanger


Solar with thermostat and valve


Solar with wood-fired boiler


Solar with cooling 1 (panel cooling)


Solar with cooling 2 (panel cooling)


Solar with cooling 3 (panel cooling)

S1 SOLAR 1
Solar module

The Solar module S1 SOLAR 1 is pre-assembled, tested and can be used for small solar installations.

The unit consists of a single return circuit.
The return circuit is equipped with:

- Flow meter and flow regulator, together with fill and drain couplings
- Solar circulation pump
- Ball valve with check valve. The check valve can be deactivated by turning the handle 45° (useful when filling the device)
- Thermometer 0-120 °C
- Safety valve (6 bar) with manometer Ø50 mm 0-10 bar and screwed drain 3/4" F
- Coupling for expansion vessel 3/4" M

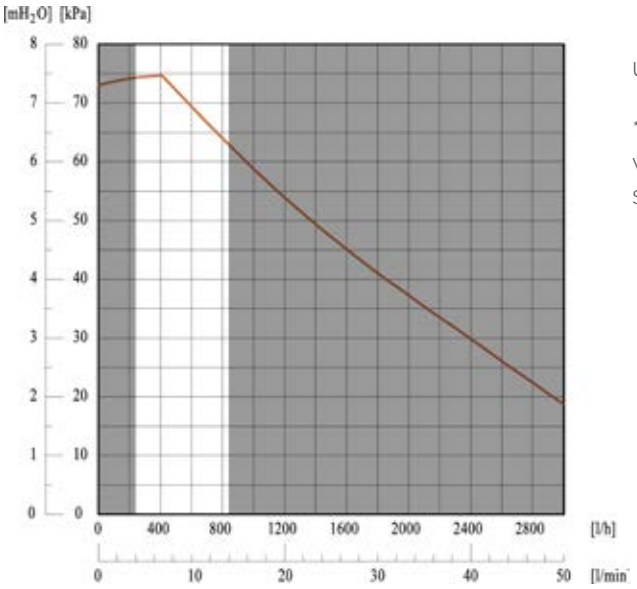
TESTED

The solar module is available in one version

Code	Model	Flow (l/min)		Power min/max W	Price	P. max	T. max
		Min.	Max.				
838110001	S1 SOLAR 1	2	12	3 / 45		6 bar	120°C(*)

For a brief period (20s) the max T is 160°C

Flow/performance curve



up to 16 m²*

* approximate value, to be verified based on the installation conditions

S2 SOLAR 30
Solar module

The Solar module S2 SOLAR 30 is pre-assembled, tested and can be used in small and medium solar installations. It is equipped with a pre-wired regulator and temperature sensors.

The unit consists of a RETURN and DELIVERY circuit.
The delivery circuit comes with:

- Ball valve with check valve. The check valve can be de-activated by turning the handle 45° (useful when filling the device)
- Thermometer 0-120 °C
- Deaerator made of brass, with manual vent valve
- Piping and couplings

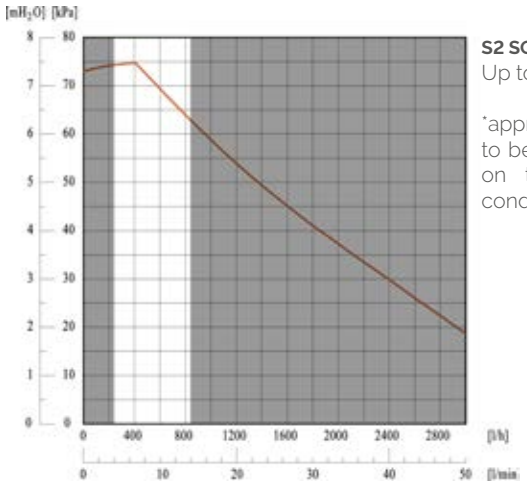
Return circuit comes with:
- Flow meter and flow regulator, equipped with fill and drain connections
- Solar circulation pump
- Ball valve with check valve. The check valve can be de-activated by turning the handle 45° (useful when filling the device)
- Safety valve (6 bar) with manometer
- Coupling for expansion vessel ¾" M
- Thermometer 0-120 °C

The solar module is available in two versions depending on the flowmeter

Code	Model	Flow (l/min)		Potenza min / max W	Price	max. press.	max. temp.
		Min.	Max.				
838110064X	S2 SOLAR 30 - 25/6	2	12	3 / 45		6 bar	120 °C (*)
838110065X	S2 SOLAR 30 - 25/7	8	28	3 / 45		6 bar	120 °C (*)

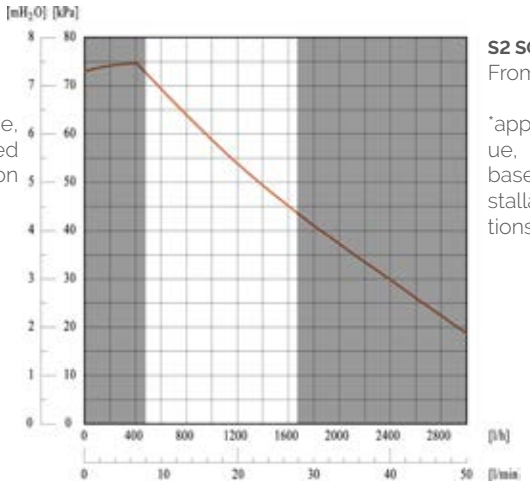
(*) For a brief period (20s) the max T is 160°C

Flow/performance curve



S2 SOLAR 30 - 25/6
Up to 16m²

*approximate value, to be verified based on the installation conditions



S2 SOLAR 30 - 25/7
From 8 up to 35m²*

*approximate value, to be verified based on the installation conditions

S2 SOLAR 2
Solar module

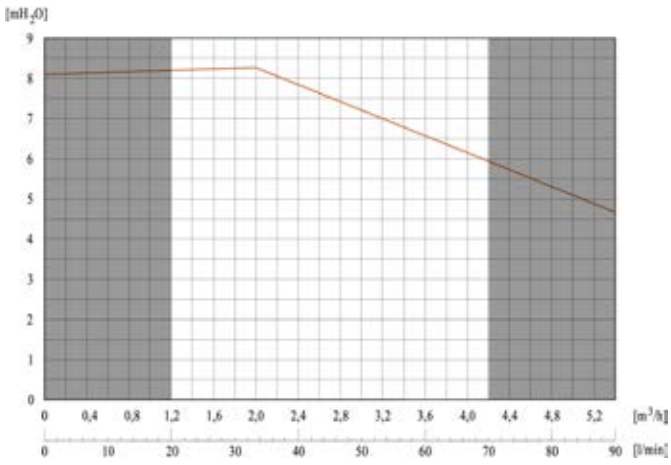
The two-pipe solar station consists of the following components:

Return:
- Flow regulator gauge 20-70 l/min
- high efficiency synchronous solar circulator 0-10V command
- ball valve with non-return valve 18 bar (the non-return
- valve can be left out by turning the handle for 45 degrees) with a thermometer handle (thermometer with blue ring; 0°C-120°C).
- T coupling for the safety unit
- 6 bar safety unit with 0-10 bar manometer - ¾" male connection for expansion vessel. Drain outlet 1"F

Delivery:
- T coupling for well probe holder
- ball valve with non-return valve 18 mbar (the non-return valve can be left out by turning the handle for 45 degrees) with a thermometer handle (thermometer with red ring; 0°C-120°C).
- coupling tube and coupling

Other features:
- EPP insulation box (dimensions: 125x250x400 mm).
- Wall mount set.
- Nominal pressure: 10 bar.
- Continuous temperature: 120°C (brief period: 160°C for 20 sec.).
- External couplings: 22 mm compression coupling and 1"¼ female coupling.
- WILO TOP S 30/10 solar thermal pump (can be closed, does not have to be drained when serviced)
- Power: 195 / 270 / 380 W

Dimensions:
- Couplings: 11/4"
- Wheelbase: 125 mm
- Width with insulation: 285 mm
- Height with insulation: 500 mm



From 30 up to 90m2*
*approximate value, to be verified based on the installation conditions

Code	Model	Flow (l/min)		Potenza min / max W	Price	max. press.	max. temp.
		Min.	Max.				
838110068X	S2 SOLAR2	20	70	8/130		6 bar	120°C(*)

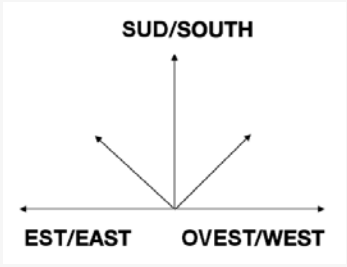
Document to request further information on solar thermal installations

Address			
Client		**Type of residence (one family, condo)**	
Name		Name	
Street		Street	
Postal code/city		Postal code/city	
Telephone		Telephone	
Fax		Fax	

Requested installation			**Planned cost of the installation**		
☐ DHW (domestic hot water)			Budget €		
☐ Heating (room)					
☐ Heating (swimming pool)					
Hot water use			**Consumer/recirculation profile**		
Number of persons			Peak need		h
Hot water per person			Recirculation	☐ yes	☐ no
Period of the year			Duration		h per day
☐ Connection to dish washer wanted			Total length of the pipes		m
☐ Connection to washing machine wanted					
other HW/g consumption		L/g			
Use for room heating					
Gross surface of the room		m²	Specific energy consumption		KWh/ mq°a
Wanted temperature		°C	Min outside temperature		°C
Temperature at which the heating switches on		°C outdoor	Type of heating (radiator, solar panels)		
			Period of the year		
Use for heating (swimming pool)					
Length		m	☐ Indoor swimming pool		
Width		m	☐ Outdoor swimming pool		
Average depth		m	☐ With coverage		
Heating system			**Position of the solar thermal central**		
Wood		KW	☐ Cellar		
Fuel		KW	☐ Apartment		
Gas		KW	☐ Attic		
Heat pump		KW	Surface of the thermal central		m²
Electrical energy		KW	Height		m
Other		KW	Access to the thermal central		m x m

Document to request further information on solar thermal installations

Installation of the solar panels				
☐ Integrated in the roof	Useful size of the roof			m
☐ On the roof	Useful height of the roof			m
☐ On the façade (optional)	Height of the installation			m
☐ On tile	Shadow	☐ yes	☐ no	
☐ Other	need of crane	☐ yes	☐ no	

orientation of the roof		solar tubes (length, simple)		
orientation		External		m
		Internal		m
Inclination				

Quality of the water	Intensity of the wind
☐ Soft	☐ Calm
☐ Medium	☐ Low
☐ Hard	☐ Medium
☐ Very hard	☐ Hard

Use		Notes
Hot water	%	
Room heating	%	

Annual cost for heating		
DHW cost		Euro
Heating cost		Euro
Total cost		Euro
Cost per unit		Euro

Confirmation of data
Hereby I confirm the correctness of the data provided
Date and signature of the requester

Privacy
The personal data included in this form will be processed according to current laws about privacy. Please see the privacy notice, full text is available at **go.fiorinigroup.it/eng/privacy** Filling this form you agree to the privacy notice and allow data processing.
Date and signature of the requester


450
550
650
790
850
300°
315°

Accessories and Insights

Contents

for DHW storage
pag. 274

storage special versions
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for fast heaters
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for fresh water stations
pag. 278

for solar thermal
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Standard accessories for DHW storages
Storage tanks loading controller SLC

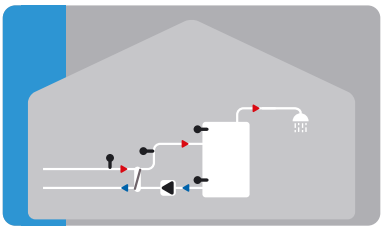
The SLC unit is a modern electronic regulator for loads of large DHW storage tanks with a high temperature precision. They are equipped with a wide display and makes it possible to program the desired temperature in the inside of the tanks on three different peak times a day. It is possible to control and command the electronic pump on devices AFK, AFW and AFK HD (up to HD 200) (0-10 V or PWM) by regulating the velocity on the ground of the difference between the measured temperature and the set point temperature. When cold water is stored the velocity of the pump is reduced in order to maximize the stratification in the tank. Numerous hydraulic programs are pre-loaded in the control unit, as you can see below.

Composition

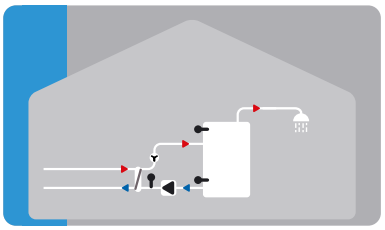
✔ electronic control unit
✔ 2 contact probes Pt1000 (R22070014)
✔ 1 emersion probe Pt1000 (R22070134)
✔ instructions

Technical data	
Inlet for the temperature probe pt 1000	6
Inlet for the grundfos VFS sensor	0-2
Outlet 230V	3
Outlet 0.0010V or PWM for the control of the high efficiency pump's velocity	1
Number of pre-set programs	5
Red/green LED light	✔
Energy gauge	✔
Crono function of the thermostat	✔
Crono function of the thermostat for the activation of the pump	✔
Anti-legionella function	✔
Memorizing the data with statistics and graphics	✔
Possibility to block the menu	✔
Universal alimentation (100...240 VAC) with reduction of the consumption in standby mode	✔

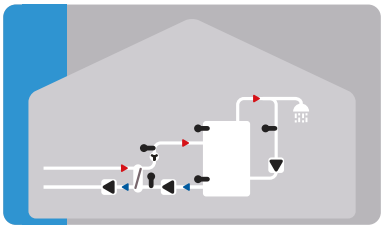
Code	Price
822120028	



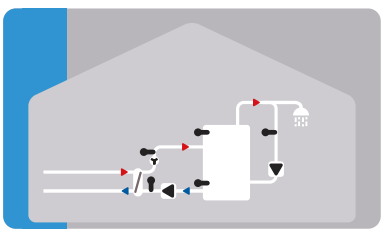
Storage load without VFS



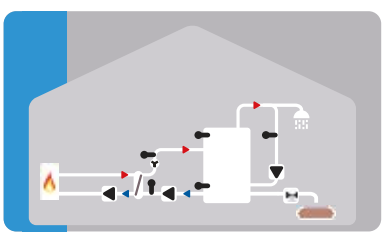
Storage load with VFS



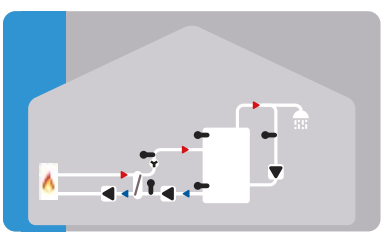
Storage load with VFS, primary pump and recirculation pump



Storage load with VFS and recirculation pump



Storage load with VFS, primary pump, anti-legionella heating and drain of sediments



Storage load with VFS, primary pump, anti-legionella heating and recirculation pump

Standard accessories for DHW storages

Magnesium anode

Capacity	Description	Code	Price
Magnesium anode 22x400 M8 without plug	FLEXY, FLEXY INOX, BOIL , BOIL INOX, SMART INOX capacity 200÷300 l	R22100003	
Magnesium anode 33x500 M8 without plug	"FLEXY, FLEXY INOX, BOIL , BOIL INOX, SMART INOX capacity 500÷5000 l 6000÷10000 l (N°2 pieces)"	R22100004	

Each installed anode needs a plug, see table below.

Plug for anode

Capacity	Code	Price
Galvanized steel plug for anode 3/4"	R01050040	
Galvanized steel plug for anode 1"	R01050041	
Galvanized steel plug for anode 1"1/4	R01050042	
Galvanized steel plug for anode 1"1/2	R01050066	

Magnesium anodes for SMART boilers

Capacity	Description	Code	Prezzo
200	Isolated anode 33 x 500	R22100013	
300	Isolated anode 33 x 500	R22100013	
500	Isolated anode 33 x 500	R22100013	
	Magnesium anode 22 x 400 M8 without plug	R22100003	
750	Isolated anode 33 x 500	R22100013	
	Magnesium anode 22 x 400 M8 without plug	R22100003	
1000	Isolated anode 33 x 500	R22100013	
	Magnesium anode 22 x 400 M8 without plug	R22100003	
1500	Magnesium anode 33 x 500 M8 without plug	R22100004	
	Plug for anode fitting 1"1/4	R01050042	
2000	Magnesium anode 33 x 500 M8 without plug	R22100004	
	Plug for anode fitting 1"1/4	R01050042	
3000	Magnesium anode 33 x 500 M8 without plug	R22100004	
	Plug for anode fitting 1"1/4	R01050042	

Current impressed cathodic protection

Description	Code	Price
Up to 1500 litres	822100014	
From 2000 to 5000 litres	822100015	

Thermometer

Description	Code	Price
thermometer for hot water	822050001	
thermometer for cold water	822050004	

Thermostats

Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	822010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	822010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	822010007	

Standard accessories for DHW storages

Single-phase electrical heaters that can be integrated with the boilers, copper heating elements, IP44 protection category, supplied with regulation thermostat (range 20-70 °C), safety thermostat (manual reset), electric cable and Schuko plug 10-16A/250V

Code	Price	Power W	Length L mm	Connection GAS M	Temperature safety thermostat °C	Tension V
824100166		1200	365	1"1/2	95	220 V MONOFASE
824100167		2000	368	1"1/2	95	
824100168		3000	350	1"1/2	85	

Three-phase electrical heaters that can be integrated with the boilers, copper heating elements, IP44 protection category, supplied with regulation thermostat, safety thermostat (manual reset), electric cable and no plug.
Thermostat range 20-70 °C

Code	Price	Power W	Length L mm	Connection GAS M	Temperature safety thermostat °C	Tension V
824100169		2000	300	1"1/2	95	400 V TRIFASE
824100170		3000	300	1"1/2	95	
824100171		4500	375	1"1/2	95	
824100172		6000	450	1"1/2	95	
824100173		9000	580	1"1/2	95	

Heads

Diameter mm	Code	Price
300	843030018X	
380	843030019X	
430	843030020X	

The heads are made of carbon steel, varnished for alimentary use.
They are supplied with nuts, bolts and gaskests.

Tube heat exchanger and exchanger with copper spiral see pag. 183-184.

Gaskets with or without crossbeam

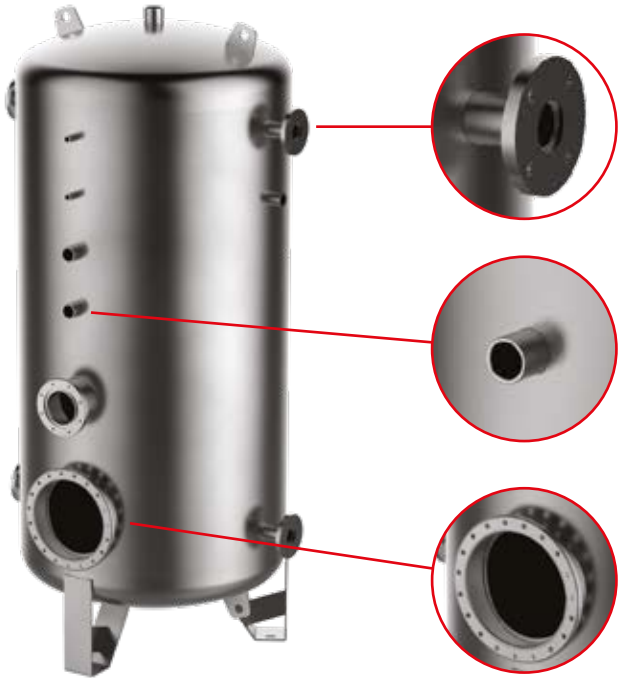
Diameter mm	Asbestos free				Asbestos free steam			
	Without crossbeam		With crossbeam		Without crossbeam		With crossbeam	
	Code	Price	Code	Price	Code	Price	Code	Price
300	R08020036		R08020037		R08060026		R08060001	
380	R08020038		R08020039		R08060027		R08060002	
430	R08020040		R08020041		R08060028		R08060003	

The copper coils have a gasket without cross-beam with the same diameter as the assembly plate.
The tube heat exchangers have two gaskets: one with and one without a cross-beam. Both have the same diameter as the closing head.
The blind closing heads have one gasket without cross-beam with the same diameter as the assembly plate.

Special versions of DHW storages

Special executions change the conformation of the products and hence the sales code will be different depending on the special execution required. Fiorini is able to meet any out-of-the-box request quickly, providing the customer with the assistance they need to guide them to the solution that best suits their needs. Here are some examples of special executions:

- Flanged (in various materials)
- Victaulic (in various materials)
- Larger size
- Customized on request



ALUMINIUM sheet coatings

Accessory for outdoor installation.
It is mandatory to provide a wooden cage for transportation.

Packed in wooden cage

Guarantees greater product protection during transport

Accessories compatibles with product ranges: FLEXY, SMART, BOIL, PUFFER, COMBI

Standard accessories for fast heaters

Insulation kit AFK
for exchanger and fittings
See pag 188

Code	Description	Price
843090014X	Insulation kit for AFK	

SLC electronic control unit
See pag 274

Code	Description	Price
822120028	SLC electronic control unit	

ACCESSORY only up to and including AFK HD 200, for larger sizes it is not available.

Insulation kit AFW
for exchanger and fittings
See pag 190

Cod.	Accessorio	Prezzo
843090091X	AFW insulation kit WP4/14	
843090092X	AFW insulation kit WP4/20	
843090093X	AFW insulation kit WP4/30	
843090094X	AFW insulation kit WP4/40	
843090095X	AFW insulation kit WP4/50	

Insulation kit for AFK-HD
See pag 197

K042		K080	
Code	Price	Code	Price
821080037X		821080038X	

Standard accessories for fresh water stations

AQUAMATIC Accessories
See pag 202

Code	Description	Price
829000209X	Kit resistor	
842030116X	Kit internal primary mixing valve	
842030120X	Kit external deviation valve for stratification	
842030119X	Kit recirculation pump	
817010158X	Accessory puffer 70 litres AQUAMATIC 200/300	
817010159X	Accessory puffer 90 litres AQUAMATIC 500	
838110069X	Solar station no pump	
452010010	Kit serial port RS485	
452010006	Kit web (remote control)	

SET 2.0 wall-mounted Accessories
See pag 218

Code	Description	Digital outputs	Price
842030089X	External kit in series	1	
842030099X	External kit recirculation SET 2.0	1	
842030097X	External kit mixing valve set 2.0	2	
842030095X	External kit deviation valve set 2.0	1	

SET 2.0 mounted Accessories
See pag 227

Code	Description	Digital outputs	Price
842030092X	External kit in series SET 2.0 DN32 models 60 - 70 -80 -100 -120	1	
842030140X	External kit in series SET 2.0 DN50 models 200	1	
842030099X	External kit recirculation SET 2.0 (no pump)	1	
842030096X	External kit deviation valve set 2.0	2	
842030098X	External kit mixing valve set 2.0	1	

Standard accessories for Solar Thermal

Drain valve

Code	Description	Price
809040007	Permanent drain valve for solar power system DN20	
809040012	Permanent drain valve for solar power system DN25	

Technical data		
	809040007	**809040012**
Material	stainless steel	brass
Max operating temperature	from -30°C to +200°C	180°C
Max operating pressure	10 bar	10 bar
Fitting	2 x 3/4" FF DN20	2 x 1" IG, 1 x ½" FE

Expansion vessel

Code	Description	Price
811010061	Expansion vessel for solar power system 18 LT	
811010062	Expansion vessel for solar power system 25 LT 10	
811010094	Expansion vessel for solar power system 50 LT	
811010065	Expansion vessel for solar power system 80 LT	

Technical information				
	811010061	811010062	811010094	811010065
Capacity	18 lt	25 lt	50 lt	80 lt
Pre-load pressure	3 bar			
Max. operating pressure	10 bar			
Fittings	1 x 3/4" AG			

Set of fittings for expansion vessel

Code	Description	Price
843070019	Set of fittings for expansion vessel	

Set of fittings for expansion vessel 18 and 25 l with brass quick-fit coupling for changing the vessel when the device is under pressure.

Included in the set:
- galvanized steel wall mount
- stainless steel flexible pipe with 2 x ¾" IG end fittings for direct connection of expansion tank to pump
- Screws, anchors, brass reductions from 1" IG to ¾" AG.

Pre-mixed antifreeze liquid (46%)

Code	Description	Price
830040032	Can of 10 l	
830040031	Can of 20 l	

Description
Mix of protective liquid, anticorrosive liquid and antifreeze liquid. Ready for use, non-toxic and biodegradable

Technical data	
Components	Propanidol and a lot of propylene glycol in a liquid solution
Colour	green
Ph	da 7,5 a 9 (not diluted, at 20°C) (DIN 51369)
Pour point	-34° C (DIN 51583)
Boiling point	ca. / approx. +107° C (with atmospheric pressure)
Continuous temperature	max. 180° C
Vapour pressure	ca. 20 hPa (at 20° C)
Density	ca. 1,065 g/cm3 (a/at 20° C) (DIN 51757)
Viscosity/ kinematics	from 6 to 8 mm2/s (a 20° C) (DIN 51562)

Standard accessories for Solar Thermal

2-way motor-driven valve

Description	Code	Price
DN25 2-way motor-driven valve, closed when not powered.	809020103	
DN32 2-way motor-driven valve, closed when not powered.	809020104	

ON/OFF motor-driven 2-way valve with red brass casing, internal elements made of brass and steel. Adjusted by electro-thermal device (manual emergency command) with an adjustment time of approximately 3 min.

Technical information			
	809020103	809020103	809020104
Max. operating pressure	10 bar		
Max. operating temperature	120°C, for briefs periods up to 140°C		
Motor	230 V - 2,5 watt		
Couplings	1 x ¾" IG 1 x ¾" FE	1 x 1" FI 1 x ¾" FE	1 x 1¼" FI 1 x 1¼" FE

Motor-driven 3-way valve

Description	Code	Price
Motor-driven 3-way valve DN20	809020237	
Motor-driven 3-way valve DN25	809020238	
Motor-driven 3-way valve DN32	809020239	
Motor-driven 3-way valve DN50	809020241	

ON/OFF motor-driven 3-way valve with red brass casing, internal parts made of brass and steel, one inlet - two outlets. Can be adjusted with an electro-thermal device (manual emergency command). The valves come with threaded brass fittings.

Technical information				
	809020237	809020238	809020239	809020241
Max. operating pressure	10 bar			
Max. operating temperature	120°C, for briefs periods up to 140°C			
Motor	230 V - 2,5 watt			
Couplings	3 x ¾" FE	3 x 1 FE	3 x 1¼" FE	3 x 2" FE

Electric actuator for valve series

Description	Code	Price
Electric actuator for valve series 645 220 V threeway, two point control	809020150	

Standard accessories for Solar Thermal

Thermostatic Mixer tap for domestic water

Description	Code	Price
Thermostatic Mixer tap for domestic water 35-60°C-1"	809020151	
Thermostatic Mixer tap for domestic water 35-60°C-1" 1/4	809020152	

Technical information	
Max. operating pressure	10 bar
Max. operating temperature	100°C
Couplings	3 x 1" FE
Fittings	3 x ¾" FE

Single burn-proof mixer tap with red brass casing for integration in hot water piping with a set of fittings. Independent adjustment and water temperature limitation without additional delivery, continuous adjustment between 30 and 70°C.

SLC controller
see pag 274

Code	Description	Price
822120028	SLC controller	

Tank treatments

Bluetech

Bluetech is an innovative treatment, which is obtained from thermo-setting resins. It offers a lot of advantages in comparison to traditional treatments:

- excellent resistance and stability under high temperature
- excellent adhesion to the carbonized steel and high elasticity
- hermetically closed
- effective barrier against cathodic delamination
- long life span

It is specifically designed for coating the inside of our water heaters and Domestic Hot Water tanks (DHW) and can be used with drinking water. Bluetech is conform with DM 174/2004 and therefore suitable for use with drinking water as prescribed by DLgs 31/2001 (att.dir. 98/83/CE.

Properties

The following data apply to a coating on 3 mm thick carbonized steel sheets as in the standard conditions.

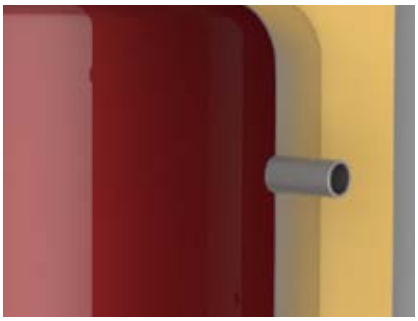
Application	Electrostatic
Firing	20 min/200°C
Film thickness	100 ÷ 140 µm
Look	Smooth / Glossy
Pencil hardness	H ÷ 2 H
Color	Blue RAL 5002

Stainless steel

In some cases when chlorides are present, even stainless steel can be damaged due to corrosion. In order to eliminate this risk our water heaters are made with special austenitic steel, such as AISI 316L (low carbon) and for more aggressive water for special versions, AISI 316 Ti (with Titanium). We use AISI 316L .4404 EN 10088-2 steel for installations with drinking water (suitable for drinking water in accordance with DM 174/2004).

Glass-lining

The solution guarantees protection against corrosion. The enamel is vitrified, by firing it at more than 800°C. The enamel is different from other kinds, i.e. the chemical composition is inorganic (no carbon) and there are chemical links. Glass-lining is only applied to tanks of a medium capacity. The enamel is inorganic (DIN 4753.3) and therefore suitable for use with drinking water (DM 174/2004)



User conditions

If you want to properly use the storage tanks and prevent malfunctions or damage, you should respect the following limitations:

a) the storage tank has to be equipped with an efficient cathodic protection.
b) The quality requirements for drinking and food-grade water has to be in accordance with DLgs 31/01 (att. Dir 98/83/CE) and in particular they should respect the following parameters.

Hydrogen-Ion concentration pH (*)	6,5 ÷ 9,5
Electrical conductivity µS cm-1 (a 20°c)	< 2500
Chlorides mg/l ci	< 250
Sulphates mg/l SO4	< 250
Total hardness °Fr (*)	required min. 15

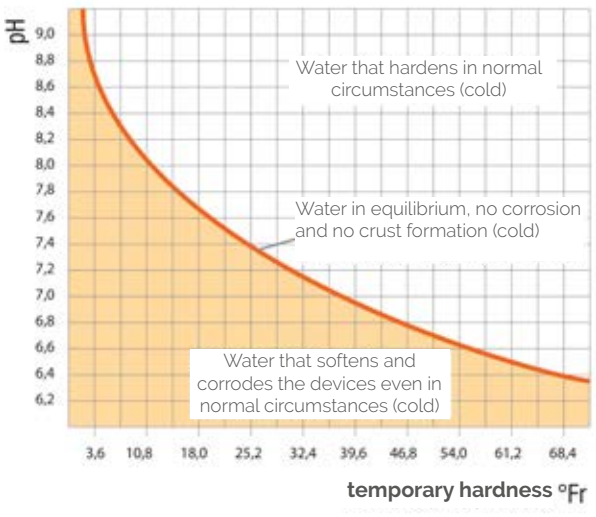
(*) The water is treated according to the Tillmann diagram to satisfy the hygienic requirements and to ensure an equilibrium (no crust formation, no hardness). The prescribed treatments (UNI 8065) cannot hinder the use of the water for food preparation and have to be carried out with the right devices. In case of softening or desalination the total hardness of the treated water cannot be less than 15°Fr (DM 443/90)

c) The max operating temperature should always be respected. It should be kept in mind that the water aggressiveness soars when the temperature increases, especially above 60°C.

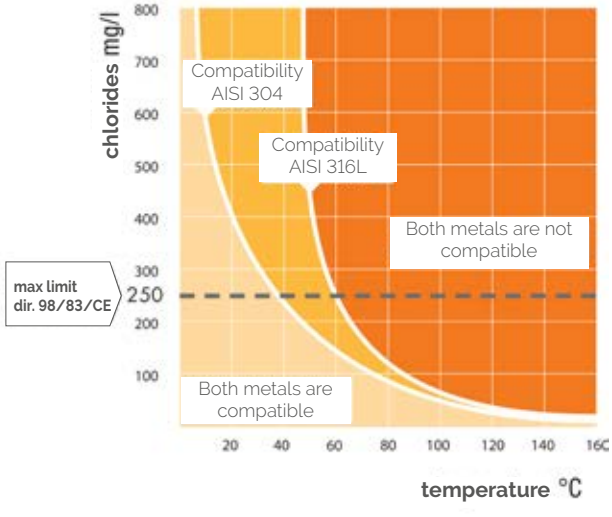
Water and usage

The different types of water, hard water and soft water, are classified on the basis of their Ph value and their temporary hardness. The compatibility of AISI 304/316 L steel is based on the presence of chlorides and the water temperature.

Tilmann diagram (UNI 9182 Art.17)



Compatibility diagram



Available protection equipment

Overpressure protection

To prevent undesirable effects caused by overpressure, it is recommended to use protective devices, such as a safety valve. Since water is incompressible and it expands when heated, an adequate expansion system should be installed which can prevent a rupture in the water heater. We suggest you respect the ISPESL norms (collection R-Cap R.1.A) which state that expansion systems in heaters with water for consumption can be created with a pressure relieve valve, a counterweight or a spring with a diameter calculated with the following formula:

$$d \geq \sqrt{\frac{V}{5}}$$

V = volume of the heater in litres
D = diameter of the valve orifice (minimum 15 mm)

N.B. The valve's calibration pressure should not exceed the max operating pressure of the water heater.

Expansion vessel
To prevent a continuous drainage by the safety valve, chalk formation and strain on the water heater, you should also provide a closed expansion vessel with a non-toxic valve (for food-grade water). The volume should not exceed 10 % of the storage tank's volume.

Device to soften water hammering
When the water flow is stopped brusquely or suddenly, that can cause "pressure waves", which can damage or rupture the device. Because of this, all systems for chilled and hot water distribution have to be equipped with a device to soften water hammering, either mechanical (with a spring) or even better hydro pneumatic (permanent or resettable air cushion) (UNI 9182 Art. 15).

Antifreeze protection
If the storage tank is exposed to temperatures below zero for extended periods, the device should be protected with heating devices or a continuous flow which makes sure that the water does not stay still. (UNI 9182 Art. 20.4.3.)

Electrical protection
To protect the users against possible fault currents, the metallic mass should be properly floor-grounded. (as by law DM 37/08)

Cathodic Protection against corrosion
Corrosion is an electro-chemical phenomenon which especially affects water heaters because in water tanks which are constantly refilled the softness of water increases very much when the temperature increases (especially above 60°C). Therefore, it is recommended to provide 'cathodic protection'.

Magnesium Anodes
In order to make the storage tanks cathodically protected, one or more sacrificial magnesium anodes are supplied. Those protect the structure against corrosion. Our anodes are produced in a particular Magnesium alloy of the AZ 63 type and guarantee physiological innocuousness, electrode potential (≤ -0,9 V) and loss of mass ((≤ 30 g· m-2 ·d-1) in accordance with the DIN 4753-6 norms.

Correx® Impressed Current Anode
Permanent cathodic protection can be realized with a Correx Impressed Current Anode. Since the Correx is not subject to corrosion, it is strongly advised to use it for the protection of ZANI tanks and heaters that work with highly aggressive water (even those which are already installed). An electrical socket near the water heater is required and, in case of a power outage, the current should be re-engaged and sustained. Cables cannot be tampered with or modified. An instruction manual is supplied with the product.

Regulation and precaution

Below the suggestions and information are described on how to properly manage and use the devices in accordance with the DM 37/08 law.

Hot water storage

Heat generators used for the production of hot water for hygienic and domestic use by various users in a residential environment have to have particular dimensions in accordance with the UNI 9182 technical norms. They have to be equipped with a hot water storage tank with an adequate capacity (DPR 412/93 Art. 5.7.)

Drinking Water

The quality requirements for drinking water used for food preparation have to be in accordance with D Lgs 31/01 (Dir. 98/83/CE)

Tanks

The tanks for fuel and diesel for thermal installations have to be in accordance with the norms emitted by the Department of the Interior 28-04-05.

Couplings

The couplings between the piping and the devices (water heater, storage tank…) have to be equipped with flanges or with a three piece union coupling (UNI 9182 Art. 20.3.7)

Storage tank dimensions

The dimensions have to be considered based on: the total amount of water during the peak period, the duration of the pre-heating period, the temperature of the cold water, the distributed hot water and the stored hot water. (UNI 9182 Art. 9.3.1)

Separate generators

The central production of thermal energy for the air conditioning of places and the production of hot water for hygienic and domestic use by various users have to be executed by separate heat exchangers (DPR 412/93 Art. 5.6)

Floor-grounded

Electrical devices have to be floor-grounded and have to be equipped with differential circuit breakers or an equivalent protective system (DM 37/08)

Anti-legionella protection

To eliminate the presence of the legionella bacterium the World Health Organization has suggested as follows (WHO Bulletin OMS, vol.681990)
- heat the water with a storage temperature of 60°C
- ensure that the water never reaches a temperature below 50°C.

Antifreeze protection

Because frozen water has a greater volume, the internal pressure in the closed storage tanks would cause damage and ruptures. In order to prevent this possibility the device has to be produced and managed in such a way that the temperature never hits below 0°C.

Recirculation

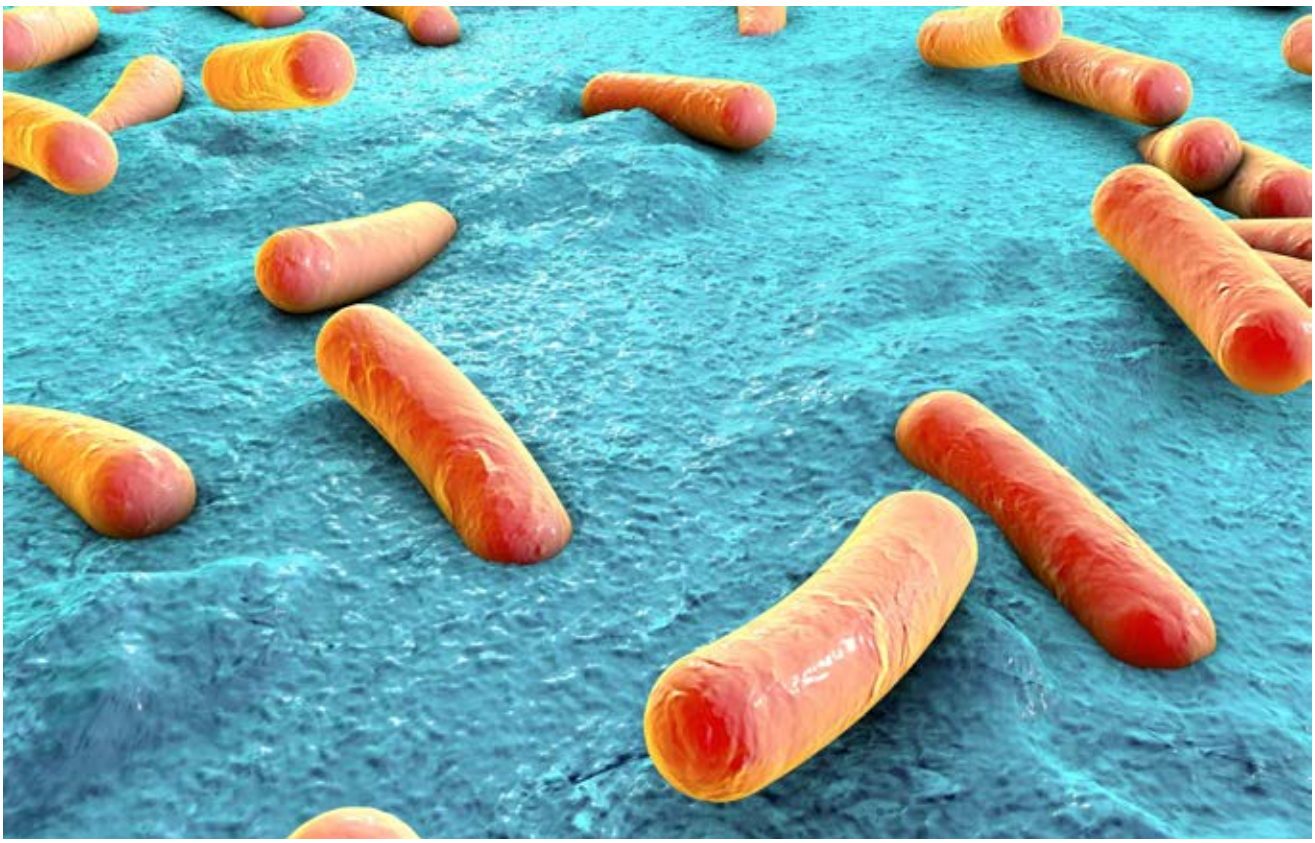
In case of central distribution, a recirculation system has to be provided. In this way the water is continuously in movement and the consequences of heat loss in case of stagnation are prevented.

Distribution temperature

The heat exchangers for the central production of hot water for hygienic and domestic use by various users in a residential setting have to be designed and managed in a way to ensure that the water temperature, measured at the entry point of the distribution system, does not go above 48°C, with a 5°C tolerance. (DPR 412/93 Art. 5.7)

Storage temperature

(UNI 9182 – appendix L) Even though the norms recommend storage temperatures of up to 65°C, we advise not to exceed 60°C in order to save energy, prevent chalk formation and reduce electrochemical corrosion. In order to not exceed the desired temperature, the boiler has to have the right dimensions. Moreover, (appendix U) it is forbidden to send water with a temperature over 60°C through galvanized steel tubes.



Guidelines for Legionella prevention and control

Environmental Conditions

The conditions that favour the development and proliferation of Legionella bacteria are the following:
- Water temperature between 25°C and 42°C
- Aerobic environment
- Presence of nutritive elements (slag, biofilm, iron ions, and limestone)

Methods for preventing and controlling water system contamination

Short-term measures

In the absence of structural interventions, the following short-term measures must be implemented:
- Decalcification of the lesser worn elements through immersion in a solution and subsequent disinfection
- Replacement of couplings, tap filters, worn shower heads and flexible tubes

In carrying out the above specified procedures, Legislative Decree 81/2008 and its amendments must be followed.

Long-term measures

› Heat shock
Consists in raising water temperature to 70°C-80°C for three consecutive days, making sure that it flows out from all dispensing points for at least 30 min. per day. Verify that the temperature reaches or exceeds 60°C at the distal points of the system.
Advantages: does not require any special equipment and, therefore, can be immediately implemented.
Disadvantages: while this procedure is considered effective, it requires a high consumption of energy.

› Heat disinfection
This is easy to apply to systems with a double adjustment control for the water temperature. The production temperature for DHW is increased to 65° C inside the heaters (primary adjustment). Water recirculation is carried out at 55-60° C throughout the entire distribution system, preferably for at least 30 min. per day.
Advantages: in systems equipped with a double temperature control system, it can be immediately implemented.
Disadvantages: this procedure requires a high consumption of energy. In the event of installations where hot water is produced and distributed at 48°C-50° C, the Legionella bacteria can colonize both the

heaters, as well as the distribution and recirculation networks.

› Filtration at point-of-use
Micro-filtration allows to eliminate Legionella in the water in output at the point-of-use by employing a mechanical barrier (0.2 µm). It is a localized treatment system and easy to install.

› UV irradiation
UV rays are able to inactivate the bacteria by dimensionally reducing the thymine in DNA, therefore, preventing replication. This is an alternative method of effective disinfection in proximity of the point of application. Since this method does not have a residual effect, it is not suitable alone to treat an entire building, since Legionella persists in the biofilm, in dead spots, and in the stagnant sections of the system.
Advantages: It can be easily installed in pre-existing water systems.
Disadvantages: UV irradiation is effective if the density of the fluid is limited and if the water is scarcely turbid.

› Hyperchlorination shock
Advantages: Hyperchlorination shock is a strong disinfecting treatment.
Disadvantages: It is a systemic disinfecting method that is, however, temporary.

› Continuous hyperchlorination
Advantages: Continuous hyperchlorination is a general disinfecting method that guarantees a residual concentration of disinfectant throughout the entire water distribution system, in order to minimize the colonization of Legionella at distal points.
Disadvantages: Chlorine is corrosive and can cause damage to the pipes. It is also necessary to prevent potable DHW from being used (especially when preparing food and hot beverages), and the user must be notified.

› Disinfection with chlorine dioxide
Chlorine dioxide has been successfully used in aqueducts and subsequently applied in controlling Legionella contamination in domestic water production plants. Chlorine has the advantage of being more active against biofilm.
Advantages: The action does not influence the water's pH level and reduces the growth of biofilm.
Disadvantages: It causes the formation of inorganic by-products (chlorite and chlorate) from disinfection.

› Ozonation
Ozone is a excellent biocide capable of irreversibly damaging the DNA of microorganisms. It does not present any residual effect, therefore, it cannot be used to systemically treat the system. It has a minimum impact on biofilm, produces by-products and, at high quantities, can damage pipes. Its effectiveness seems moderately influenced by the pH levels and temperature of the water.

› Copper-silver ionization
Metals such as copper and silver are known bactericides. The effect achieved is mainly due to the action on the cell wall of the microorganism, which causes a distortion in the permeability of the cell.
Advantages: This method can be easily applied and is not influenced by water temperature. Furthermore, due to an accumulation of copper in the biofilm, the bactericide effect persists for a few weeks even after the treatment system is deactivated, reducing the possibility of a recolonization. To date, the formation of by-products from disinfection has not been detected.
Disadvantages: Since the concentration of copper and silver ions are subjected to fluctuations, their levels must be systematically verified, along with the pH level of the water (optimum value: 6-8). Both free residual chlorine and corrosion inhibitors can alter the concentration of copper ions, reducing its effectiveness. This technique is not suitable for treating water mains in stainless steel, galvanized steel, and copper because of the redox reaction that can be triggered between the pipes and the disinfectant.

› Disinfection with hydrogen peroxide and silver ions
This treatment is carried out using a stable and concentrated solution containing hydrogen peroxide and silver ions, exploiting the bactericide action of each component and the synergy that develops between them. The use of this disinfectant is relatively recent and requires further experimental confirmation.
Advantages: the oxidizing action of hydrogen peroxide is less aggressive than that exerted by chlorine dioxide or chlorine. To date, the formation of inorganic and organic by-products has not been reported.
The concentration of silver ions is extremely modest and, if well-managed, does not have a polluting effect.
Disadvantages: Currently, exhaustive evidence is not available regarding the dynamic behaviour of this type of disinfectant over time. Since the concentrations of hydrogen peroxide and silver ions are subjected to fluctuation, their levels must be systematically verified. This technique is not suitable for treating water mains in galvanized steel, since zinc is capable of removing silver through a chemical reaction.

Pressure tanks

Contents

P.E.D. tested pressure tanks

A broad range of pressurized tank, with CE mark, in accordance with the P.E.D. directive (Directive 2014/68/UE)

The products are manufactured as prescribed by the P.E.D. directive, which applies to storage tanks that have to contain dangerous fluids or fluids under high pressure and/or temperatures. The tanks are designed to meet the specific requirements for several applications: autoclaves, compressed air tanks, expansion vessels, steam accumulators and expansion vessels for heat transfer oil. They are made of carbon steel sheets, welded in an automatic process, accurately refinished and controlled and tested on the grounds of the operative circumstances of the project.

On demand, we also manufacture:

- products with customized dimensions;
- inspection holes;
- external protective treatments;
- specific insulation;
- internal protective treatments (hot dip galvanizing UNI EN1179) suited for contact with water for human consumption, external anti-rust coating, internal Teflon coating for alimentary use;
- external coatings, such as PVC finish, embossed aluminum, smooth aluminum or particular materials to be evaluated according to specifications.

P.E.D. directive

The PED directive (Directive 2014/68/UE) regulates the design, manufacturing and conformity valuation of pressure vessels and products submitted to a maximum allowable pressure "PS" over 0.5 bar. The CE directive aims to harmonize the nationals laws in the member states that relate to the valuation of the project, the production, the testing and the conformity of the pressurized vessels and products.

The directive concerns pressure vessels, heat exchangers, steam generators, heaters, industrial piping and safety equipment, used in residential and industrial settings (oil & gas, chemical, pharmaceutics, plastic and rubber, alimentary, paper).

Hazard category of the devices

This is an indication of the danger level of the pressure vessels which can be divided in the following categories: Article 4 section 3, I, II, III, IV. The category is determined on the grounds of numerous factors: typology of the fluid, (dangerous and not dangerous), max allowable temperature, pressure and capacity.

According to the PED, fluids are divided in 2 categories:

GROUP 1:
includes dangerous fluids
- Explosives
- Extremely flammable fluids
- Easily flammable fluid
- Flammable fluids (where the allowed maximum temperature is above flashpoint)
- Highly toxic fluids
- Toxic fluids
- Reactive fluids

GROUP 2: includes all fluids not listed in group 1 and therefore not considered dangerous.
The following chart illustrates the typology of our products, in function of the used fluid and the temperature values. First you individuate the table which applies to the device in question, then you determine the hazard category of the device under the tested pressure.

Note
- The five tables should be consulted per line.
- The pressure vessels which are not subject to Article 4 section 3 and belong to the ≥ I category have to have the CE label in accordance with the PED directive
- **WATER, ETHYLENE GLYCOL AND PROPYLENE GLYCOL BELONG TO GROUP 2.**

P.E.D. directive

Category	PED	CE label	Intervention by notified body	Additional costs
PS ≤ 0,5	Not applicable	No	No	No
Article 4 paragraph 3	Applicable	No	No	No
I	Applicable	Yes	No	Yes
II	Applicable	Yes	Project delivery without approval	Inspection visit
III	Applicable	Yes	Inspection visit + project approval	Inspection visit + project approval
IV	Applicable	Yes	Inspection visit + project approval	Inspection visit + project approval

PS: is the maximum allowed pressure, the maximum pressure for which the equipment is designed, specified by the manufacturer.

V: is the internal volume of a chamber, including the volume of nozzles to the first connection and excluding the volume of permanent internal parts.

ARTICLE 4 PARAGRAPH 3: the pressure equipment belongs to category <I and therefore should not bear the CE mark according to PED.

Note: please consult the technical department
- If a vessel is composed of several compartments, or if one compartment contains several fluids.
- If the fluid is different from those listed in NOTE 1.
- If the equipment belongs to a category ≥ I.
- If a vessel contains pressure equipment which belongs to a category ≥ I.
- In case of doubt or uncertainty.

Tables for classification of pressure vessels

According to the Pressure Equipment Directive 2014/68/UE

Index

Type of pressure equipment	Fluid	Temperature	Table to consult
Tanks and plate heat exchangers	Water	≤110	4
Tanks and plate heat exchangers	Steam or superheated water	>110	2
Tube bundle exchangers	Water	≤110	4
Tube bundle exchangers	Steam or superheated water	>110	2
Steam generators	Steam or superheated water	>110	5
Tanks and plate heat exchangers	Water, ethylene and propylene glycol	≤110	4
Tanks and plate heat exchangers	Water, ethylene and propylene glycol	>110	2
Tanks and plate heat exchangers	Freon and dangerous gases		1
Autoclaves	Nitrogen or other non-dangerous gases		2
Autoclaves	Dangerous gases		1

Table 1 – Pressure vessels

V l	PS bar	PS x V	Category
0,1 < V ≤ 1	0,5 < PS < 200		Article 4 paragraph 3
0,1 < V < 1	200 < PS ≤ 1000		III
0,1 < V < 1	PS > 1000		IV
1 < V ≤ 50	PS > 0,5	PS x V ≤ 25	Article 4 paragraph 3
1 < V < 100	PS > 0,5	25 < PS x V ≤ 50	I
1 < V < 400	PS > 0,5	50 < PS x V ≤ 200	II
1 < V < 2000	0,5 < PS < 1000	200 < PS x V ≤ 1000	III
V > 1	PS > 0,5	PS x V > 1000	IV

Table 2 – Pressure vessels

V l	PS bar	PS x V	Category
0,1 < V ≤ 1	0,5 < PS < 1000		Article 4 paragraph 3
0,1 < V ≤ 1	1000 < PS < 3000		III
0,1 < V ≤ 1	PS > 3000		IV
1 < V ≤ 100	PS > 0,5	PS x V ≤ 50	Article 4 paragraph 3
1 < V ≤ 400	PS > 0,5	50 < PS x V ≤ 200	I
1 < V < 750	PS > 0,5	1000 < PS x V ≤ 3000	III
1 < V ≤ 750	PS > 0,5	PS x V > 3000	IV
V > 750	0,5 < PS < 4		III
V > 750	PS > 4		IV
1 < V ≤ 2000	PS > 0,5	200 ≤ PS x V ≤ 1000	II

Tables for classification of pressure vessels

According to the Pressure Equipment Directive 2014/68/UE

Table 3 – Pressure vessels

V l	PS bar	PS x V	Category
0,1 < V ≤ 1	0,5 < PS < 500		Article 4 paragraph 3
0,1 < V ≤ 1	PS > 500		II
V > 1	200 < PS ≤ 500		II
V > 1	PS > 500		III
V > 20	0,5 < PS ≤ 10	PS x V > 200	I
1 < V ≤ 400	PS > 0,5	PS x V ≤ 200	Article 4 paragraph 3
V > 1	10 < PS ≤ 200	PS x V > 200	II

Table 4 – Pressure vessels

V l	PS bar	PS x V	Category
0,1 < V ≤ 10	10 < PS < 1000		Article 4 paragraph 3
0,1 < V < 10	PS > 1000		I
V > 0,1	0,5 < PS ≤ 10		Article 4 paragraph 3
V ≥ 10	PS > 1000		II
10 < V < 20	500 < PS ≤ 1000	PS x V > 10000	II
10 < V < 1000	PS > 10	PS x V ≤ 10000	Article 4 paragraph 3
V > 20	10 < PS ≤ 500	PS x V > 10000	I

Table 5 – Steam or superheated water at temperatures above 110°C

V l	PS bar	PS x V	Category
0,1 < V ≤ 2	PS > 0,5		Article 4 paragraph 3
2 < V < 100	0,5 < PS < 25	PS x V ≤ 50	I
V > 2	25 < PS < 32	PS x V ≤ 200	II
V > 2	PS > 32		IV
	0,5 < PS < 25	50 < PS x V ≤ 200	II
	3 ≤ PS ≤ 32	PS x V > 3000	IV
V < 1000	0,5 < PS < 32	200 < PS x V ≤ 3000	III
V > 1000	0,5 < PS < 3		IV

P.E.D. tested autoclaves 6/8/12 bar AC series

Fiorini autoclaves are designed for lifting and distributing water under pressure. They are intended to form a lung of pressurized water which, if properly sized, serves to limit the number of start-ups of the pump. They are used to ensure perfect water distribution in the upper floors of buildings making up possible shortcomings of water aqueducts.

The models, with CE label, have capacities of 300 up to 20.000 litres in both the vertical and horizontal version with 6, 8 or 12 bar.

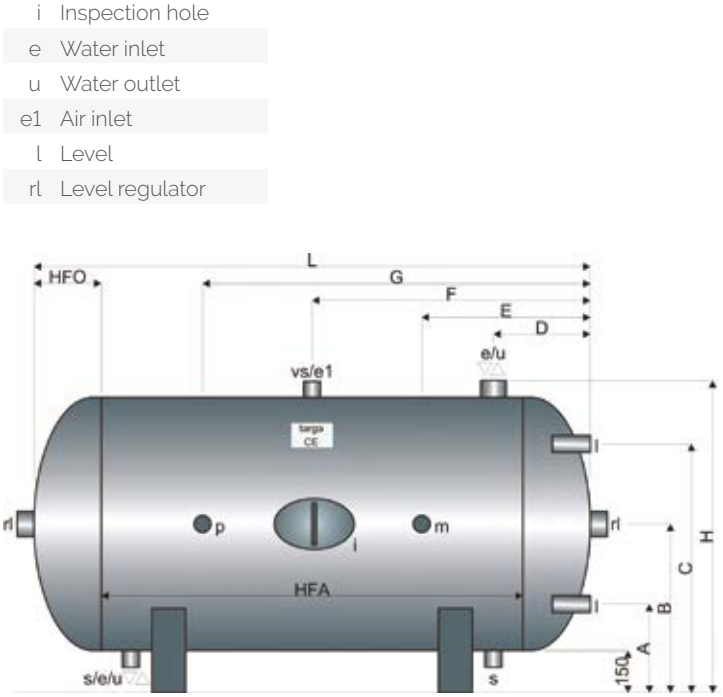
✔ **Materials:** carbon steel
✔ **Protective treatment:** hot dip galvanizing and external coating
✔ **Operative conditions:** the storage tanks have a max pressure of 6,8 or 12 bar and operating temperatures from -10°C to 50°C

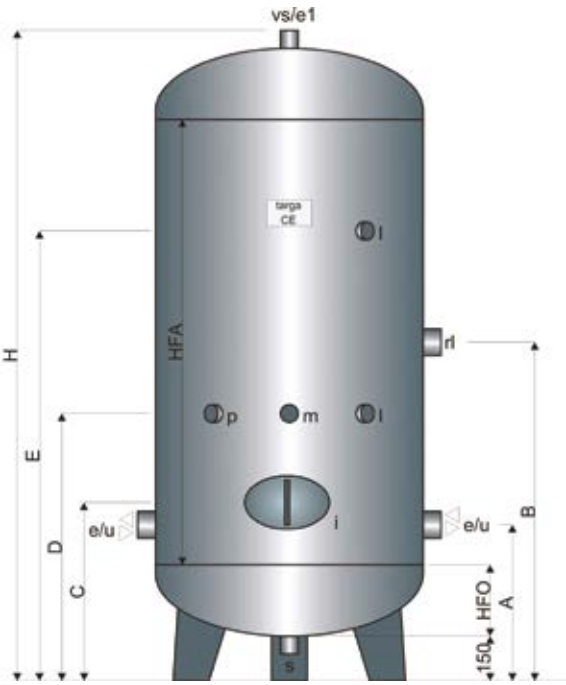
Special versions: the AC storage tanks can be modified on demand in order to meet your specific requirements

TESTED

Connections

s	Drain
vs	Safety valve
m	Pressure gauge
p	Pressure controller
i	Inspection hole
e	Water inlet
u	Water outlet
e1	Air inlet
l	Level
rl	Level regulator





P.E.D. tested autoclaves 6/8/12 bar AC series

Vertical

Capacity l	Ø mm	HFO mm	HFA mm	A mm	B mm	C mm	D mm	E mm	H mm	peso kg	e/u (*) inch	l/m/p (*) inch	rl/vs/s/e1 (*) inch	i mm
300	500	165	1250	415	940	465	715	1415	1760	75	1	1/2	1 1/4	*
500	650	200	1250	450	975	500	750	1450	1830	101	1 1/2	1/2	1 1/4	*
800	800	240	1250	490	1015	540	790	1490	1910	136	2	1/2	1 1/4	*
1000	800	240	1650	490	1215	540	990	1890	2310	162	2	1/2	1 1/4	*
1500	950	280	1750	530	1305	580	1030	2030	2490	232	2	1/2	1 1/4	*
2000	1100	310	1750	560	1335	610	1060	2060	2550	274	2	1/2	1 1/4	*/**
3000	1250	350	2000	620	1500	650	1200	2200	2880	466	2 1/2	1/2	1 1/4	*/**
4000	1400	390	2000	740	1540	690	1240	2240	2960	541	3	1/2	1 1/4	*/**/***
5000	1450	410	2500	760	1810	710	1360	2360	3500	646	3	1/2	1 1/4	*/**/***
6000	1450	410	3000	760	2060	710	1360	2860	4000	767	3	1/2	1 1/4	*/**/***
8000	1650	460	3000	830	2110	860	1410	2910	4100	1090	4	1/2	1 1/4	*/**/***
10000	1650	460	4000	830	2610	860	1610	3110	5100	1318	4	1/2	1 1/4	*/**/***
15000	2000	550	4000	920	2700	1000	1700	3200	5280	2016	4	1/2	1 1/4	300x400
20000	2000	550	5500	920	3450	1000	1700	3700	6780	2513	4	1/2	1 1/4	300x400

Horizontal

Cap. l	Ø mm	HFO mm	HFA mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	L mm	peso kg	e/u (*) inch	l/m/p (*) inch	rl/vs/s/e1 (*) inch	i mm
300	500	165	1250	220	400	580	265	265	790	1315	680	1580	75	1	1/2	1 1/4	*
500	650	200	1250	250	475	700	300	300	825	1350	830	1650	101	1 1/2	1/2	1 1/4	*
800	800	240	1250	325	550	775	340	340	865	1390	980	1730	136	2	1/2	1 1/4	*
1000	800	240	1650	250	550	850	340	340	1065	1790	980	2130	162	2	1/2	1 1/4	*
1500	950	280	1750	295	625	955	380	380	1155	1930	1130	2310	232	2	1/2	1 1/4	*
2000	1100	310	1750	315	700	1085	410	410	1185	1960	1280	2370	274	2	1/2	1 1/4	*/**
3000	1250	350	2000	338	775	1213	470	470	1350	2230	1430	2700	466	2 1/2	1/2	1 1/4	*/**
4000	1400	390	2000	360	850	1340	590	590	1390	2190	1580	2780	541	3	1/2	1 1/4	*/**/***
5000	1450	410	2500	375	875	1375	610	610	1660	2710	1630	3320	646	3	1/2	1 1/4	*/**/***
6000	1450	410	3000	375	875	1375	610	610	1910	3210	1630	3820	767	3	1/2	1 1/4	*/**/***
8000	1650	460	3000	425	975	1525	680	680	1960	3240	1830	3920	1090	4	1/2	1 1/4	*/**/***
10000	1650	460	4000	425	975	1525	680	680	2460	4240	1830	4920	1318	4	1/2	1 1/4	*/**/***
15000	2000	550	4000	450	1150	1850	770	770	2550	4330	2180	5100	2016	4	1/2	1 1/4	300x400
20000	2000	550	5500	450	1150	1850	770	770	3300	5830	2180	6600	2513	4	1/2	1 1/4	300x400

Inspection hole on request * 100x150; ** 220x320; *** 300x400

P.E.D. tested pressurized autoclaves 16–64 bar - HP series

The “HP” series consists of pressurized autoclaves, used in industrial installations to maintain constant pressure or to absorb water hammering.

The HP gamma is different from the AC series because of the max operating pressure which is higher in the HP series. The models, with CE label, are available in several capacities in function of the max operating pressure:
16 bar version: 100 up to 10.000 litres
18 bar version 100 up to 5.000 litres
20 bar version: 4.000 up to 10.000 litres
25 bar version: 100 up to 9.500 litres
30 bar version: 800 up to 6.000 litres
35 bar version: 100 up to 3.000 litres
64 bar version: 100 up to 1.000 litres

✔ **Material:** carbon steel
✔ **Protective treatment:** hot dip galvanizing and external coating
✔ **Operative conditions:** the storage tanks have a max pressure of 16, 18, 25, 30, 35, 64 bar and operating temperatures from -10°C to 50°C

Special versions: the HP storage tanks can be modified on demand in order to meet your specific requirements

P.E.D. tested pressurized air tanks 8, 11, 12 bar – AK series

The AK pressurized air tanks are indispensable in systems that distribute compressed air. The tanks guarantee a constant flow, reduce the compressor start-ups and ensure a stable pressure in the entire distribution net to compensate consumption peaks (ex. Installations assembled in series). The models, with CE label, are available in capacities of 300 up to 20.000 litres in the vertical, the horizontal, the 8 bar, the 11 bar, the 12 bar, the galvanized and the varnished version.

✔ **Material:** carbon steel
✔ **Protective treatment:** hot dip galvanizing and external coating
✔ **Operative conditions:** the storage tanks have a max pressure of 8, 11 and 12 bar and operating temperatures from -10°C to +50°C

Special versions: the AK storage tanks can be modified on demand in order to meet your specific requirements

P.E.D. tested 16-64 bar compressed air tanks, under high pressure – AP series

The AP tanks for compressed air under high pressure are used in all compressed air distribution systems with elevated pressure. The AP series is different from the AK series because of the operating pressure which is superior in the AP series.

The models, with CE label, are available in the vertical and horizontal version, with various capacities in function of the max operating pressure:

16 bar version: 300 up to 10.000 litres
18 bar version: 100 up to 5.000 litres
20 bar version: 4.000 up to 10.000 litres
25 bar version: 300 up to 6.000 litres
30 bar version: 800 up to 6.000 litres
35 bar version: 100 up to 3.000 litres
64 bar version: 100 up to 1.000 litres

✔ **Material:** carbon steel
✔ **Protective treatment:** hot dip galvanizing and external coating
✔ **Operative conditions:** the storage tanks have a max pressure of 16, 18, 20, 25, 30, 35, 64 bar and operating temperatures from -10°C to +50°C

Special versions: the AK storage tanks can be modified on demand in order to meet your specific requirements

P.E.D. tested expansion vessel for pressurized water, 6, 8, 12 bar – VE series

The VE expansion vessels are generally used in industrial installations in order to compensate for the volume variation of the heat transfer fluid caused by temperature variations. They have no membrane, which brings the heat transfer fluid in direct contact with the air cushion in the tank. Because of the absence of the membrane, you do not have to think about replacing it. The models, with the CE label, are available in capacities from 300 to 20.000 litres in the horizontal, vertical, 6 bar, 8 bar and 12 bar versions.

✔ **Material:** carbon steel
✔ **Protective treatment:** hot dip galvanizing and external coating
✔ **Covering:** rock wool insulation with variable thickness and an external bush-hammered aluminium cover
✔ **Operative conditions:** The storage tanks have a max operating temperature from 10°C to the max temperatures, which vary in the versions

Special versions: the VE expansion vessels can be modified on demand in order to meet your specific requirements

Max. pressure	Max. temperature
6 bar	165°C
8 bar	175°C
12 bar	200°C

P.E.D. tested expansion vessel for pressurized heat transfer oil – VO series

The VO series are installed in industrial heaters with heat transfer oil in a closed circuit in order to compensate for the thermal expansion of the heat transfer fluid. The models, with CE label, are available in capacities from 300 up to 15.000 litres in the horizontal, vertical and 6 bar version. It operates with a maximum operating temperature of 350°C.

✔ **Material:** carbon steel
✔ **Protective treatment:** external painting
✔ **Covering:** on demand rock wool insulation with variable thickness and an external bush-hammered aluminium cover
✔ **Operative conditions:** the storage tanks have a max operating pressure of 6 bar and a max operating temperature of di 350 °C

Special versions: the VO expansion vessels can be modified on demand in order to meet your specific requirements

TESTED

P.E.D. tested steam accumulator tanks 12 bar 200°C – AV series

The AV steam accumulators are generally installed to support industrial steam generators (fast and with a forced circulation). The accumulator is the lung in applications in which the steam content of the heaters is low and not sufficient to manage the numerous transitions generated by the start-up and shut-down cycles of the heater.
The models, with CE label, are available in capacities from 300 up to 20.000 litres in the vertical and horizontal versions with a max pressure of 12 bar and a max operating temperature of 200°C.

✔ **Material:** carbon steel
✔ **Protective treatment:** external painting
✔ **Covering:** on demand rock wool insulation with variable thickness and an external bush-hammered aluminium cover
✔ **Operative conditions:** the storage tanks have a max operating pressure of 12 bar and a max operating temperature of di 200 °C

Special versions: the AV expansion vessels can be modified on demand in order to meet your specific requirements

Heat pump systems

Contents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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 amortization 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

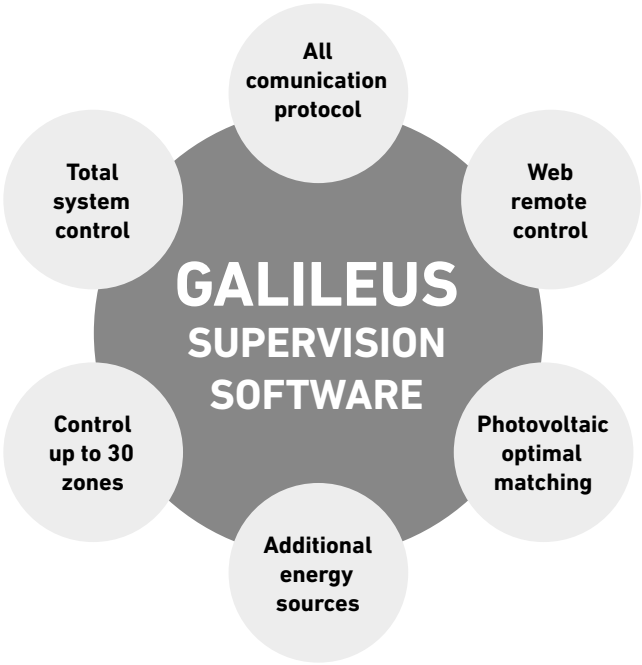
The brain of the system is the control and adjustment software, stemming from the experience of our in-house technicians. The control system makes it possible to manage and to monitor the correct operation of all hydraulic and mechanical components. The GEO HFE-HFS and ADV plus series heat pumps are 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

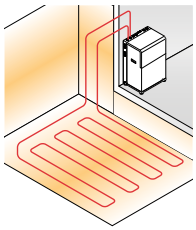
- Geothermal energy is available at a constant temperature (approximately 14°C at a depth of 20 to 100 m) throughout the year, but it is not enough to supply the entire heating system.
- GEO heat pumps transfer the heat from the soil and increase the temperature of the thermovector fluid by means of 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

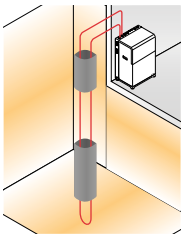


- This type of probes must be buried 1 - 1.5 m deep (always 20 cm below the freezing limit) in the soil, which must be left unsown.
- PE probes (DN 25 o DN 32) require an average lawn surface equal to 2.5 – 3 times the area to be heated.

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

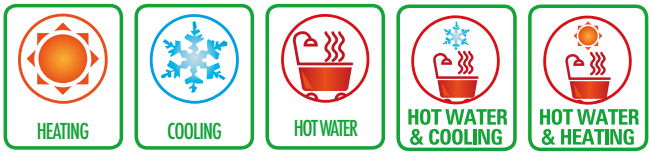
✔ Production of hot water for installation
✔ Production of chilled water for installation
✔ Production of high temperature domestic water
✔ Production in priority of DHW simultaneous with the production for the installation

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	

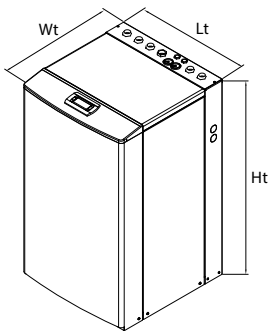
Models	
GEO	Heating-cooling for device with geothermal probe
GEO/R	Heating-cooling for device and DHW production with geothermal probe
GEO/P	Heating-cooling for device with well (upon request)
GEO/R/P	Heating-cooling for device and DHW production with well (upon request)

Technical data
GEO HFE 6-42

Sizes		6	8	12	16	20	24	33	42
Winter functioning B0/W35									
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
Device									
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
Geothermal									
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
Domestic									
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
Winter functioning									
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
Device									
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
Well									
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
Summer functioning									
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
Device									
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
Geothermal									
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
Features									
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 geothermal probe 20%**	**°C**	**0/-3**	**In-Out**
W5/W35	**well water**	**°C**	**10/5**	**In-Out**
B30/W18	**glycol water geothermal probe 20%**	**°C**	**30/35**	**In-Out**
B0/W50	**glycol water geothermal probe 20%**	**°C**	**0/-3**	**In-Out**



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 prot 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. 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
452020136	Soft starter kit GEO HFE 24-33 T		
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

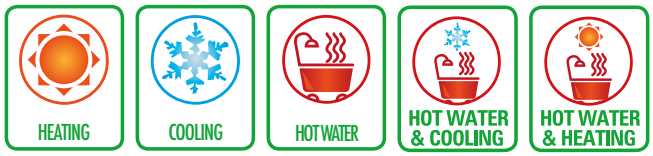
✔ Production of hot water for installation
✔ Production of cold water for installation
✔ Production of high temperature domestic water
✔ Production in priority of DHW simultaneous with the production for the installation

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)

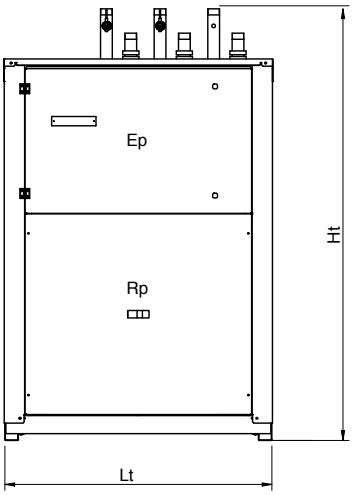


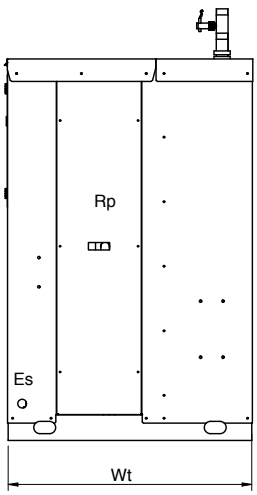
Models	
GEO/R	Heating, cooling for device and DHW production with geothermal probe
GEO/R/P	Heating, cooling for device and DHW production with well (upon request)
GEO	Heating, cooling for device with geothermal probe
GEO/P	Heating, cooling for device with well (upon request)

		without recovery GEO HFE		with recovery GEO HFE/R	
Gas	Model	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
Winter functioning B0/W35				
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
Device				
Device's water flow rate	m3/h	8,2	10,8	14,4
Pump's absorbed power	kW	18,0	29,3	17,5
Geothermal				
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
DHW side B0/W50				
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
Winter functioning W5/W35				
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
Device				
Device's water flow rate	m3/h	10,5	13,8	18,3
Exchanger load loss	kPa	27,5	44,6	26,6
Well				
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
Summer functioning B30/W18				
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
Device				
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
Geothermal				
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
Features				
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



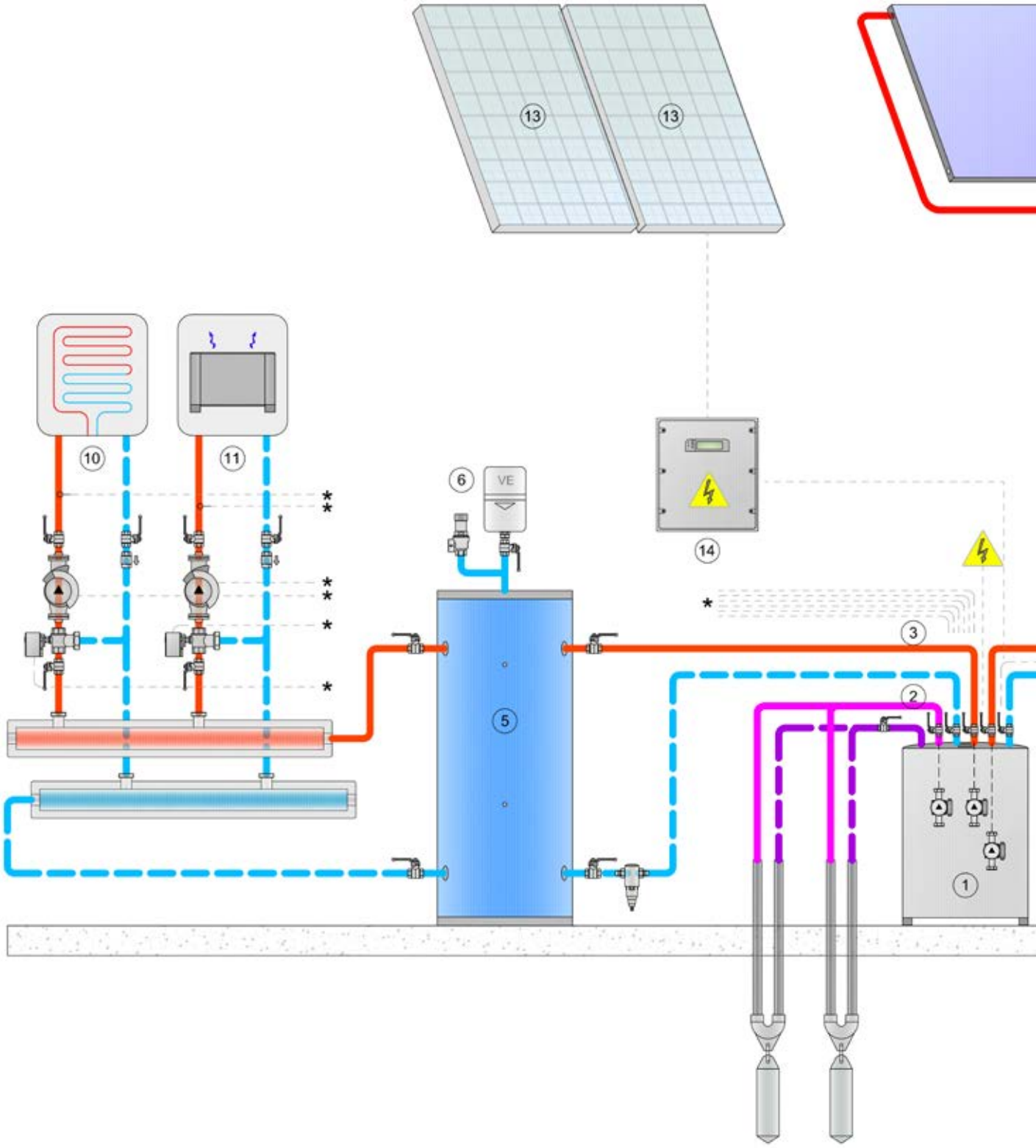


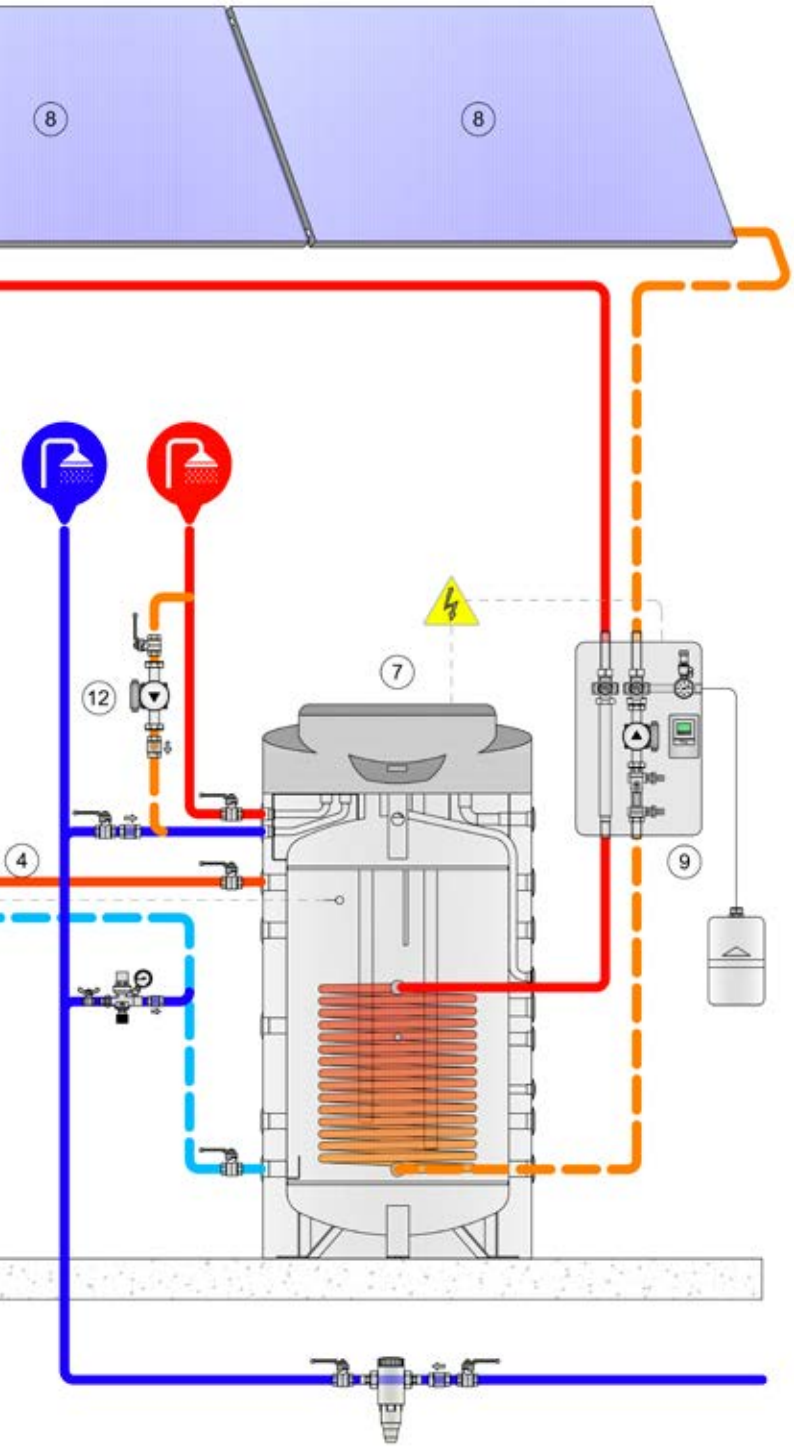
	Model
	60-80-100
Ht	1770
Lt	1100
Wt	1000

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 prot 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

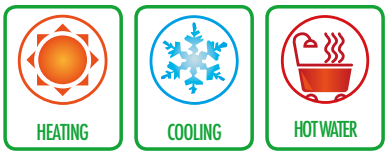
✔ Production of very hot water for the installation
✔ Production of cold water for the installation (HTR version)
✔ Production of DHW (with accessory)

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

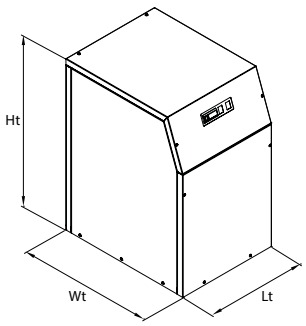
	Domestic diverter control kit	Easy diverter kit	MFREE	Control kit MFREE	Plant circulator kit	Geotherm circulator kit	Pressure switch kit	Solenoid kit	External air probe kit	Guard resistance kit	Exchangers resistance kit	Phase cut kit (1)	Compressor insulation kit
EASY-E HT geothermal probe	✔	✔	✔	✔	✔	✔	-	-	✔	✔	✔	-	✔
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
Winter functioning B0/W35								
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
Device								
Device's water flow rate	m^3/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
Geothermal								
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	m^3/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
Domestic W5/W35								
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
Device								
Domestic water flow	m^3/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
Well								
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	m^3/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
Summer functioning B30/W18								
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
Device								
Device's water flow rate	m^3/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
Geothermal								
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	m^3/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
Features								
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			
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
	External circuit			
B0/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

HEATING

S GEOTHERM

P WELL

HEATING

COOLING

S GEOTHERM

P WELL

EASY geothermal systems					
		Only hot GEO EASY-E HT		Hot/cold GEO EASY-E HTR*	
gas	model	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

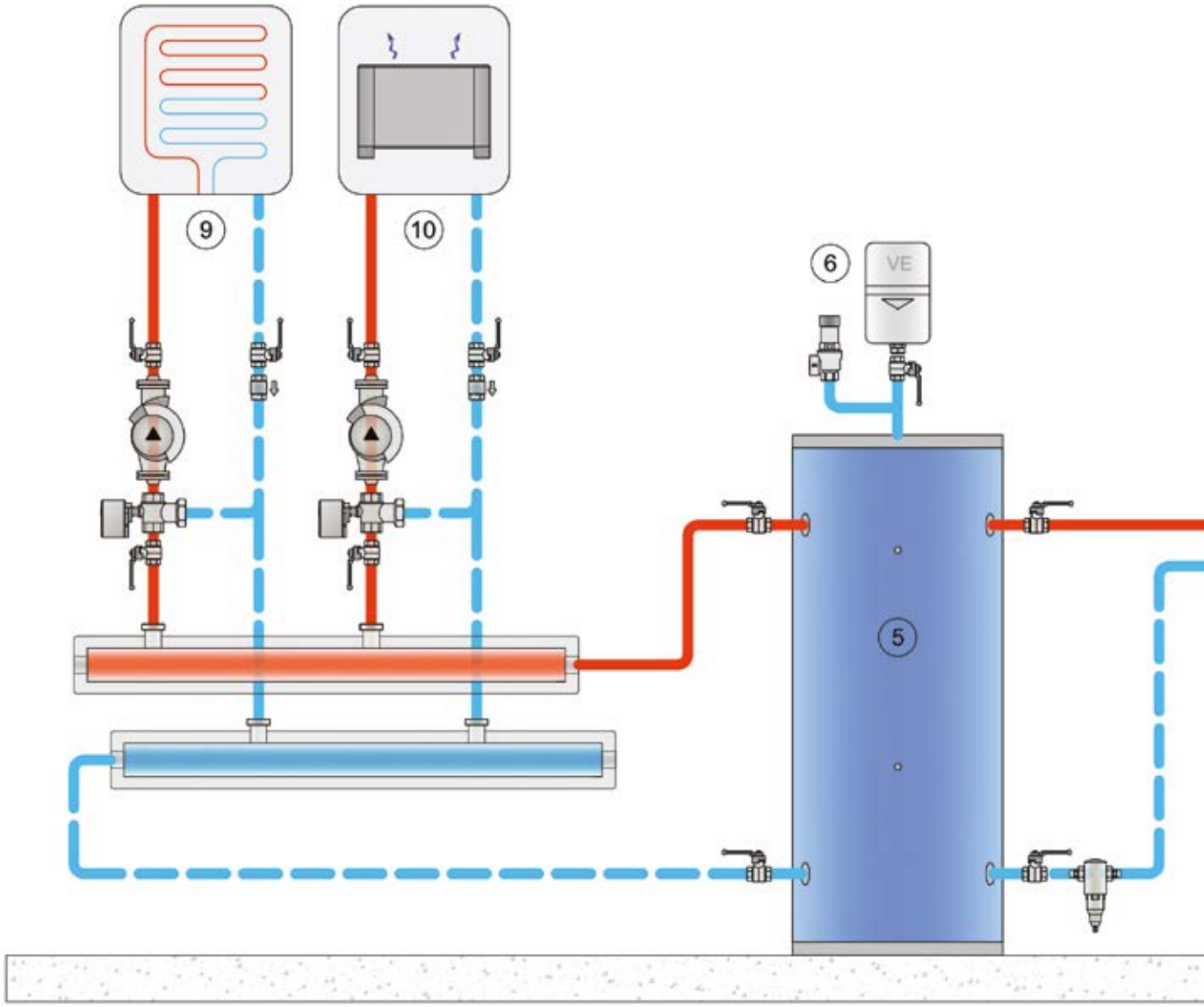
Device accessories			
code	**description**	**price**	**function**
452020028	KIT DEVIATRICE SANITARIO EASY-E		Valvola deviatrice per la produzione di ACS.
452020123	Soundproofing Kit GEO HFE/EASY 6-8		The soundproofing kit must be installed on the compressor to attenuate the noise of the heat pump (the 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		
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. 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
452020141	Soft starter kit GEO EASY 24-33 T		

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

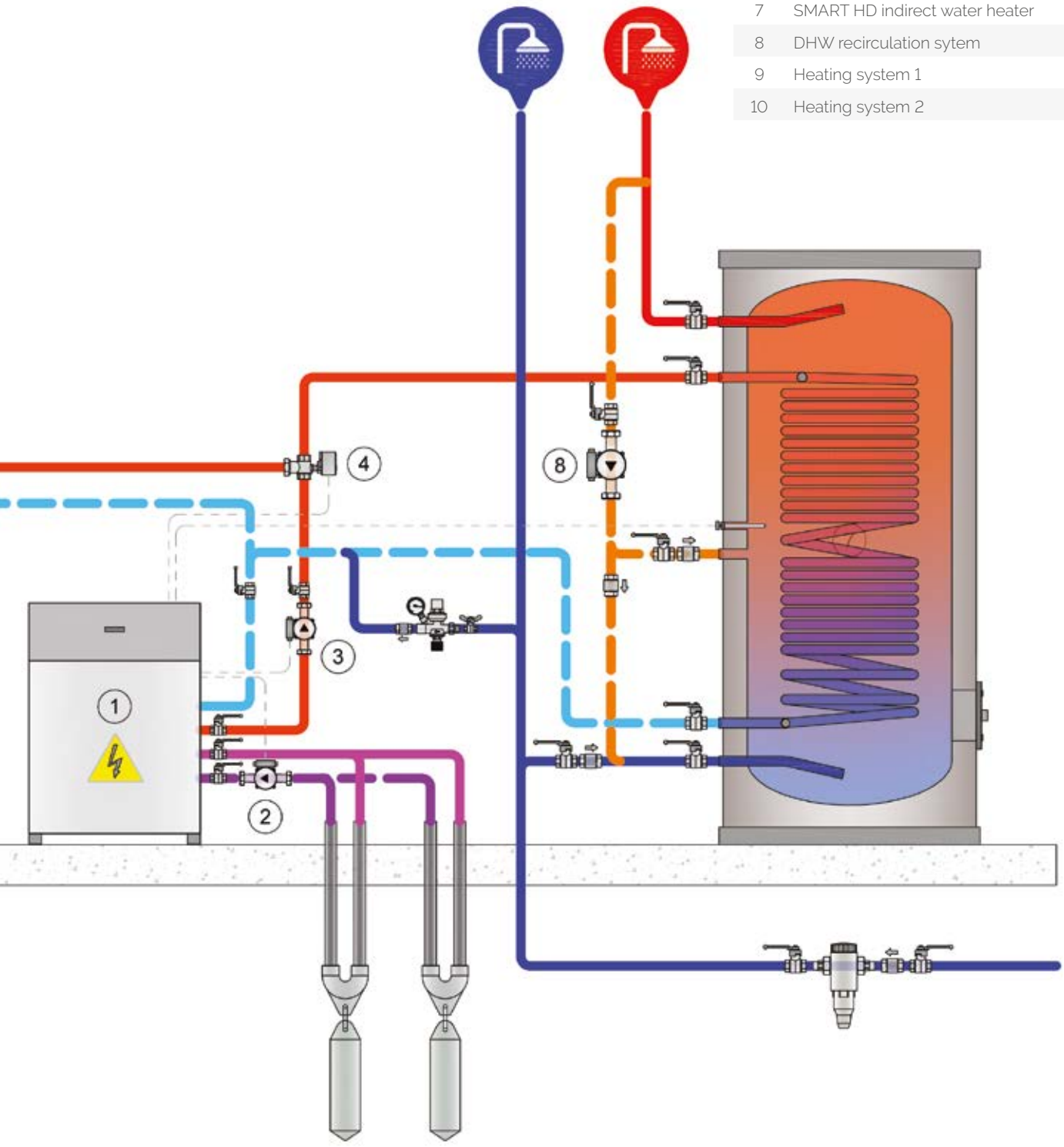
Accessori Macchina			
codice	**descrizione**	**prezzo**	**funzione**
452020097	Circ with inverter kit EASY-E 6-8-12-16 for device		Circulator with inverter for the installation (external assembly) sizes 6 to 16 kW
452020098	Circ with inverter kit EASY-E 20 for device		Circulator with inverter for the 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..



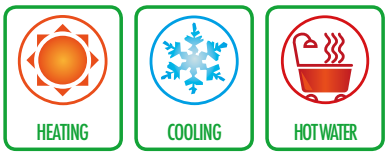
1	GEO EASY-E HT/HTR heat pump
2	Geothermal pump kit
3	System pump kit
4	3 way diverting valve for DHW sytem
5	Accumulator tank, VKG-HC model
6	Safety kit
7	SMART HD indirect water heater
8	DHW recirculation sytem
9	Heating system 1
10	Heating system 2



Hybrid systems
IANUS system

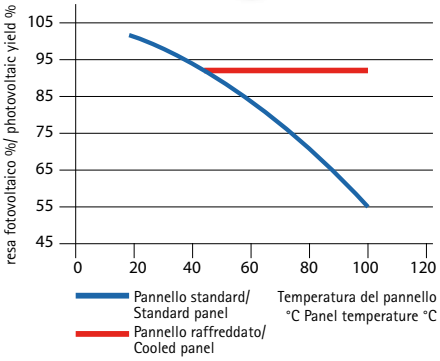
Ianus: The latest green technology generation

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%.

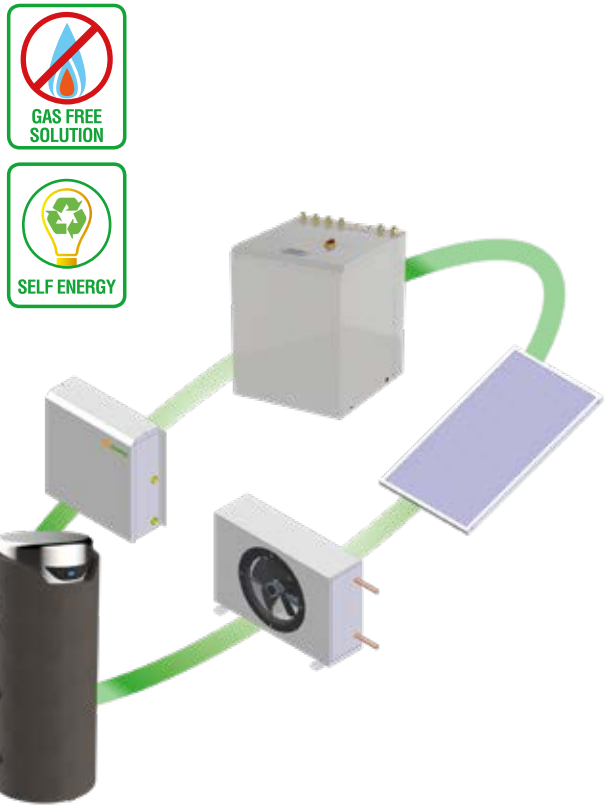
Hydrid systems
IANUS system

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)

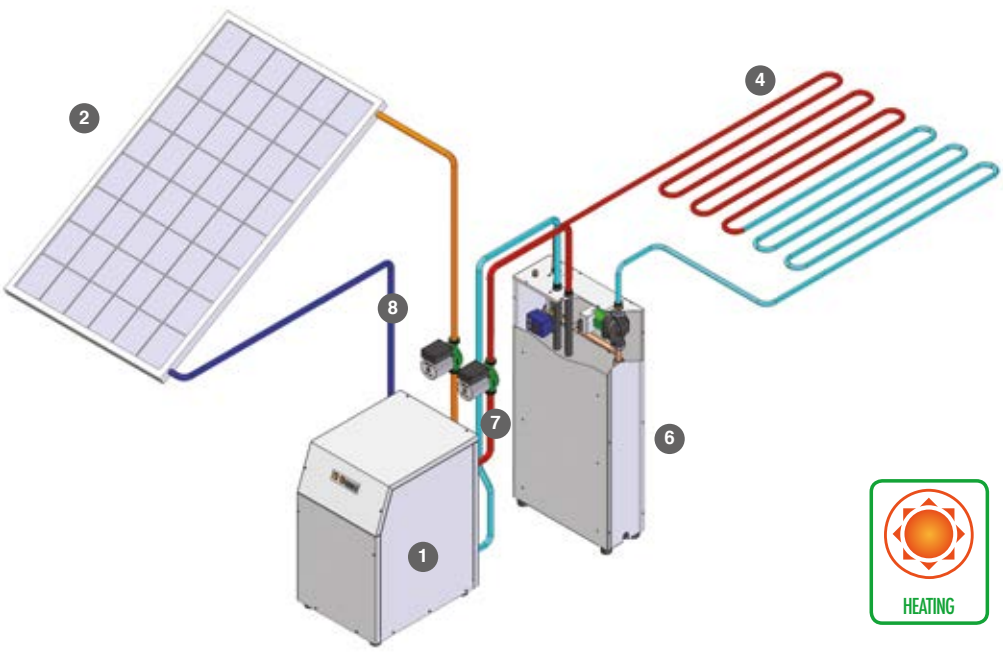
GEO HFE	Thermal photovoltaic panel		Kit Freeheating	Kit Drycooler	Diverter kit
					
Size	**n°**	**kWp**	**n°**	**Size**	**n°**
6	19	4,5	1	Dry 6-8	1
8	26	6	1	Dry 6-8	1
10	34	8	1	Dry 10-12	1

IANUS hybrid system solutions

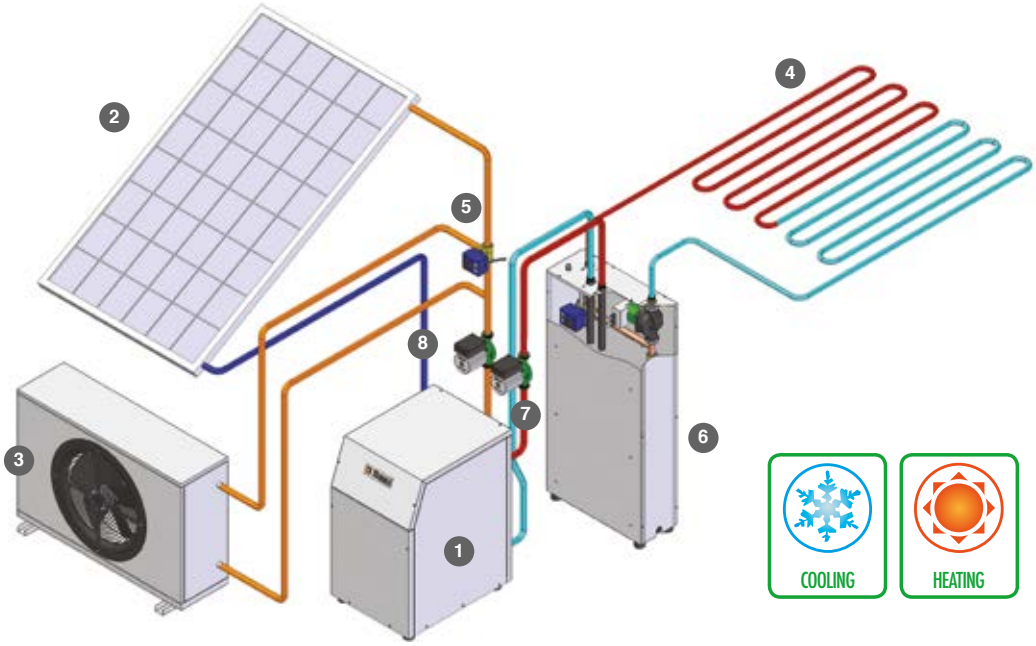
1	GEO EASY-E HT heat pump
2	thermal photovoltaic panel
3	dry cooler
4	floor heating
5	IANUS deviation valve kit
6	compact storage tank for the installation
7	device's circulation kit
8	geothermal circulation kit

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

Heating with EASY-E HT

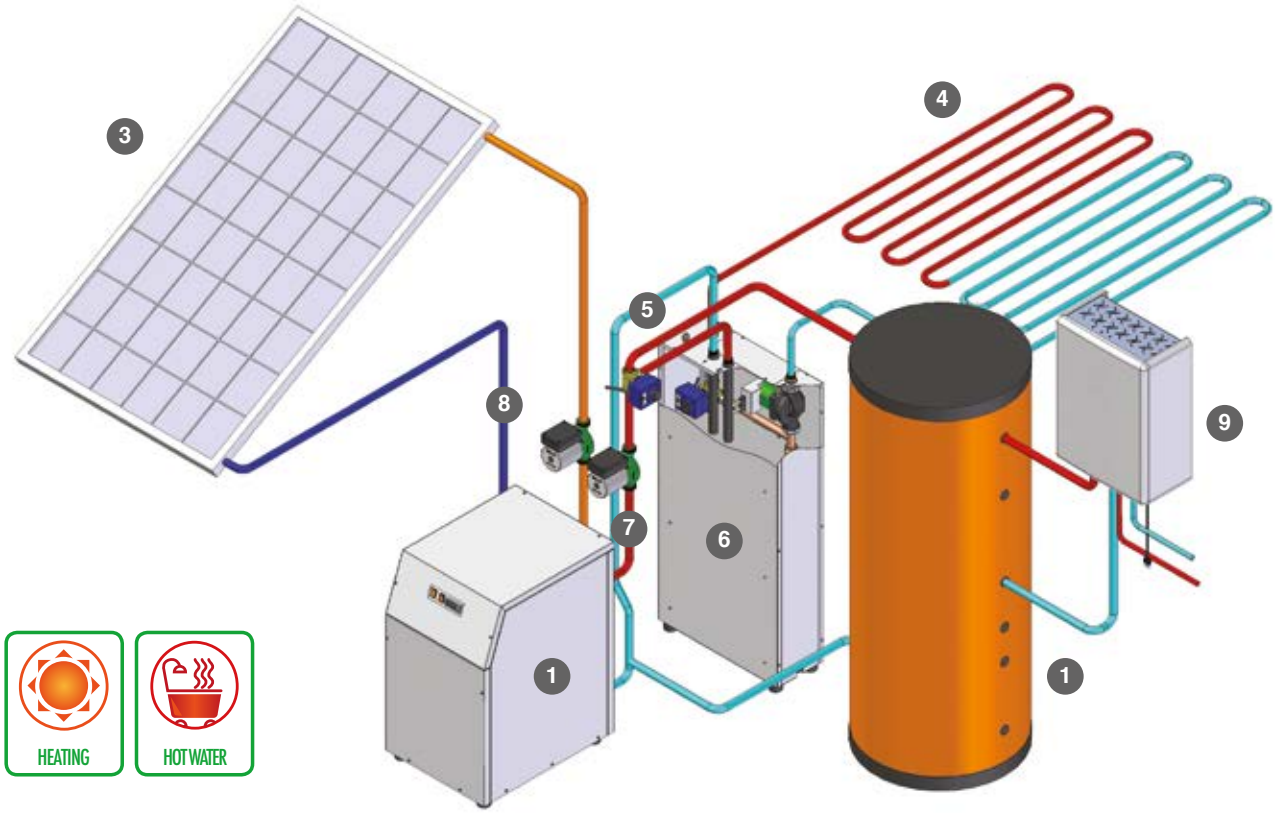


Heating and cooling with EASY-E HTR



IANUS hybrid system solutions

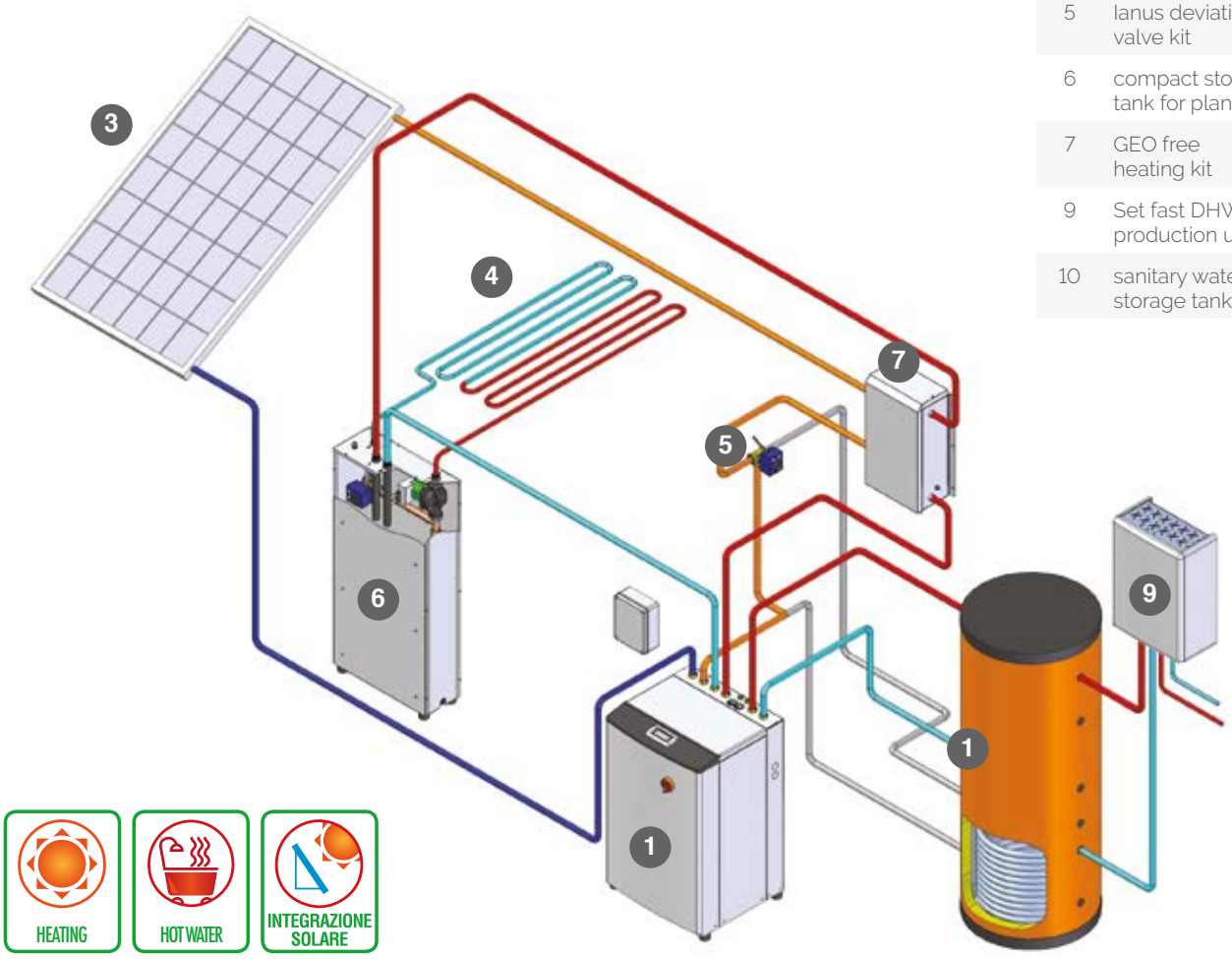
Heating and DHW production with EASY-E HT + DHW kit



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

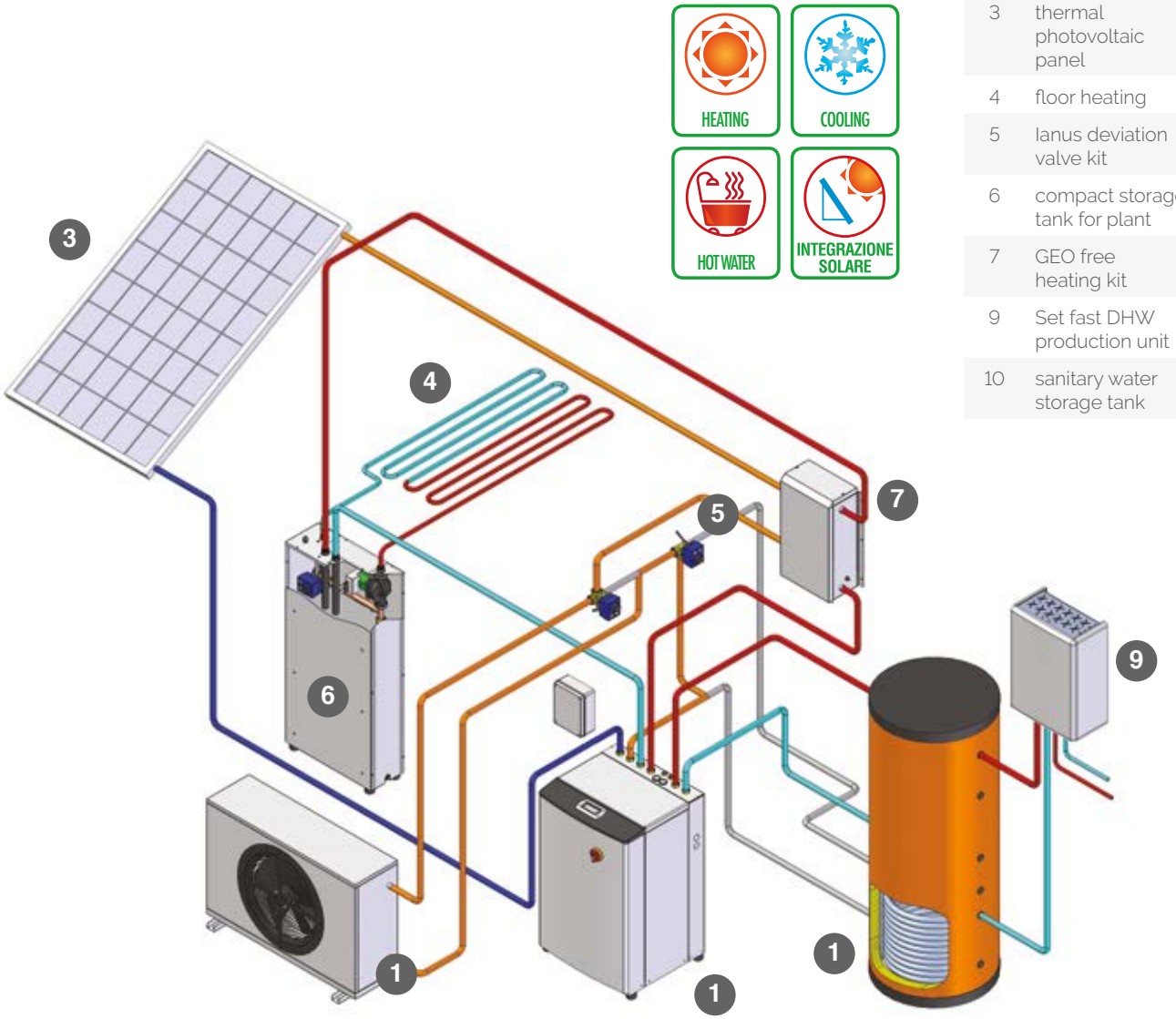
Heating + DHW + solar thermal
With GEO HFE + HFREE kit free heating



1	GEO HFE heat pump
3	thermal photovoltaic panel
4	floor heating
5	Ianus deviation valve kit
6	compact storage tank for plant
7	GEO free heating kit
9	Set fast DHW production unit
10	sanitary water storage tank

IANUS hybrid system solutions

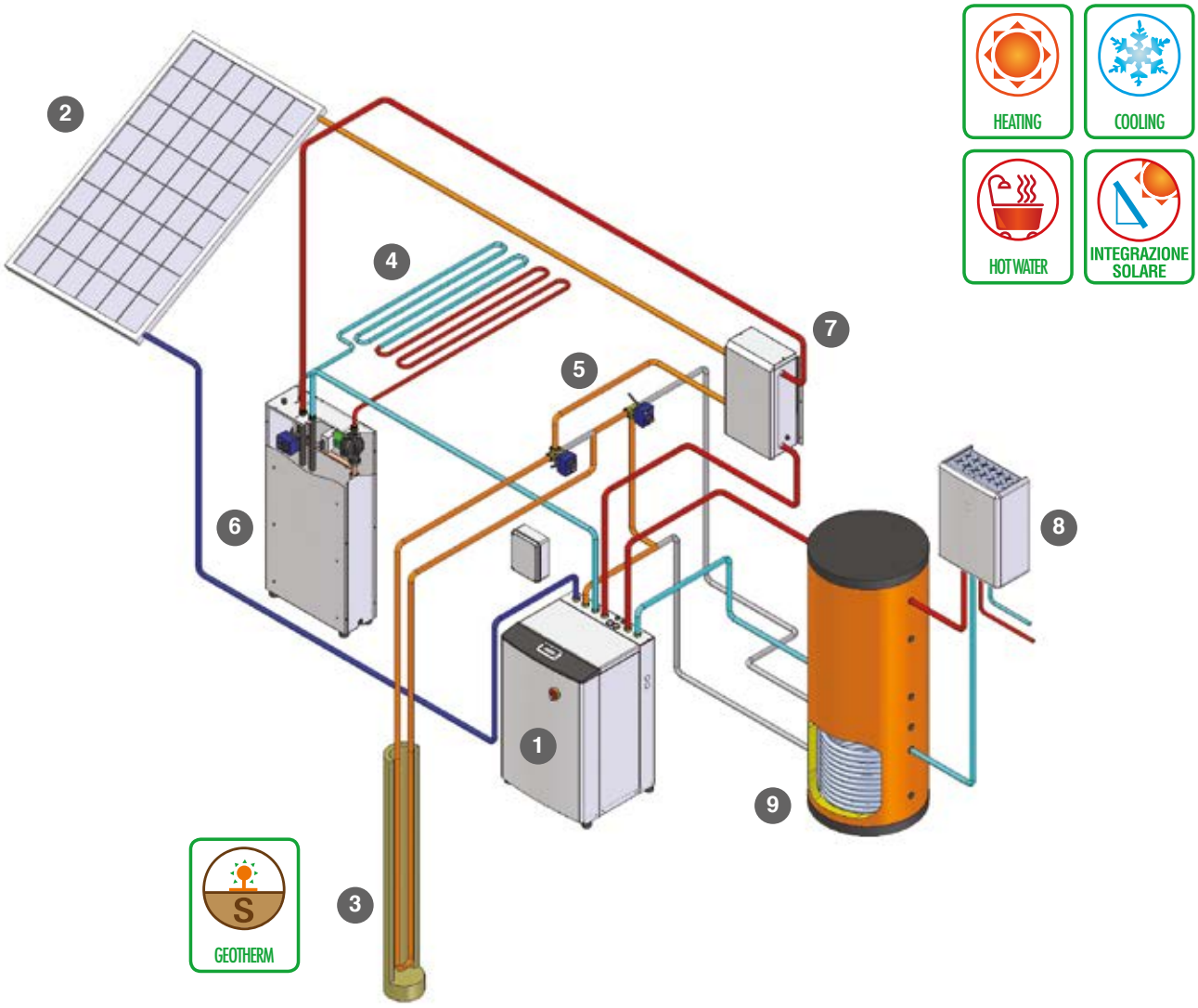
heating + cooling + DHW + solar thermal with GEO HFE



1	GEO HFE heat pump
3	thermal photovoltaic panel
4	floor heating
5	Ianus deviation valve kit
6	compact storage tank for plant
7	GEO free heating kit
9	Set fast DHW production unit
10	sanitary water storage tank

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.

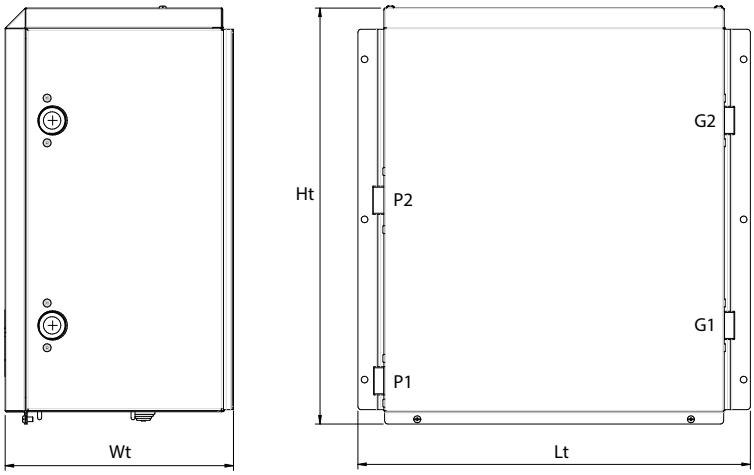
Accessories for geothermal devices MFREE

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 Flow m³/h	System Load loss kPa	Source Flow m³/h	Source 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



Couplings legend

P1	To energy source
P2	From energy source
G1	From plant
G2	To plant

For other connection solutions see installation manual.

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

Accessories

SOLAR KIT	
Model	**Description**
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

Fenix system

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.

Cools in the summer

Warms in the winter

Hot water in every season

Heat recovery

Direct expansion

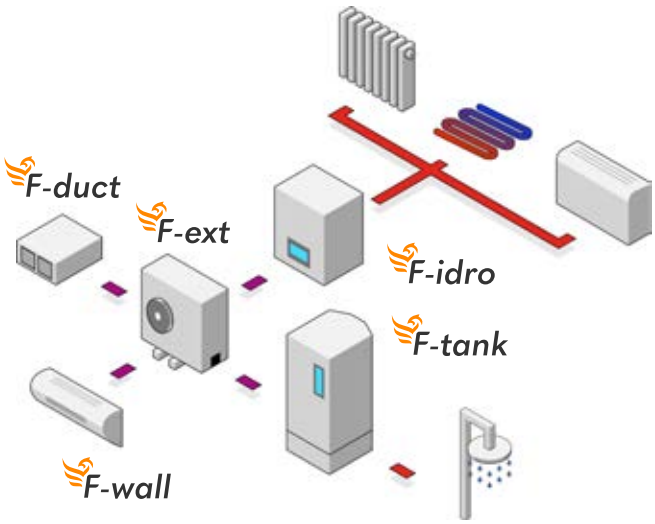
Hydronic

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

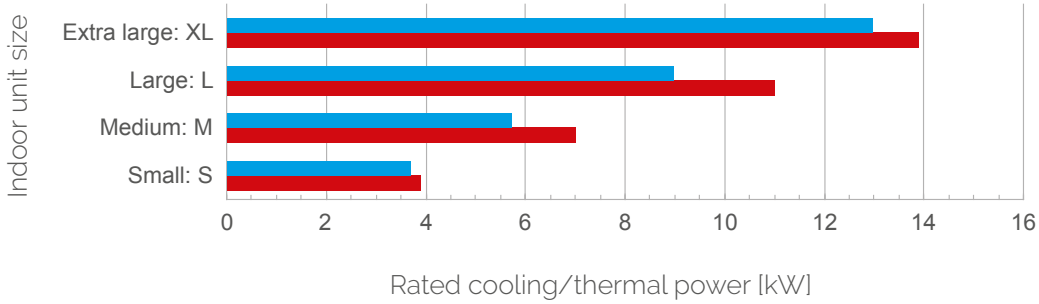
Fenix: Components



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

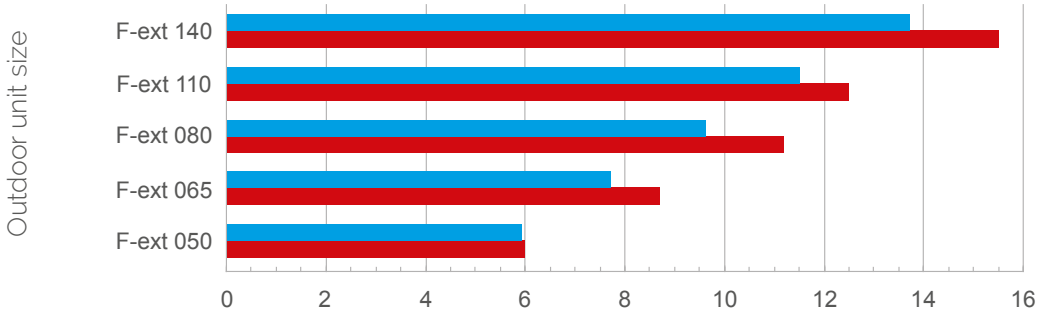
1. Outdoor unit: **F-ext** (condensing motion) see page 342
1. Indoor hydronic unit: **F-idro** see page 346
2. Indoor unit for DHW: **F-tank** see page 350
3. Indoor units with direct expansion: **F-wall** and **F-duct** see page 354 and 355

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

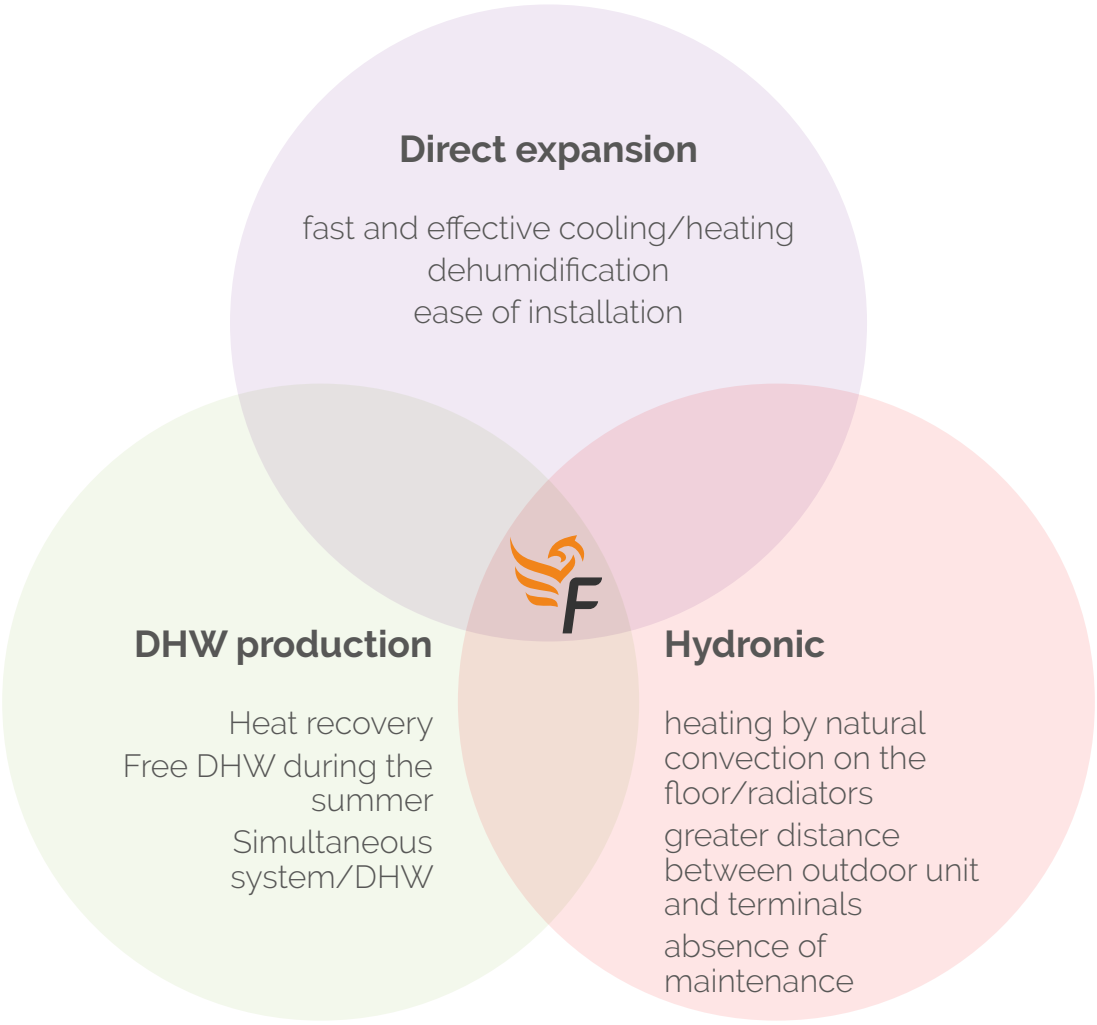
Thermal power

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

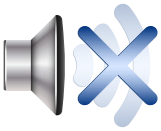


UNIQUE AND INNOVATIVE

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	✔

TAX INCENTIVES **HEAT MEASUREMENT** **TAX CREDIT** 65%

F-EXT 050 dual

F-EXT 065 trial

F-EXT 080 quadri

F-EXT 110 quadri

F-EXT 140 penta

Performance

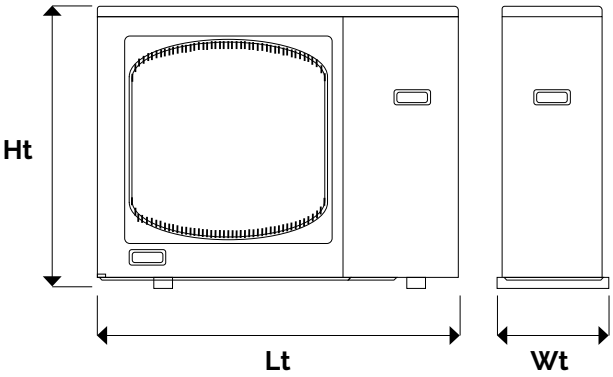
	Air-water (*)						Air-Air (**)						DHW (***)			
	power output (kW) EN 14511		EN 14511		Energy Class EN 14825		power output (kW) EN 14511		EN 14511		Energy Class EN 14825		EN 14825			
	Heating	Cooling	COP	EER	Heating 35°C	Heating 55°C	Heating	Cooling	COP	EER	Heating	Cooling	Load profile	ERP class	COP	% 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

	without packaging				with packaging			
model	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

	Outside dry bulb (wet bulb) air temperature											
		-10 (-11)°C		-7 (-8)°C		2 (1)°C		7 (6)°C		12 (11)°C	
model	LAT °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

COOLING

	Outdoor air temperature		
	35°C		
model	LAT °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

Data according to norm EN 14511-3:2013

HEATING

	Outside dry bulb (wet bulb) air temperature											
		-10 (-11)°C		-7 (-8)°C		2 (1)°C		7 (6)°C		12 (11)°C	
model	LAT °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

	Outdoor air temperature		
	35°C		
model	LAT °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 differenceo 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

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

Plus

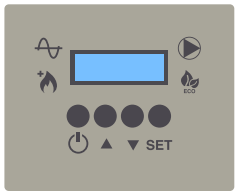
✔ SIMPLE AND INTUITIVE INTERFACE
The digital control panel equipped with an LCD display is easily used both by operators (Installers and Service Centres) and by end users.

✔ 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

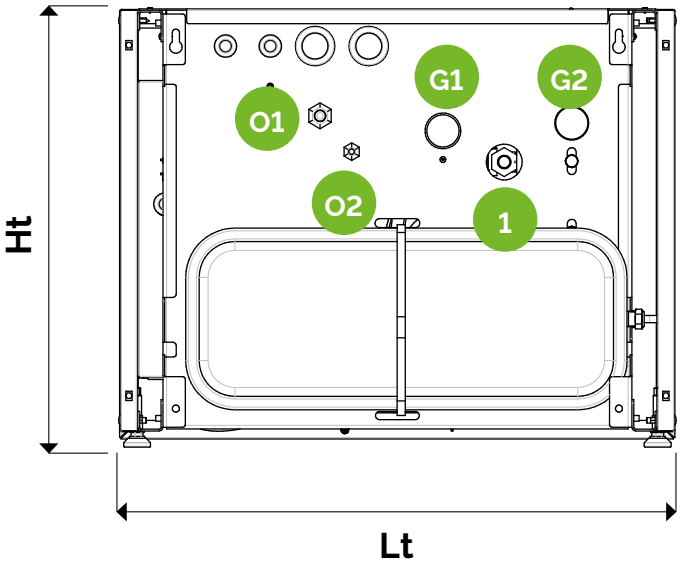
Technical features

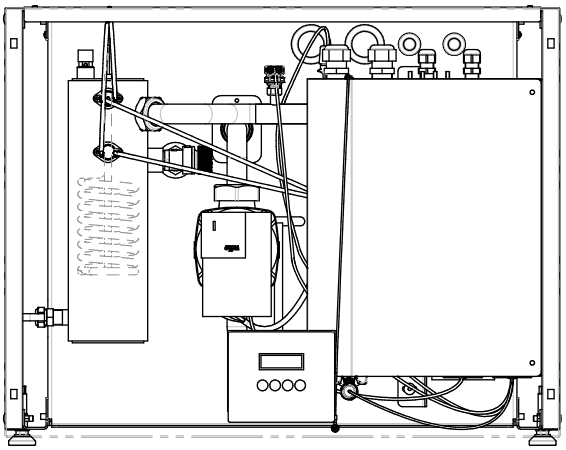
			SIZE			
			Small S	**Medium M**	**Large L**	**Extra large XL**
OPERATING DATA						
Water supply temp	MAX	° C	Up to 58	Up to 58	Up to 58	Up to 58
Water flow	35 ° C	l/min	11.5	18.3	30.0	39.2
	45 ° C	l/min	11.2	18.3	29.2	38.0
	55°C	l/min	-	9.2	15.0	19.7
Minimum water volume		l	40	40	80	80
Thermal power		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			✔	✔	✔	✔

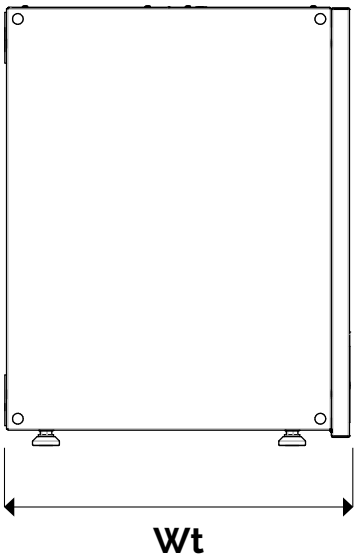
F-idro: technical data

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







size		Dimensions without packaging Wt mm	Ht mm	Lt mm	weight kg	Dimensions with packaging 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 with packaging cm	dimensions without packaging cm	weight kg	for sizes F-idro
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

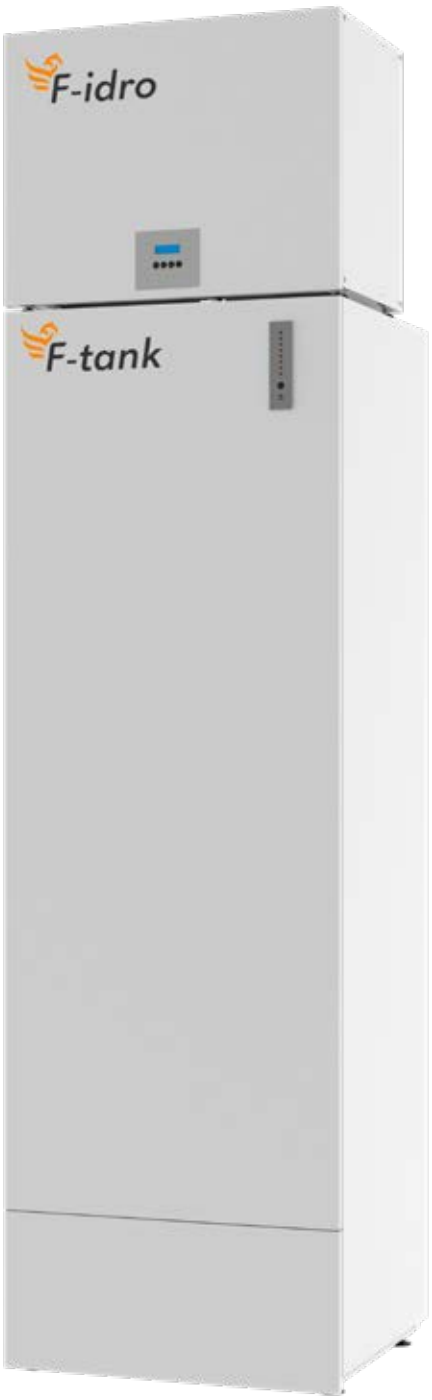
The F-Tank unit is managed by the Fenix system like any other indoor unit, and is exclusively intended for the production of DHW.

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.

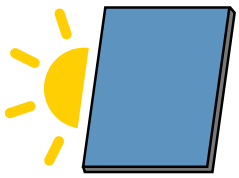
All other indoor units, however, are connected via standard refrigerant connections.

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** .

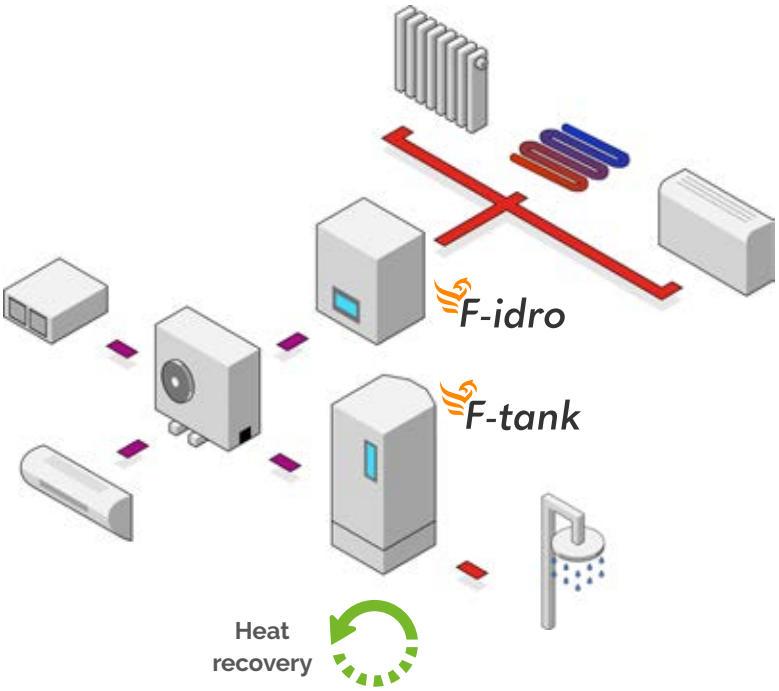


Combination with solar systems



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.

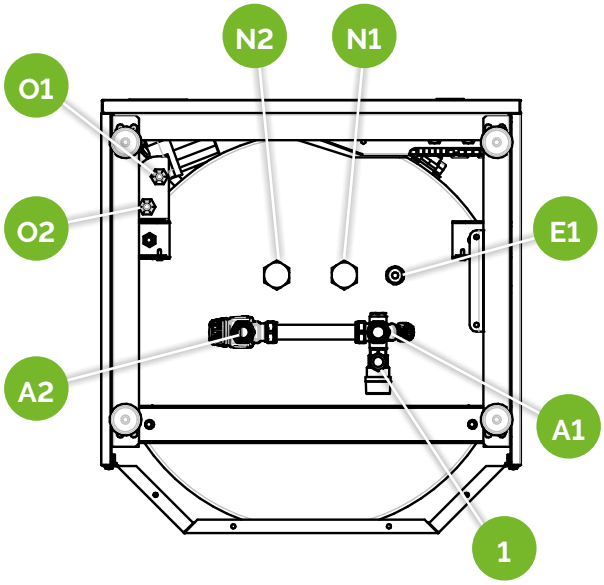


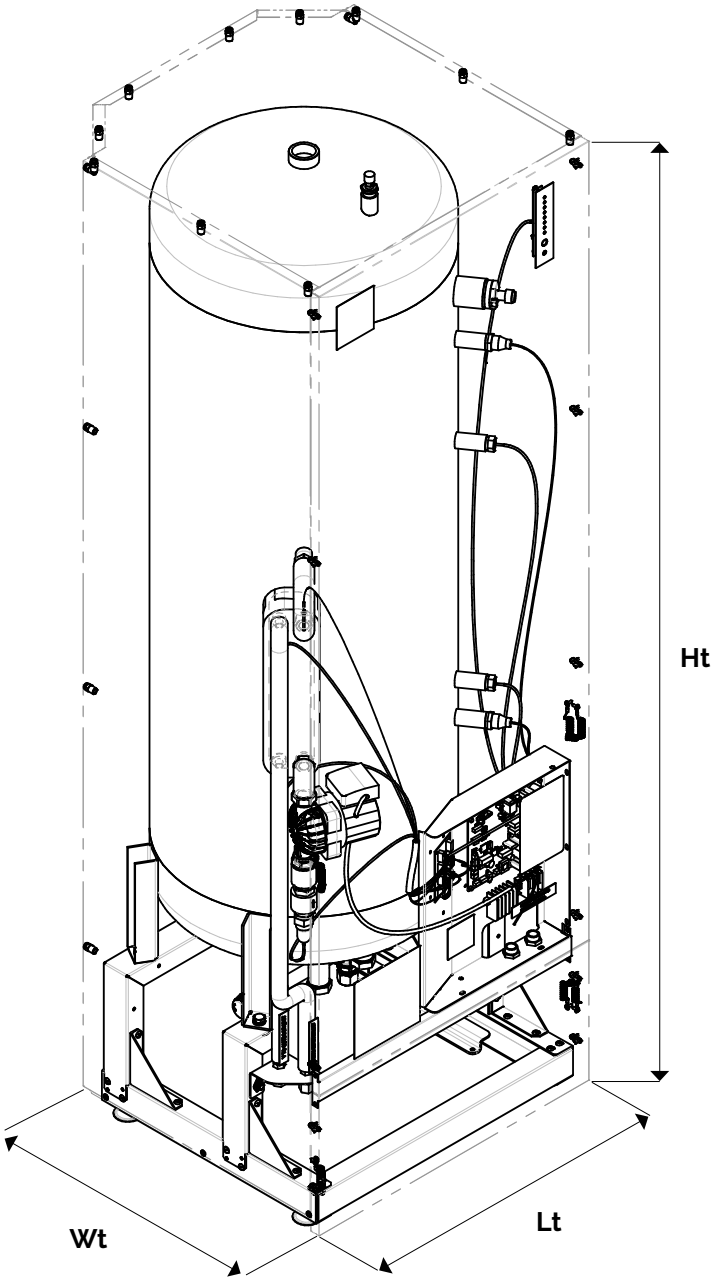
F-tank
Technical data

	Dimensions without packaging				Dimensions with packaging			
capacity l	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^2	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 (*)	-	A	A
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)
F-wall S	844110001X		S	≤ 4,0	≤ 3,7
F-wall M	844110002X		M	≤ 7,0	≤ 5,7

		F-wall S	F-wall M
IO airflow (sb-b-m-a)	m^3/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

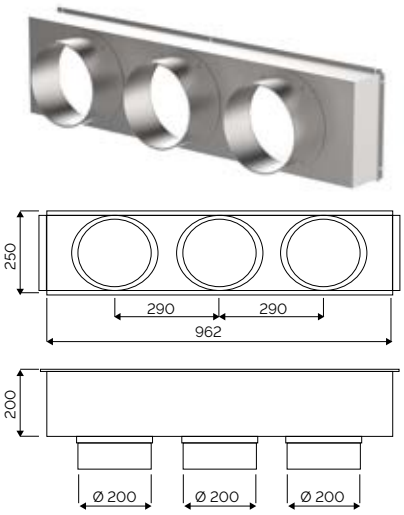
F-duct is mainly intended for the service sector and is made with great care in the choice of materials and in the assembly of parts. Available in size M and L, it is equipped with high quality centrifugal fans and condensate drain pump; it is also equipped with washable filters easily accessible and 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)
F-duct M	844110003X		M	≤ 7,0	≤ 5,7
F-duct L	844110004X		L	≤ 11,0	≤ 9,0
3-way PLENUM conveyor	844070024X		-	-	-



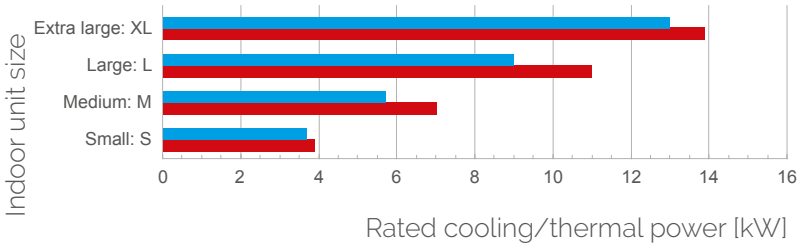
		F-duct M	F-duct L
IO airflow (b-m-a-aa)	m^3/h	450/550/720/850	600/720/950/1050
Dehumidification	l/h	2.3	2.5
Ventilation speed	No.	Auto + 3 from the remote control	
Useful pressure	Pa	50/62	50/62
Sound pressure IO (sb-b-m-a)*	dB(A)	32-35-42-47	35-40-46-49
Power supply	V/Ph/Hz	230/1/50	
Absorbed power	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.



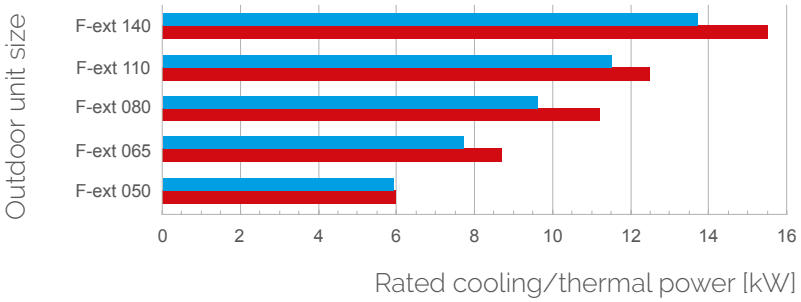


Table reading examples:

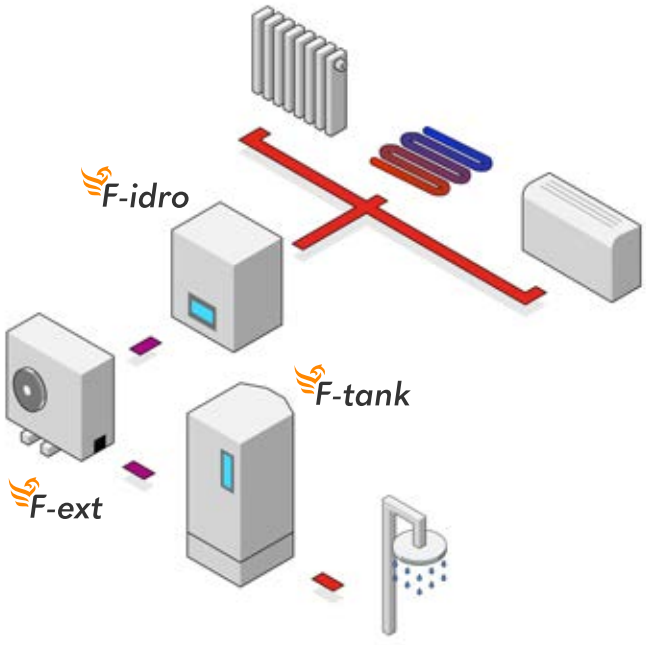
Hydronic HVAC + DHW> Outdoor unit F-ext 080 >> F-type combinable L size

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	✔



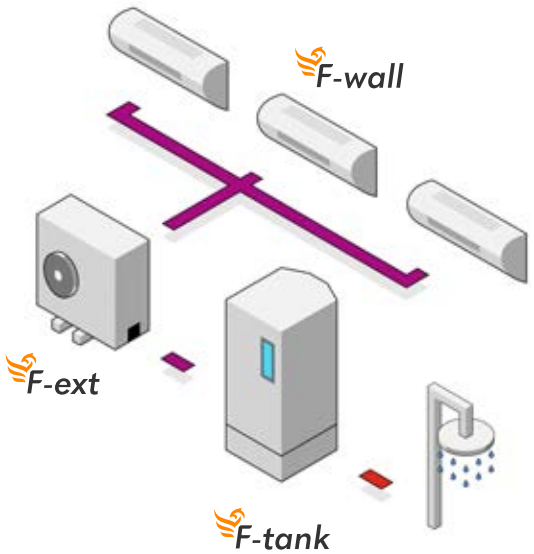
2. Direct Expansion heating and cooling + DHW

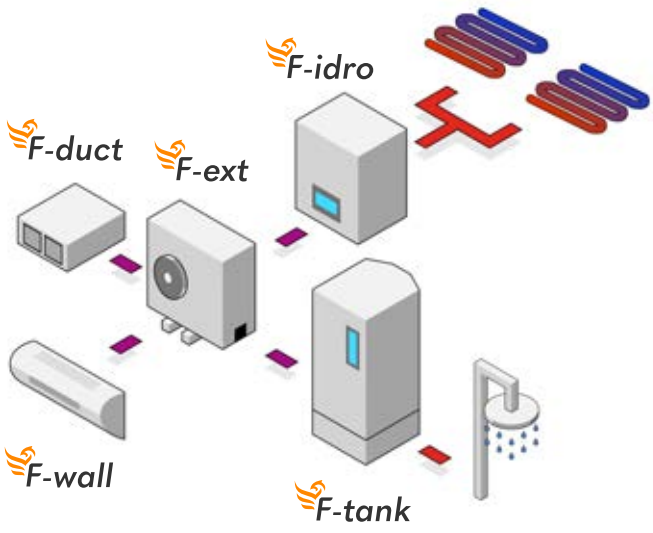
Ref.	Indoor unit size	V/Ph/Hz	F-wall / F-duct	F-tank
6	F-EXT 050 dual	230/1/50	S	✔
7			M	✔
8	F-EXT 065 trial	230/1/50	M	✔
9			S + S	✔
10			S + M	✔
11	F-EXT 080 quadri	230/1/50	L	✔
12			S + M	✔
13			S + S + S	✔
14			S + S + M	✔
15	F-EXT 110 quadri	230/1/50	XL	✔
16			S + M	✔
17			S + L	✔
18			M + M	✔
19			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				M + M	✔
38			L	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				S + S + S + M	✔
44			XL	S + M	✔
45				S + S + S	✔

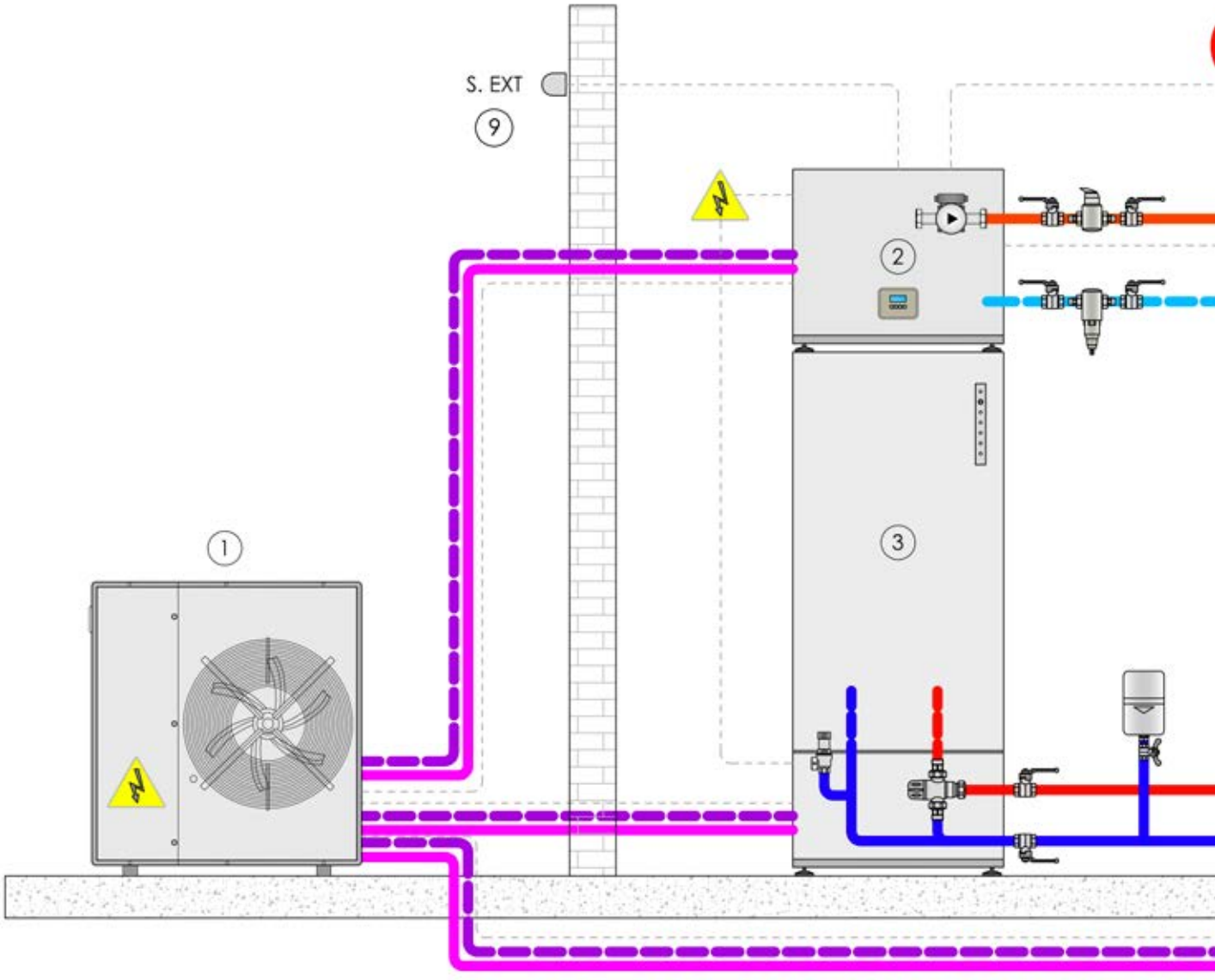
* For mixed solutions: air / water for heating and air / air for cooling, not in simultaneous operation



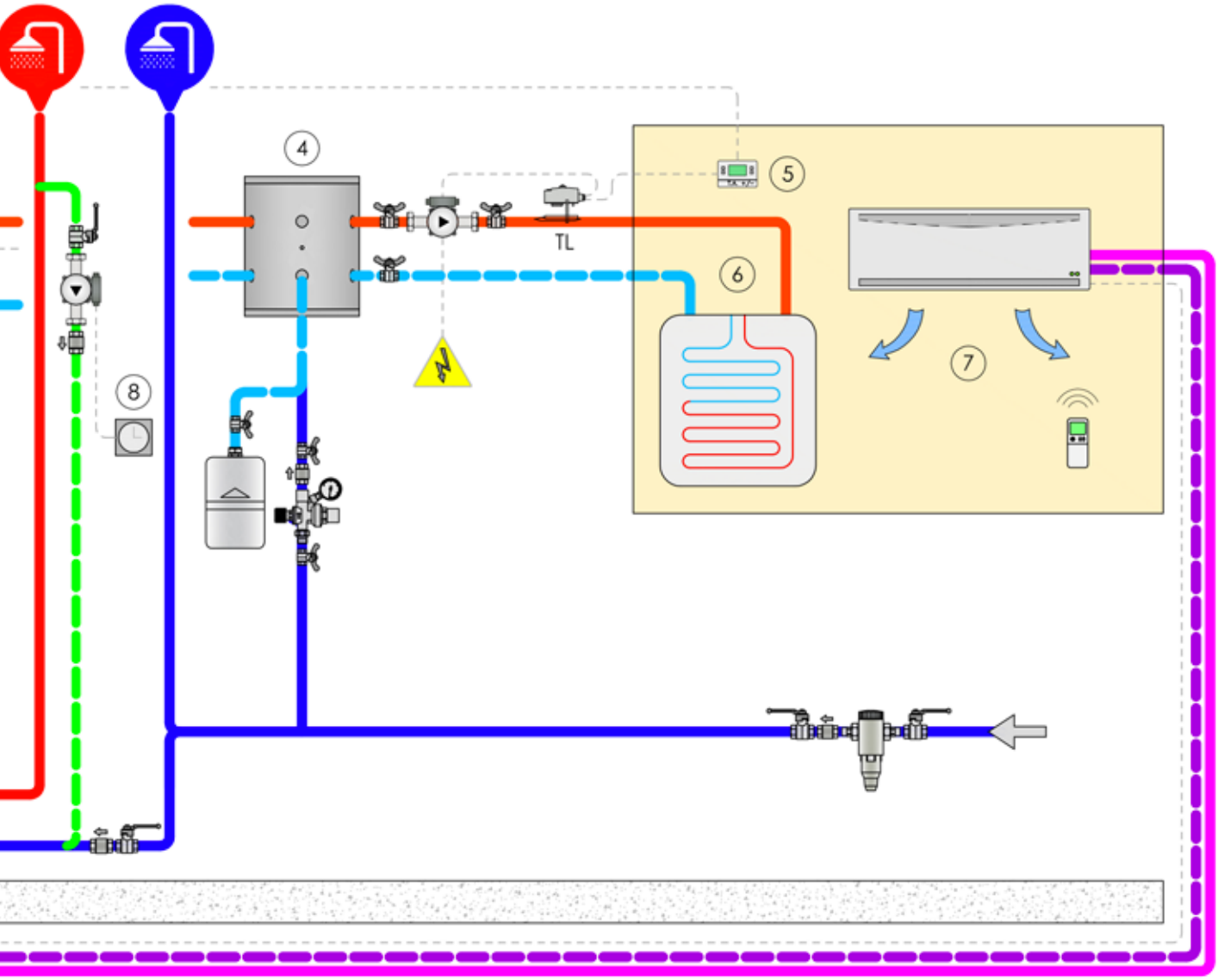


Type A diagram

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



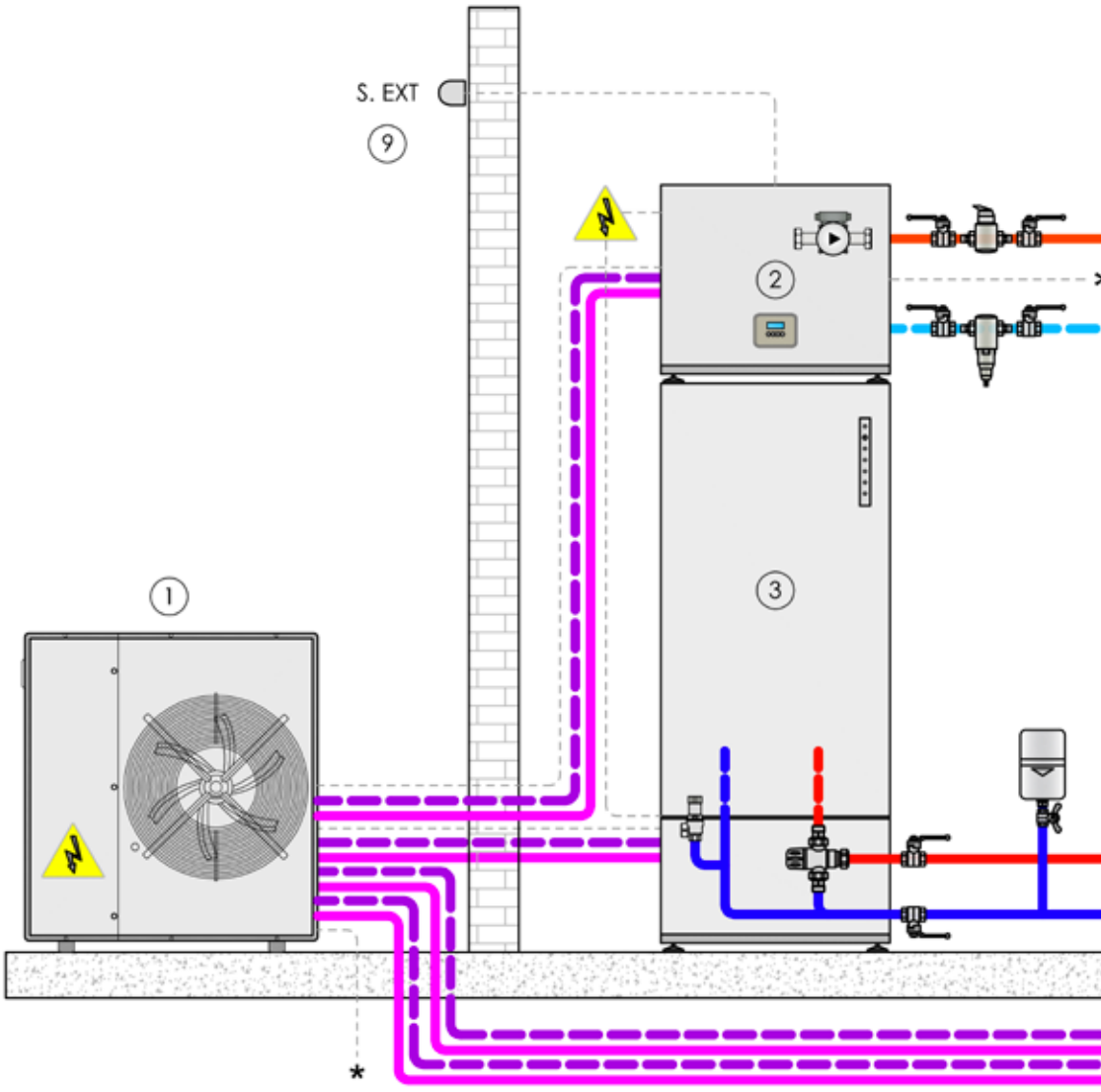
	Caption
1	Outdoor unit of the Fenix system, F-Ext series
2	Indoor unit of the Fenix, F-idro
3	Indoor unit of the Fenix system, F-tank 200/300
4	MINI HC inertial storage tank (or hydraulic circuit breaker), available from 40 or 80 litres
5	Room thermostat or chrono-thermostat (not supplied)
6	Hydronic 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.
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).

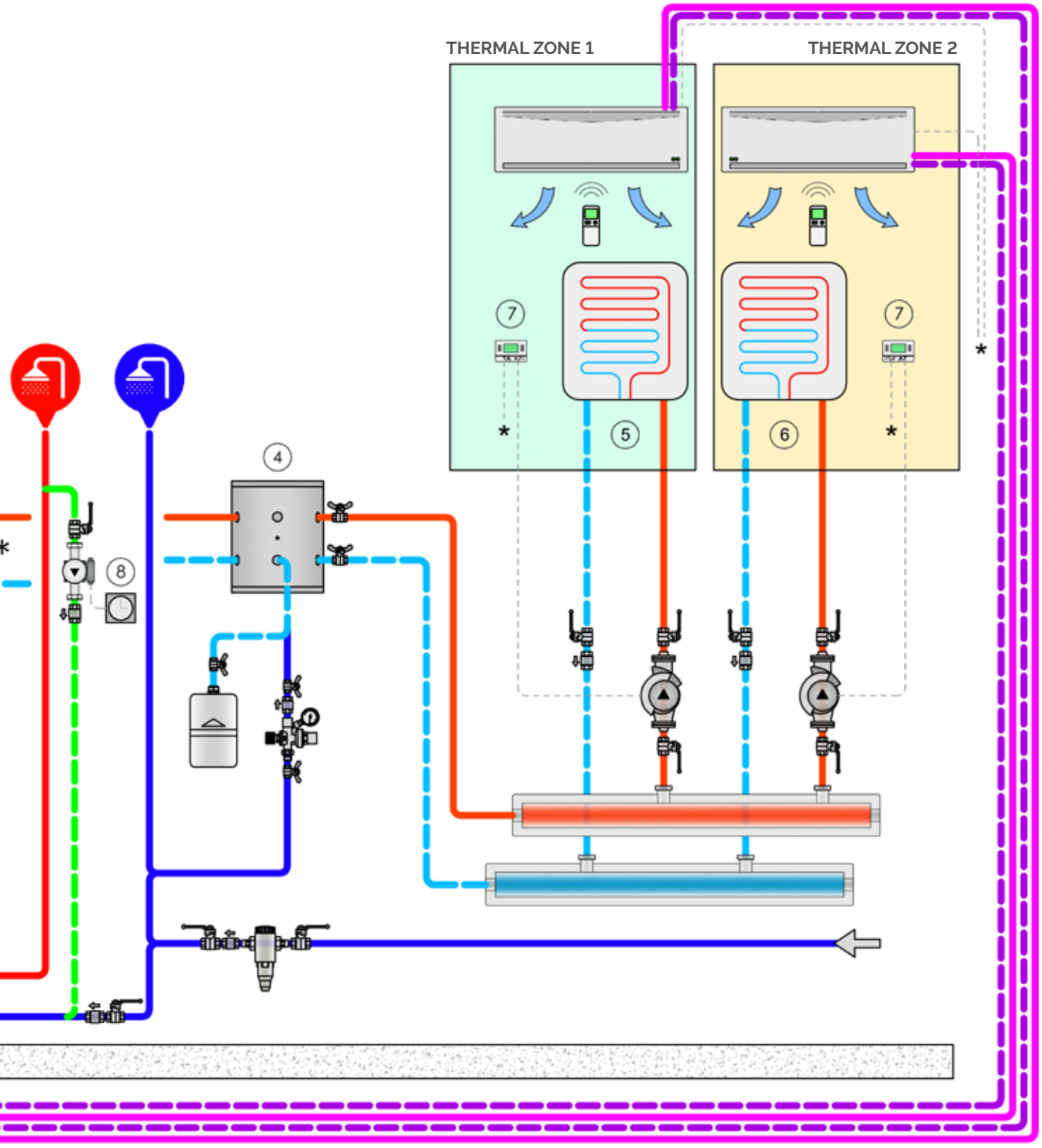


Type B diagram

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).




THERMAL ZONE 1
THERMAL ZONE 2
7
7
5
6
4
8
*
*
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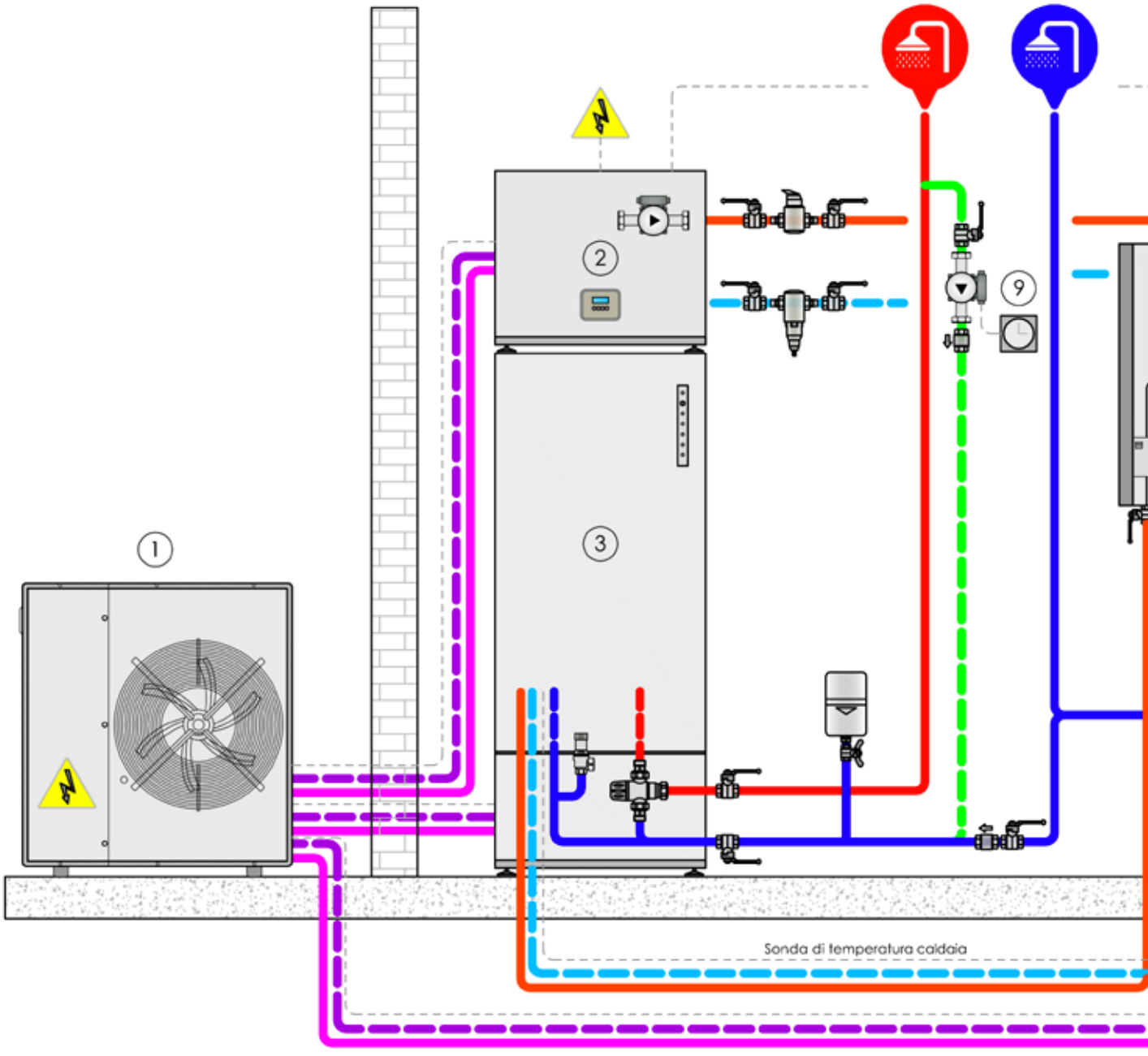
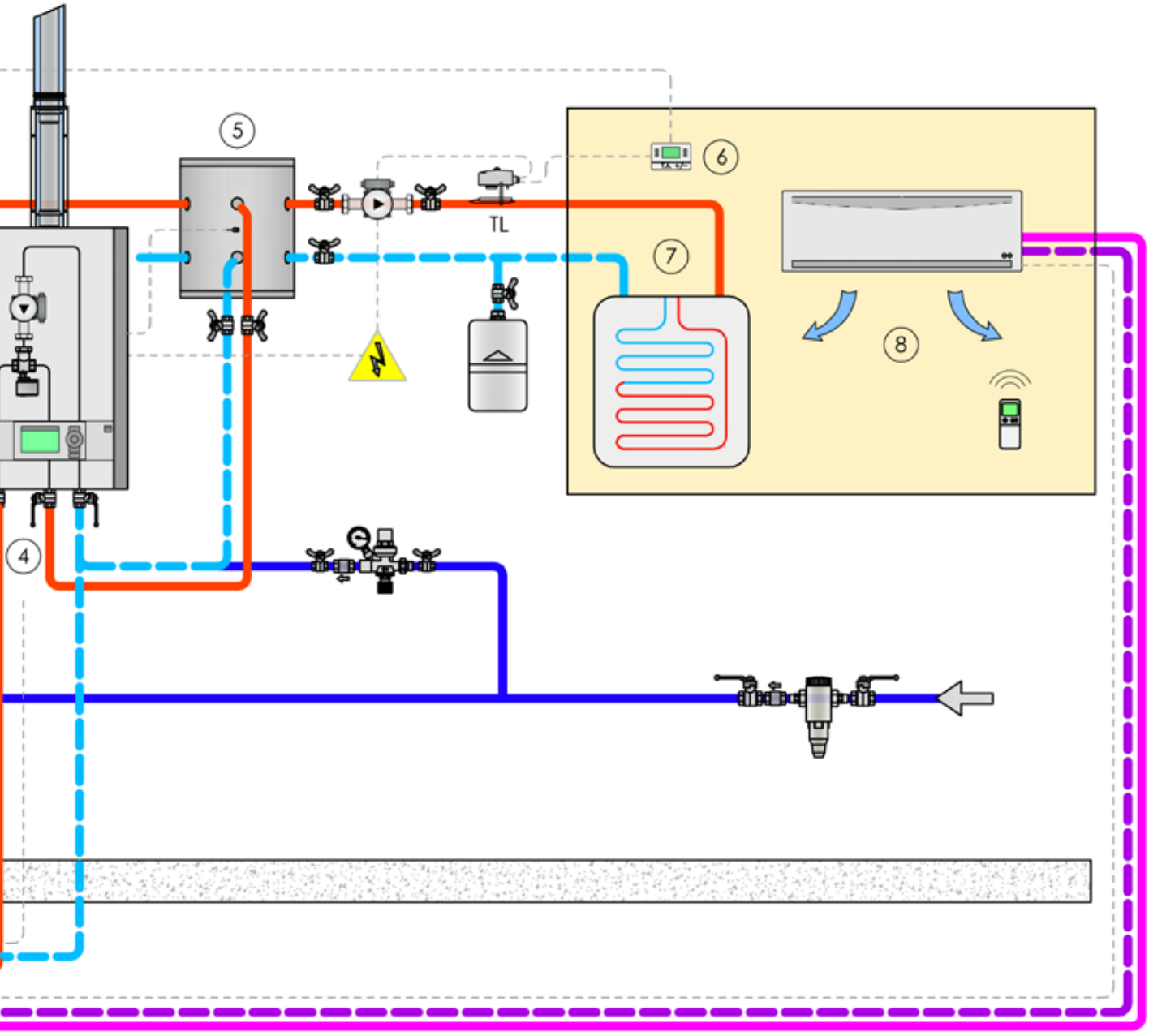
Type C diagram

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.

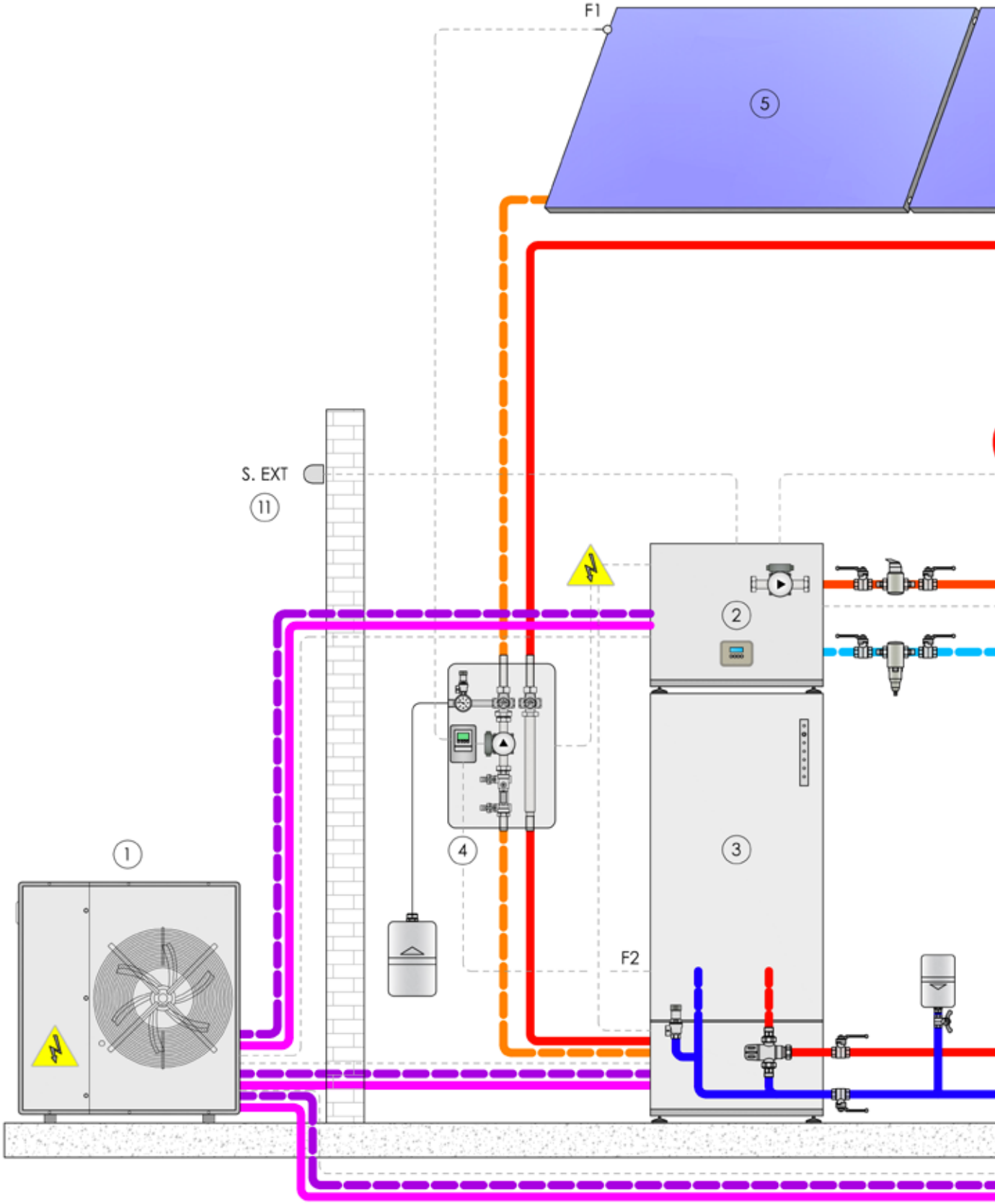


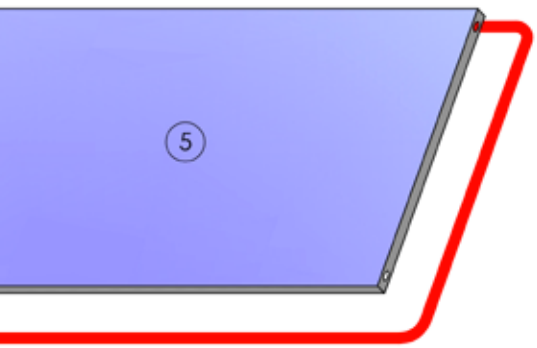
	Caption
1	Outdoor unit of the Fenix system, F-Ext series
2	Indoor unit of the Fenix, F-idro
3	Indoor unit of the Fenix system, F-tank 200/300
4	Combined boiler for heating only, with immersion NTC sensor
5	MINI HC inertial storage tank (or hydraulic circuit breaker), available from 40 or 80 litres
6	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.



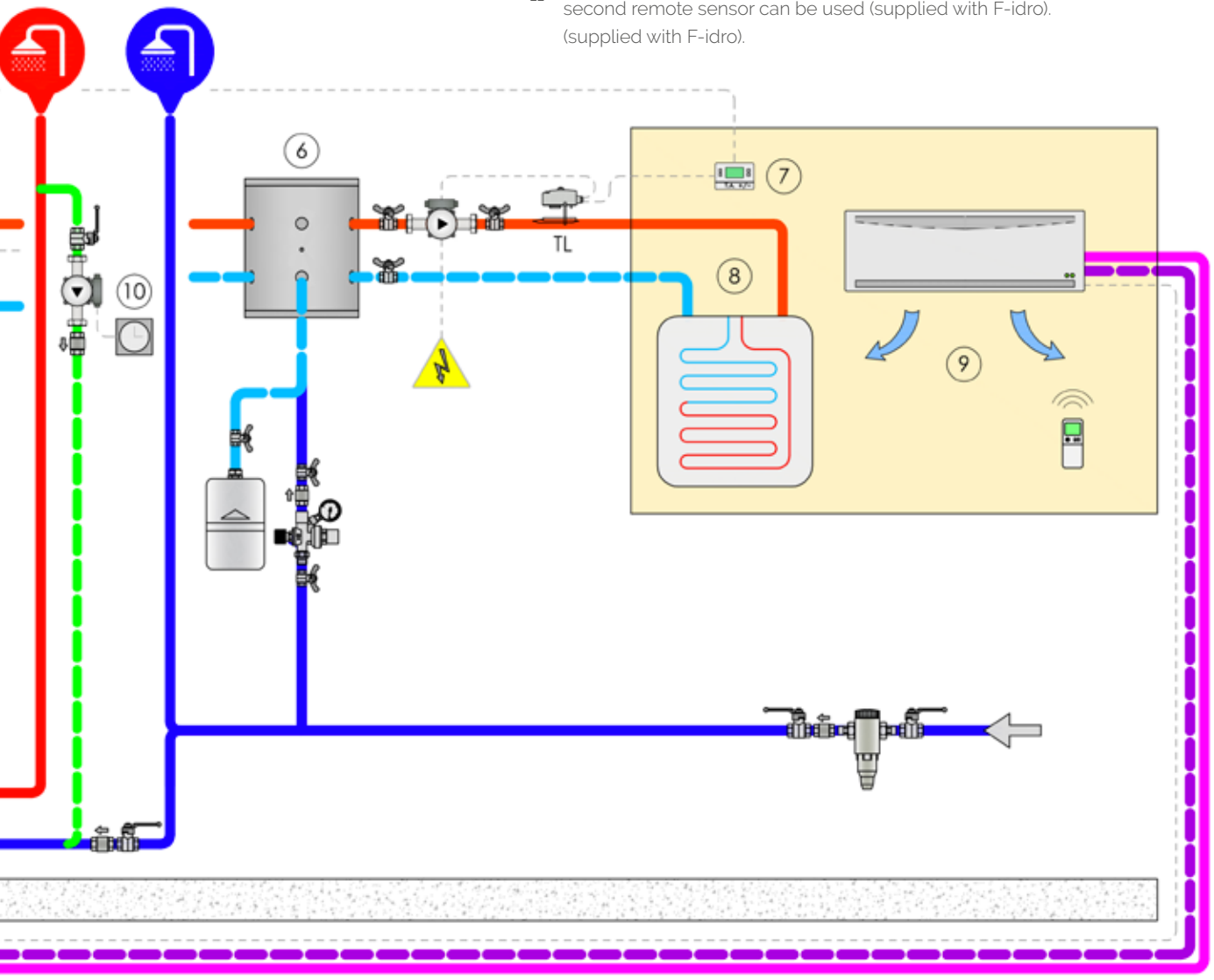
Type D diagram

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.
11	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). (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.

TESTED

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°C
- external unit with inverter to efficiently exchange heat with the environment
- DHW production up to 55°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

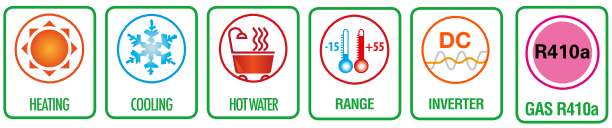
CONTROL

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.

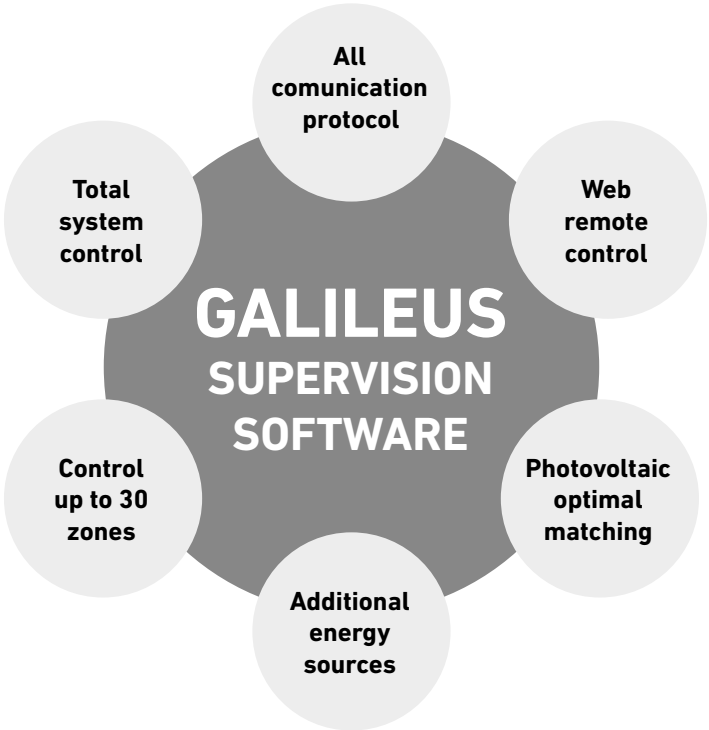


Idea Flex
GALILEUS

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
Winter functioning A7/W35 (A)					
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	m^3/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
External					
Air flow	m^3/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
Domestic A7/W50 (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
Summer functioning A35/W18 (C)					
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
Device					
Water flow	m^3/h	0,89	1,41	2,04	2,46
Heat pressure	mca	4,5	4,2	3,8	3,2
Summer functioning A35/W7 (D)					
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
Device					
Water flow	m^3/h	0,68	1,08	1,46	1,85
Head pressure	mca	6,4	5,7	5,0	4,3
Features					
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

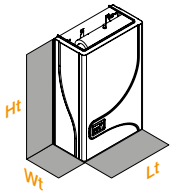
(A) Utility circuit: radiant plant 30/35°C In-Out ;
External circuit: outdoor air °C 7-85% RH

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

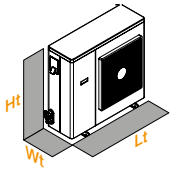
(C) Utility circuit: radiant plant °C 23/18 In/Out;
External circuit: outdoor air °C 35-50% RH

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

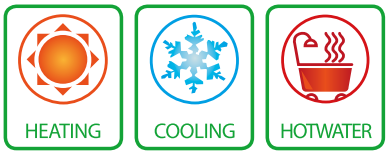
		6	8	12	16
Lt	mm	515	515	515	515
Wt	mm	270	270	270	270
Ht	mm	816	816	816	816



		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



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

Air/water system Motocondensating 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	

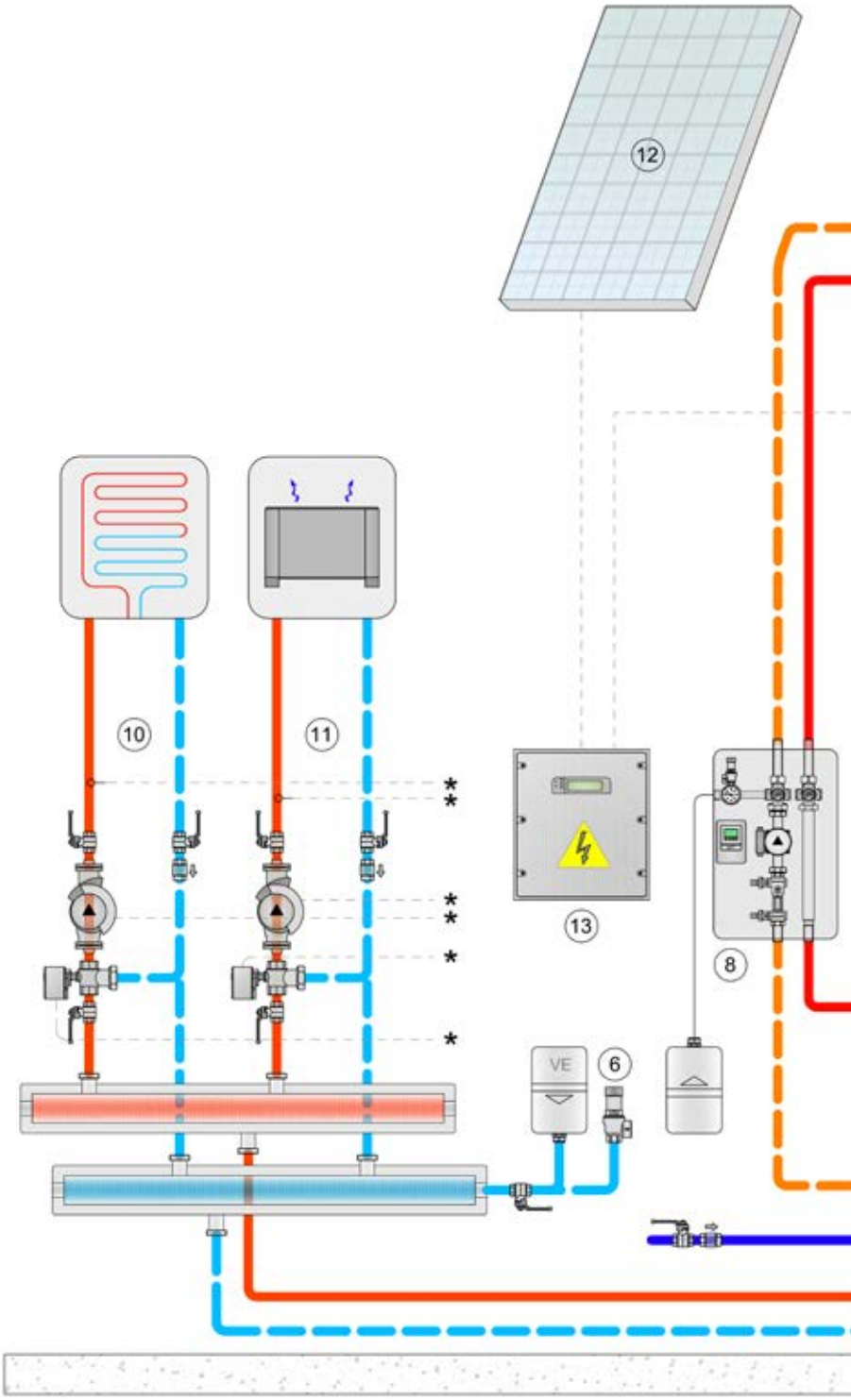
IDEA FLEX GALILEUS accessories Accessories for device		
code	description	price
452010072	SOLAR IDEA GALILEUS kit	
838110001	Control unit for solar pumping kit	

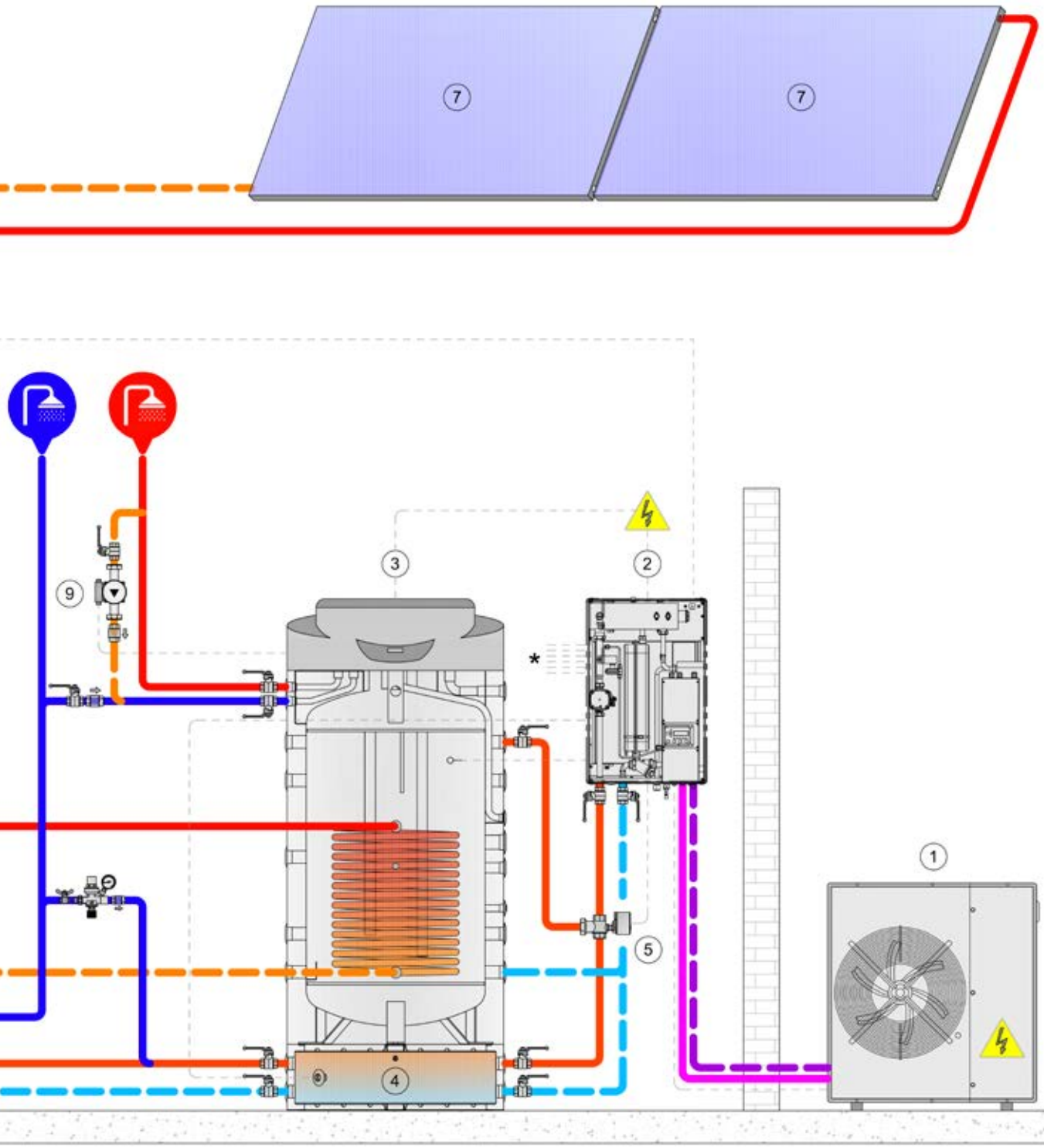
(*) In the IDEA FLEX GALILEUS model you can not mount the WEB KIT if the MY-ZONE KIT is present.

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




7
7
9
3
2
*
1
5
4

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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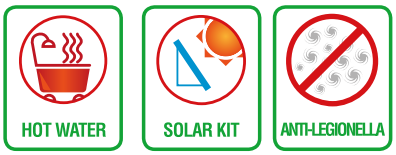
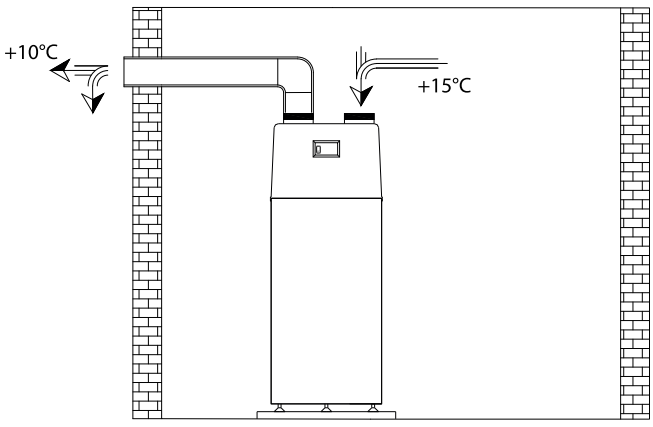


Model	Code	Price
EOS GREEN 2	844020016X	
EOS GREEN 3	844020017X	



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

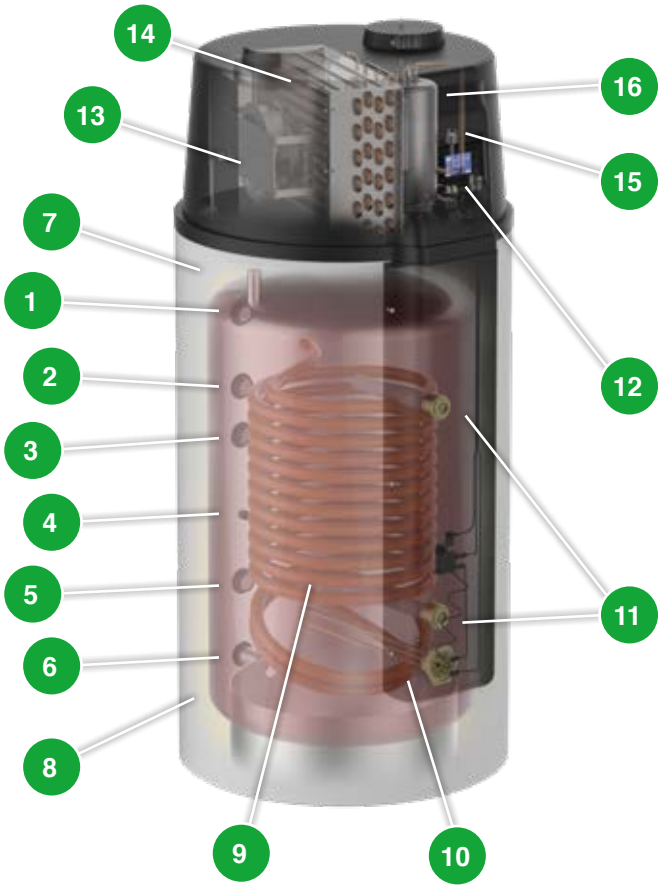
Technical data

		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_{elec} 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		A	A
Water consumption profile (EN-16147)		L	XL
Air flow	m^3/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)	m^2	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

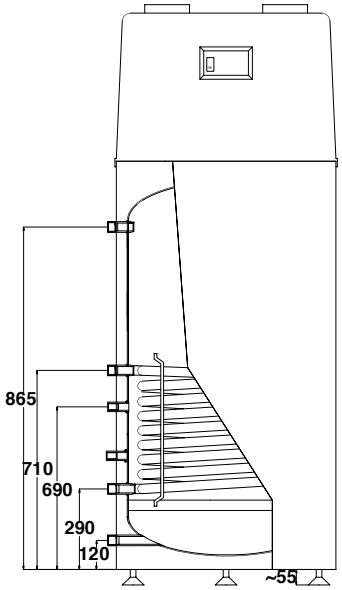
* EN-16147 T air 15°C, T water from 10°C to 55°C
** EN-16147 T air 20°C, T acqua from 10°C to 55°C

Air-water heat pumps for DHW production EOS GREEN

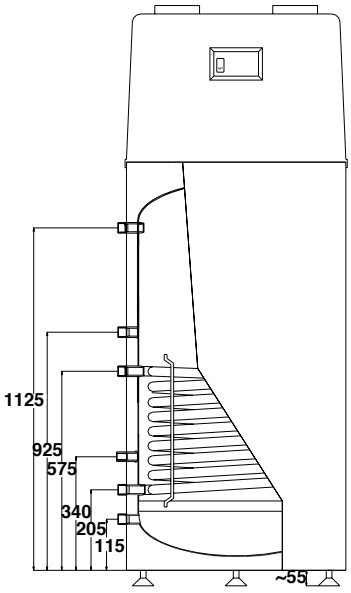


Components	
1	DHW outlet
2	Heat exchanger inlet
3	Recirculation
4	Probe
5	Heat exchanger outlet
6	Cold water inlet
7	Condensation drain
8	Insulation
9	Heat exchanger
10	Resistor
11	Anodes
12	Control panel
13	Fan
14	Evaporator
15	Filter
16	Compressor

EOS GREEN 2



EOS GREEN 3



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ADDRESS

ZIP CODE | CITY

PROVINCE | COUNTRY

BUSINESS TYPOLOGY

- ☐ INDUSTRY
- ☐ WHOLESALER
- ☐ CONSULTANT
- ☐ INSTALLER
- ☐ PRIVATE
- ☐ OTHER _____

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BANK

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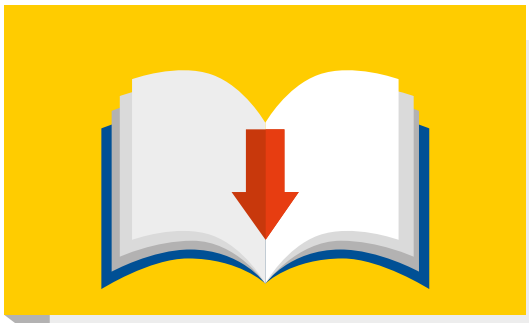

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Ph. +39 0543 723197 – Fax +39 0543 720413
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