DHW Fast Heaters





fiorini

Fast heater for DHW AQUAFAST

AQUAFAST consists of a compact and highly efficient heat exchange unit for the rapid production of domestic hot water which can be combined with any Fiorini thermal storage tank from the Flexy series or with any boiler from the Boil or Smart series.
The possibility of combining Aquafast with different types of tanks and volumes allows for a wide range of solutions for the rapid production of domestic hot water. The rapid preparer is ideal for small and large communities (houses, restaurants, hotels, sports centres,..).

Aquafast system consists of:
- ✔ Plate heat exchanger
- ✔ Electronic controller
- ✔ Sturdy container in painted and insulated sheet metal
- ✔ High efficiency DHW circulator
- ✔ Fittings and valves

model	Max pressure primary circuit	Max pressure secondary circuit
AQUAFAST 12/35 – 25/100	6 bar	10 bar
AQUAFAST 30/120 – 80/350	10 bar	10 bar



Aquafast 12/35

TESTED

Aquafast 50/200

Codes

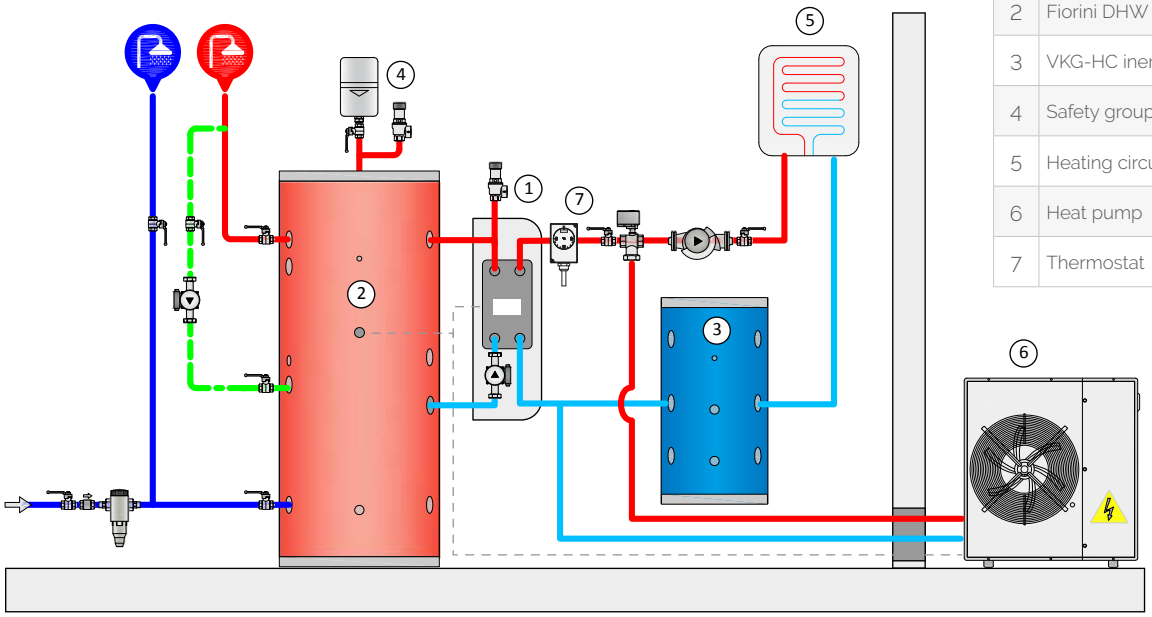
Model	Code	Price	With packaging	
			Dimensions cm	Weight kg
AQUAFAST 12/35	841060070X		100X40X35	18
AQUAFAST 18/70	841060071X		100X40X35	19
AQUAFAST 25/100	841060072X		100X40X35	21
AQUAFAST 30/120	841060073X		110x50x45	47
AQUAFAST 40/150	841060074X		110x50x45	48
AQUAFAST 50/200	841060075X		110x50x45	51
AQUAFAST 60/250	841060076X		110x50x45	53
AQUAFAST 70/300	841060077X		110x50x45	56
AQUAFAST 80/350	841060078X		110x50x45	57

Accessories

Description	Code	Price
CONTACT THERMOSTAT ACCESSORY	C22010050	
IMMERSION THERMOSTAT ACCESSORY	C22010004	

Key

1	Fast heater Aquafast
2	Fiorini DHW tank
3	VKG-HC inertial tank
4	Safety group
5	Heating circuit
6	Heat pump
7	Thermostat

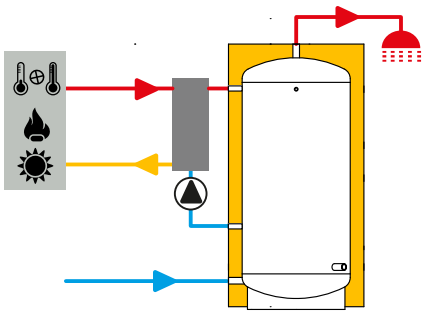


Fast heater for DHW
AQUAFAST

	Heat pump water temp. 55-50°C			Boiler water temp 80-60°C						
Model	Power kW	Primary flow l/h	dP primary kPa	Power kW	Primary flow l/h	dP primary kPa	Couplings inch	Pump power max W	Voltage V/Ph/Hz	Current max A
AQUAFAST 12/35	12	2064	38	35	1505	20	1"1/4	120	230/1/50	0,52
AQUAFAST 18/70	18	3096	39	70	3010	37	1"1/4	120	230/1/50	0,52
AQUAFAST 25/100	25	4300	36	100	4300	36	1"1/4	120	230/1/50	0,52
AQUAFAST 30/120	30	5160	32	120	5160	32	1"1/4	140	230/1/50	1,1
AQUAFAST 40/150	40	6880	40	150	6450	35	1"1/4	140	230/1/50	1,1
AQUAFAST 50/200	50	8600	38	200	8600	38	1"1/4	140	230/1/50	1,1
AQUAFAST 60/250	60	10320	38	250	10750	40	1"1/4	140	230/1/50	1,1
AQUAFAST 70/300	70	12040	39	300	12900	43	1"1/4	140	230/1/50	1,1
AQUAFAST 80/350	80	13760	44	350	15050	52	1"1/4	140	230/1/50	1,1

The second set point can be adjusted via the digital input and can be used to carry out the anti-legionella cycle.

DESCRIPTION



Aquafast models for small and medium users (Aquafast 12/35, 18/70 and 25/100) use a brazed plate heat exchanger, made up of corrugated plates in AISI 316 stainless steel, joined by a pure copper brazing. The larger size models (Aquafast from 30/120 to 80/350) use inspectable plate heat exchangers, made up of corrugated plates in AISI 316 stainless steel enclosed in a carbon steel frame painted with epoxy powders.

Compared to traditional solutions, the Aquafast system has important advantages:

- ✔ Minimization of the time required for the sanitary water to become fully operational;
- ✔ Optimization of the combination between generator power (heat pump or boiler) and heat exchanger performance;
- ✔ Possibility to choose the optimal power within a wide range of standard solutions;
- ✔ Possibility of using a smaller storage volume.
- ✔ Possibility to start Aquafast upon request from the primary system (remote ON/OFF).
- ✔ All parameters and values are accessible for reading and writing – where possible – via Modbus.

HOW TO COMPOSE THE AQUAFAST SYSTEM

To compose the desired system it is necessary to identify:

1. the AQUAFAST code of the required power (see next page)
2. the code of the tank or boiler to be combined (see sections FLEXY page 156, BOIL page 196 and SMART page 170)

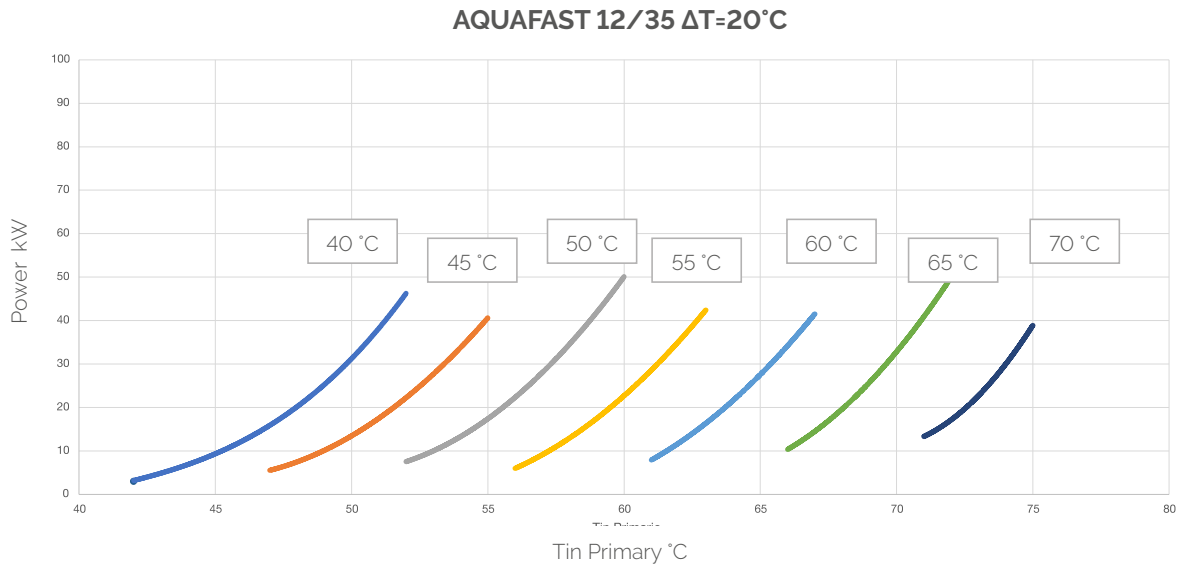
AQUAFAST performances and matching to the tank

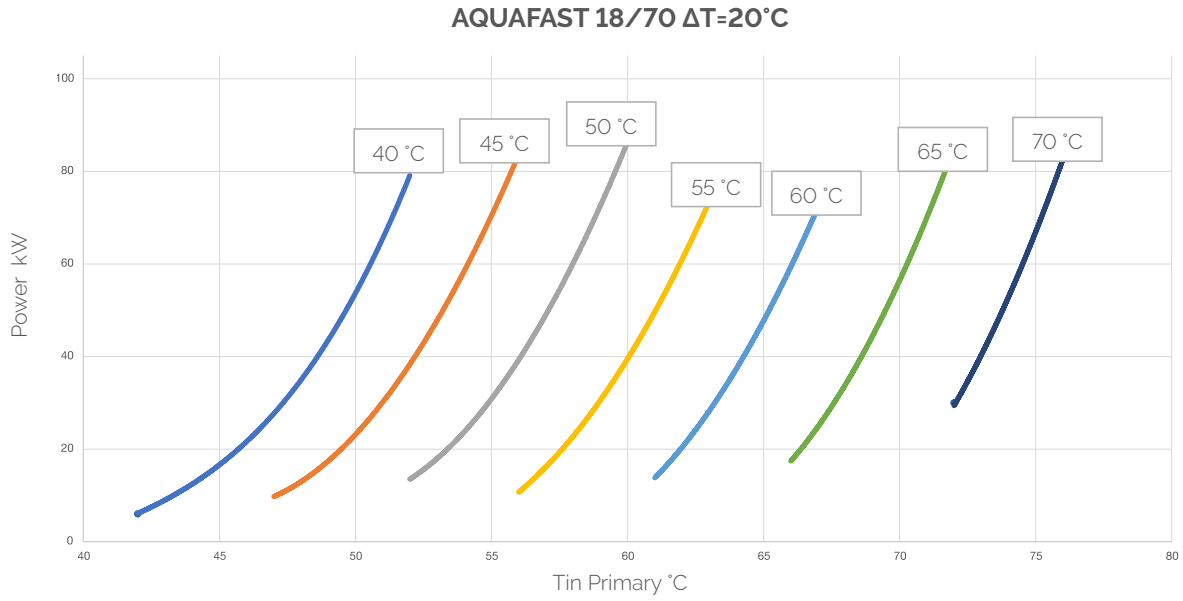


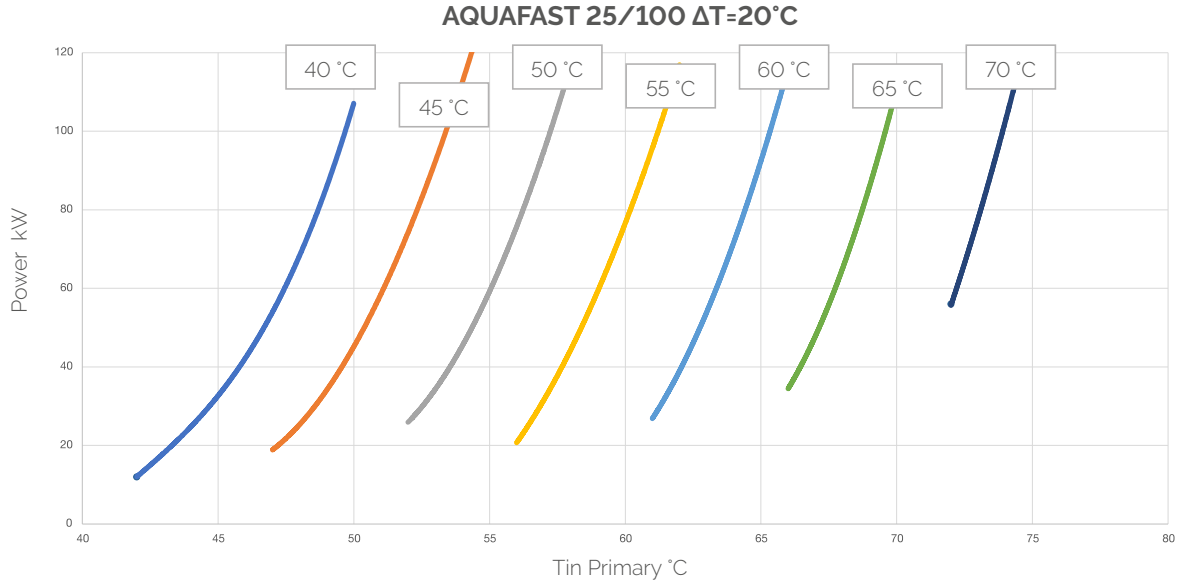
AQUAFAST can be paired with storage tanks of various capacities: this table serves as a guideline, but the pairing is flexible depending on requirements.

	POWER with primary at 55-50°C	Tank capacity	TA 50°C; Tout ACS 45°C: Tin ACS 10°C			POWER with primary at 80-60°C	Tank capacity	TA 50°C; Tout ACS 45°C: Tin ACS 10°C		
Model	kW	l	l/10 min.	l/60 min.	Recovery time DHW	kW	l	l/10 min.	l/60 min.	Recovery time DHW
AQUAFAST 12/35	12	200	278	523	46	35	200	429	1150	20
		300	392	640	70		300	572	1290	30
		500	621	870	116		500	858	1575	50
AQUAFAST 18/70	18	500	645	1015	77	70	500	1001	2433	25
		750	931	1300	116		750	1358	2790	37
		1000	1217	1585	155		1000	1715	3150	50
AQUAFAST 25/100	25	750	960	1470	84	100	750	1481	3530	26
		1000	1245	1760	112		1000	1838	3900	35
		1500	1817	2330	167		1500	2552	4600	52
AQUAFAST 30/120	30	1000	1266	1880	93	120	1000	1920	4377	29
		1500	1837	2451	139		1500	2634	5091	44
		2000	2409	3023	186		2000	3349	5805	58
AQUAFAST 40/150	40	1500	1878	2697	105	150	1500	2757	5829	35
		2000	2450	3269	139		2000	3471	6543	46
		2500	3021	3840	174		2500	4186	7257	58
AQUAFAST 50/200	50	2000	2490	3514	112	200	2000	3676	7771	35
		2500	3062	4086	139		2500	4390	8486	44
		3000	3633	4657	167		3000	5105	9200	52
AQUAFAST 60/250	60	2000	2531	3760	93	250	2000	3881	9000	28
		3000	3674	4903	139		3000	5310	10429	42
		4000	4817	6046	186		4000	6738	11857	56
AQUAFAST 70/300	70	3000	3715	5149	120	300	3000	5514	11657	35
		4000	4858	6291	159		4000	6943	13086	46
		5000	6001	7434	199		5000	8371	14514	58
AQUAFAST 80/350	80	3000	3756	5394	105	350	3000	5719	12886	30
		4000	4899	6537	139		4000	7148	14314	40
		5000	6042	7680	174		5000	8576	15743	50

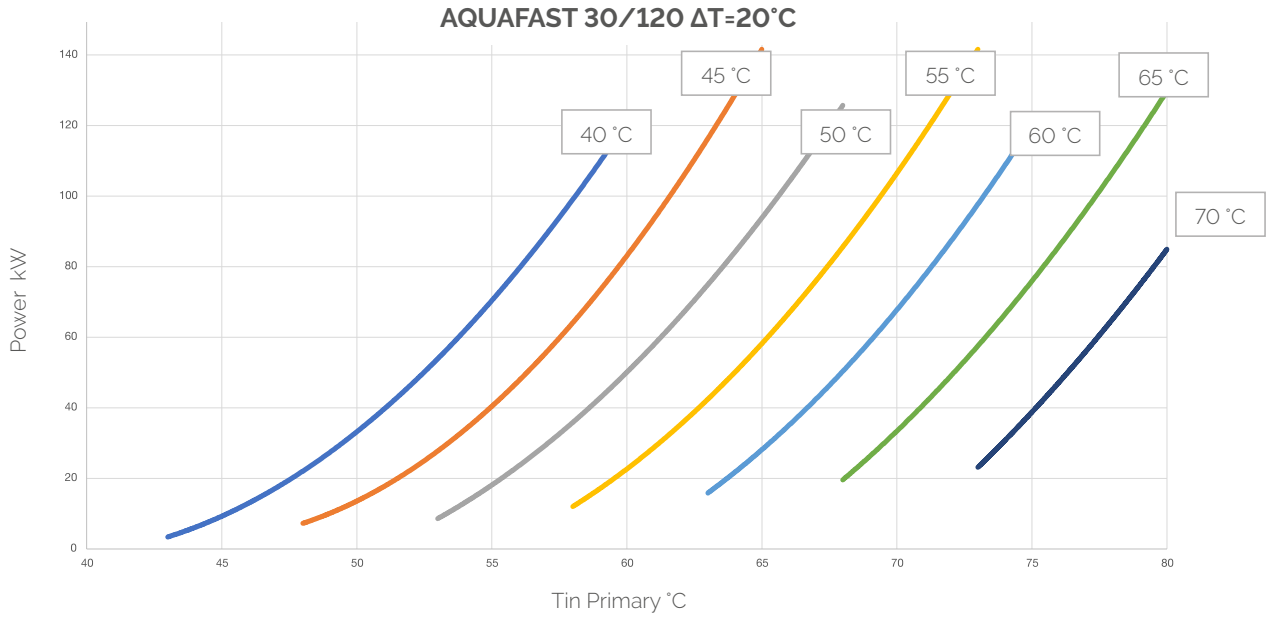
AQUAFAST performances

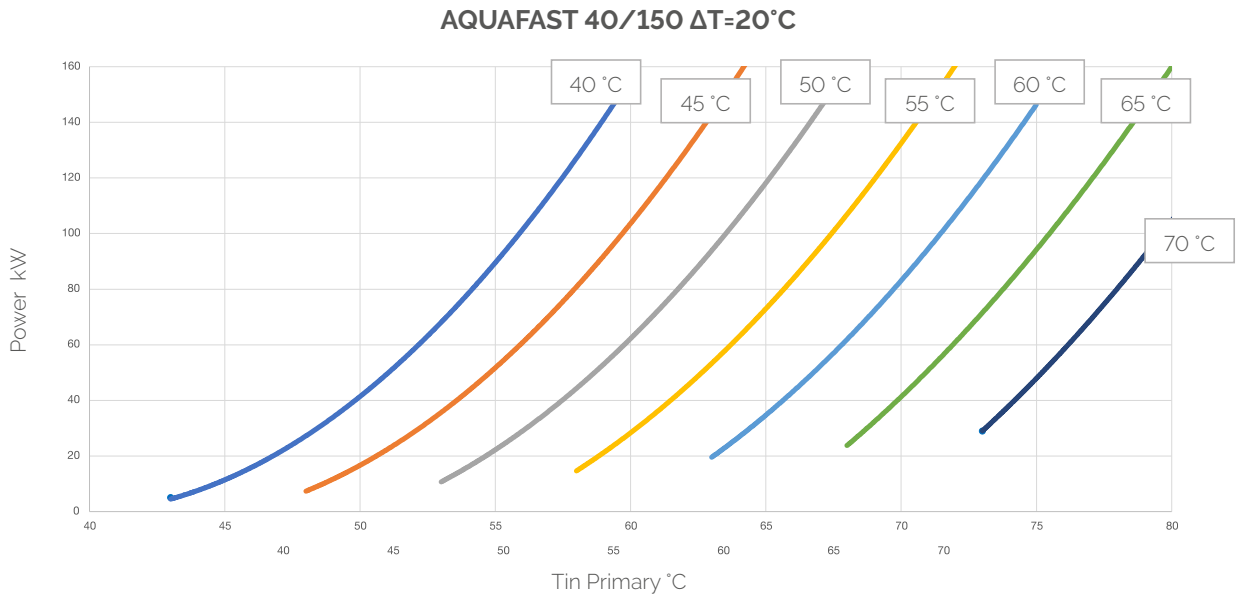


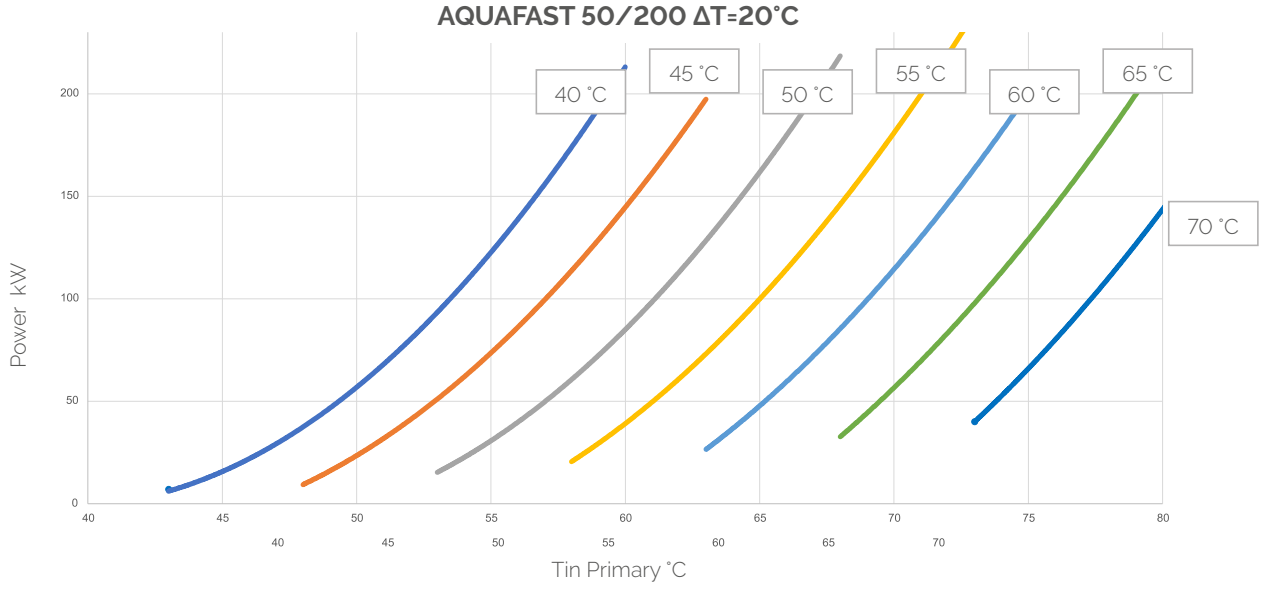




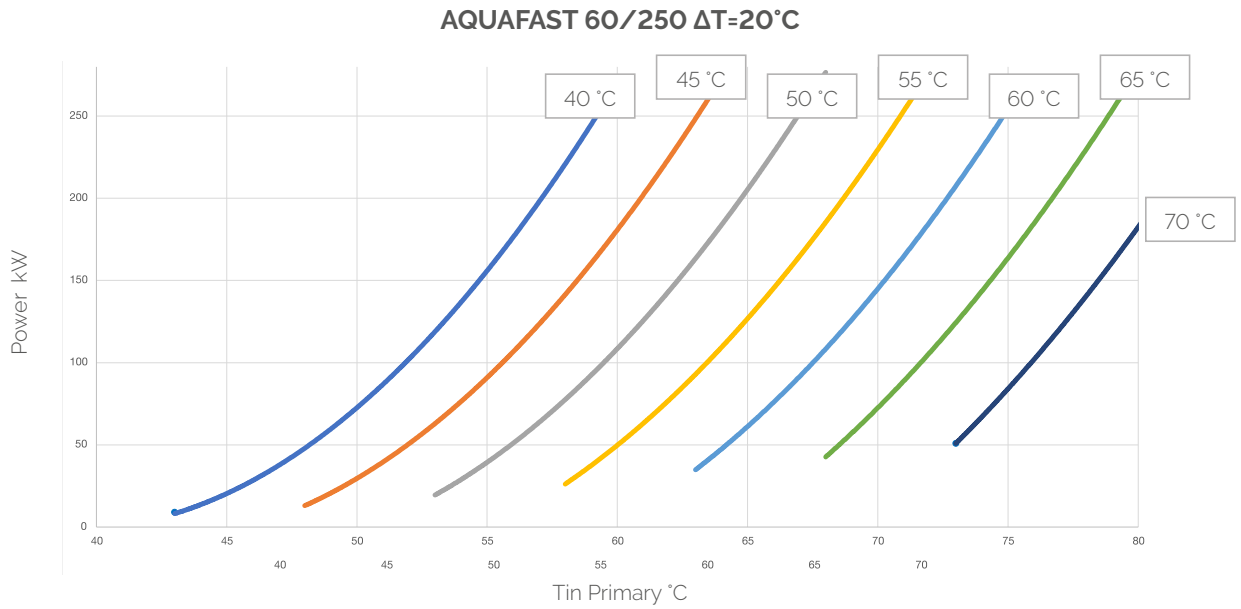
AQUAFAST performances

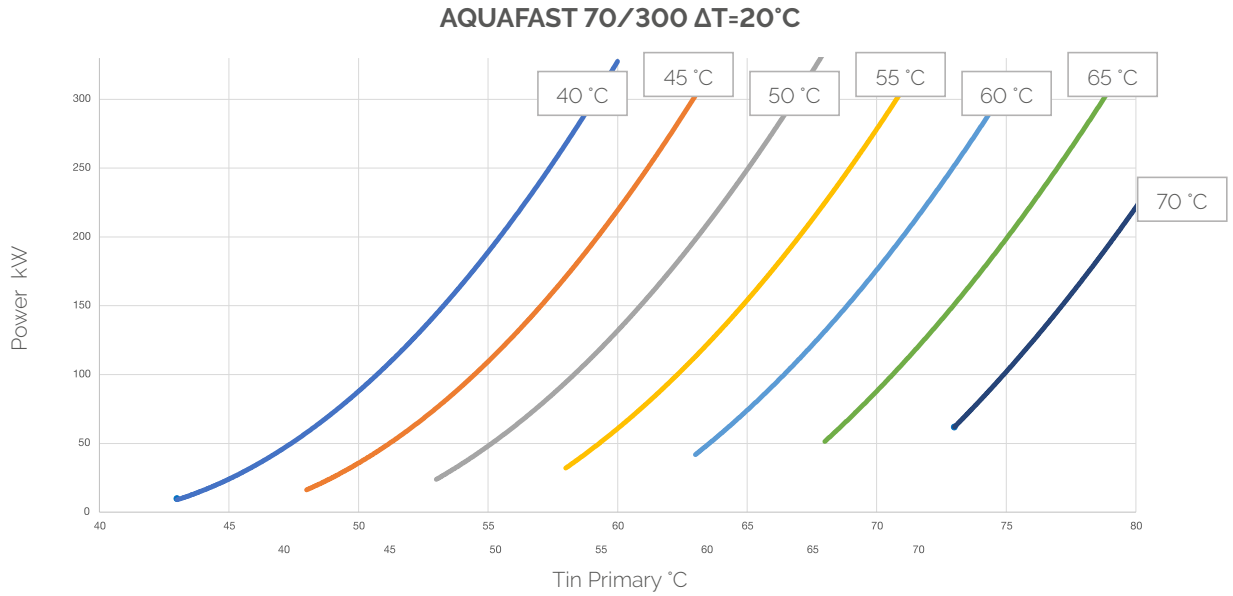


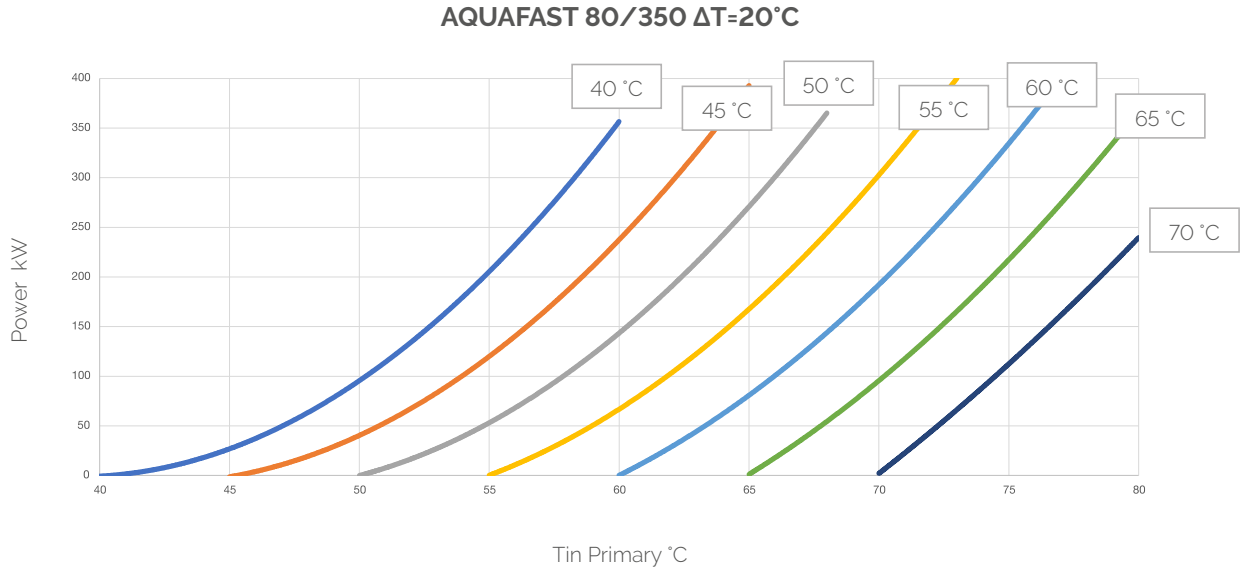




AQUAFAST performances







AQUAFAST working



Startup

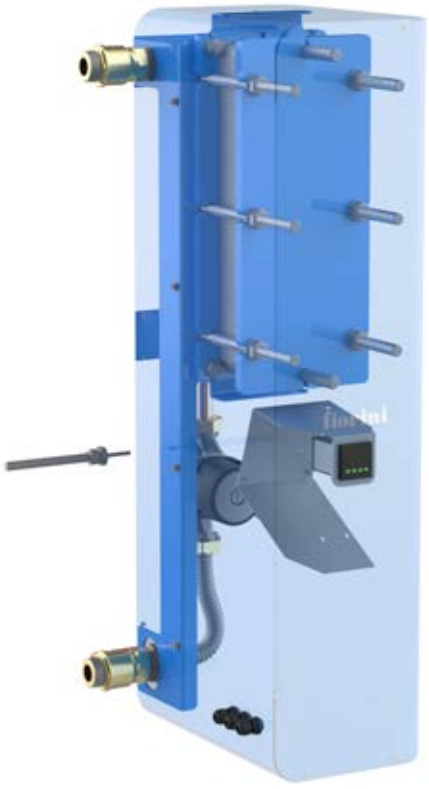
The product is Plug & Play! To start using Aquafast, simply:

1. Mount the Aquafast fittings, sump and valves on the tank
2. Connect Aquafast to the valves via quick couplings (adjust distance if necessary)
3. For Aquafast models from 30/120 to 80/350, connect the pump cable and mount the closing casing
4. Make electrical connections:
   4.a Insert the temperature probe into the well
   4.b Connect power supply
   4.c Connect the primary start enable

Startup: first start recommended. See p. 361

Operation

Aquafast is a rapid preparer made up of fittings and plate heat exchanger and equipped with a control unit, from which it is possible to adjust the desired set point.
The Set Point indicates the storage tank temperature below which water temperature reset is required.
Aquafast set point temperature is pre-set by default at 55°C, with Δt=5°C (hysteresis). It is possible to vary this set point temperature by setting the one desired by the control unit.
Optional: It is possible to connect a primary temperature thermostat so that the Aquafast circulator is activated only when the primary temperature is suitable for the storage load.



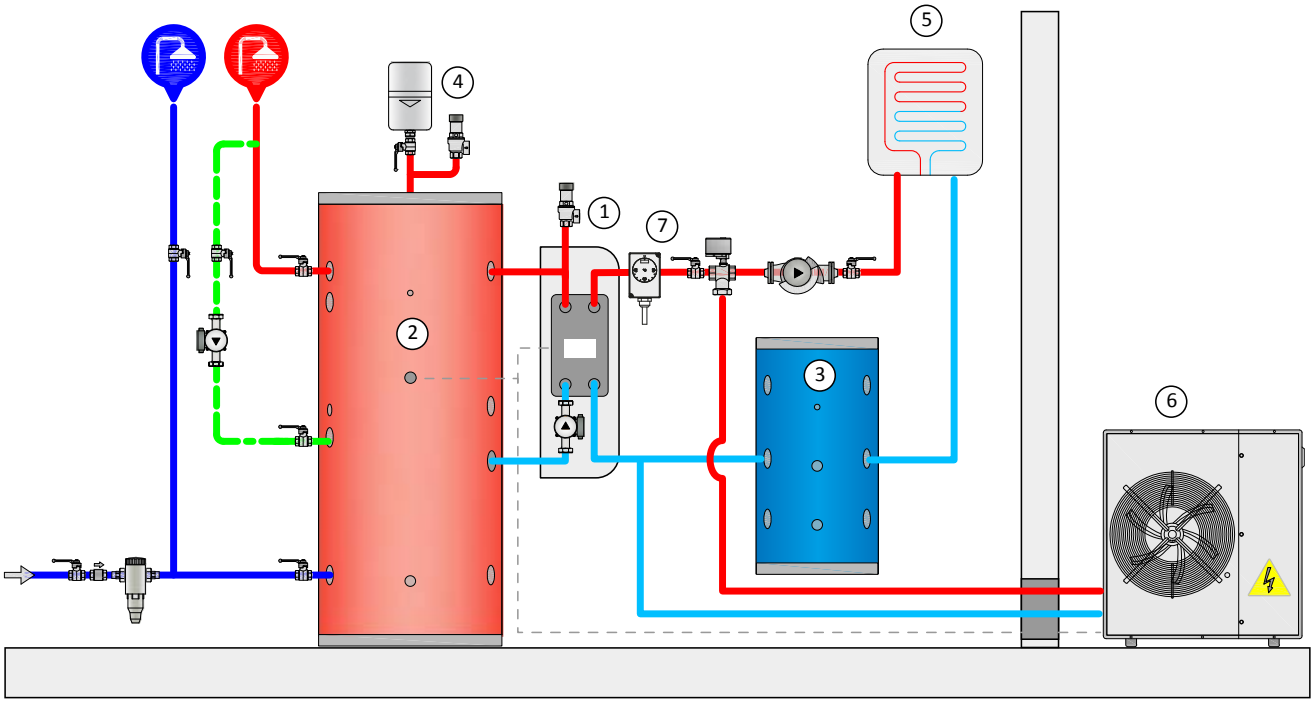
Why choose Aquafast over a fixed coil boiler?

Compared to traditional domestic hot water production systems, such as fixed coil boilers, Aquafast allows you to:

- ✔ Save money: it is not necessary to equip the tank system with large coils, this coincides with a reduction in the final price
- ✔ It can also be used in large-scale systems: depending on the model selected, it is possible to satisfy the domestic hot water demand of a residential system as well as that of a heating plant (such as, for example, for a condominium or a sports facility);
- ✔ Eliminate the stringent volume/surface constraint: the volume of the tank is linked to the power of the rapid preparer but the exchange takes place externally;
- ✔ Carry out quicker and less invasive maintenance or replacement operations: with Aquafast it is sufficient to replace the preparation group to satisfy greater power requests, or to carry out repairs.
- ✔ Facilitate installation thanks to the Plug & Play system and the lower weight of the tank (without coil)
- ✔ Reduce the environmental impact: the exchange system is more efficient, can be activated when the set point limit temperature is reached and can be integrated with modern heating and cooling systems combined with the heat pump.
- ✔ Minimize the time to restore the water temperature in the storage tank

Schemes and combinations of AQUAFAST system

Key	
1	Fast heater Aquafast
2	Fiorini DHW tank
3	VKG-HC inertial tank
4	Safety group
5	Heating circuit
6	Heat pump



Schemes and combinations

Scenario	number of bathrooms/ showers	Number of person	Heat pump power kW	Fast heater selected model	Fiorini DHW tank capacity l	Inertial tank capacity VKG-HC l
Residential						
Apartment	1	3	4	Aquafast 12/35	100	100
Condominium of 3 apartments/villa	3	12	8	Aquafast 12/35	300	100
Condominium of 4 apartments / semi-detached house	12	16	12	Aquafast 12/35	300	200
Condominium of 7 apartments	7	28	18	Aquafast 18/70	1000	200
Condominium of 15 apartments	15	60	25	Aquafast 25/100	1000	300
Condominium of 19 apartments	19	76	30	Aquafast 30/120	1500	300
Condominium of 25 apartments	25	104	40	Aquafast 40/150	2000	400
Condominium of 33 apartments	33	132	50	Aquafast 50/200	2500	500
Condominium of 40 apartments	40	160	60	Aquafast 60/250	3000	750
Condominium of 45 apartments	45	180	70	Aquafast 70/300	3000	750
Condominium of 55 apartments	55	220	80	Aquafast 80/350	4000	750
Sports Center						
Sport center with 6 showers	6	12	12	Aquafast 12/35	1000	100
Sport center with 9 showers	9	18	18	Aquafast 18/70	1500	100
Sport center with 15 showers	15	30	30	Aquafast 30/120	2500	300
Sport center with 19 showers	19	38	40	Aquafast 40/150	3000	300
Hotel						
Hotel with 19 showers	19	60	50	Aquafast 50/200	3000	500
Hotel with 25 showers	25	75	60	Aquafast 60/250	4000	750
Hotel with 35 showers	35	105	70	Aquafast 70/300	5000	750
Hotel with 38 showers	38	111	80	Aquafast 80/350	5000	750

AQUAFAST combinations with tanks



The AQUAFAST fast water heater can be combined with any tank.
This page shows the Fiorini models of ACS accumulators and boilers and the connections dedicated to AQUAFAST, i.e. the pair of connections that have the right interaxis.

FLEXY and BOIL		
Capacity (l)	Couplings	
200	K1	K3
300	K1	K3
500	K1	K2
750	K1	K2
1000	K1	K2
1500	K1	K3
2000	K1	K3
2500	K1	K3
3000	K1	K3
4000	K1	K3
5000	K1	K3
6000	n.d.	n.d.
8000	n.d.	n.d.
10000	n.d.	n.d.

FLEXY 2F and BOIL CUSTOM		
Capacity (l)	Couplings	
200	n.d.	n.d.
300	n.d.	n.d.
500	K1	K3
750	K1	K3
1000	K1	K3
1500	K1	K3
2000	K1	K3
2500	K1	K3
3000	K1	K3
4000	K1	K3
5000	K1	K3

FLEXY INOX and BOIL INOX		
Capacity (l)	Couplings	
200	n.d.	n.d.
300	n.d.	n.d.
500	K1	K3
800	K1	K3
1000	K1	K3
1500	K1	K3
2000	K1	K3
2500	K1	K3
3000	K1	K3
4000	K1	K3
5000	K1	K3

FLEXY INOX 2F and BOIL CUSTOM INOX		
Capacity (l)	Couplings	
200	n.d.	n.d.
300	n.d.	n.d.
500	K1	K3
750	K1	K3
1000	K1	K3
1500	K1	K3
2000	K1	K3
2500	K1	K3
3000	n.d.	n.d.
4000	K1	K3
5000	K1	K3

FLEXY CONTAINER		
Capacity (l)	Couplings	
1500	K1	K3
2050	K1	K3
2500	K1	K3
3000	K1	K3
4000	K1	K3
5000	K1	K3

SMART 1		
Capacity (l)	Couplings	
200	K1	K2
300	K1	K2
500	K1	K2
750	K1	K2
1000	K1	K2
1500	K1	K2
2000	K1	K2
3000	K1	K2

SMART 2		
Capacity (l)	Couplings	
200	K1	K2
300	K1	K2
500	K1	K2
750	K1	K2
1000	K1	K2
1500	K1	K2
2000	K1	K2
3000	K1	K2

SMART 1 INOX		
Capacity (l)	Couplings	
200	K1	K2
300	K1	K2
500	K1	K2
750	K1	K2
1000	K1	K2
1500	K1	K2
2000	K1	K2
2500	K1	K2
3000	K1	K2

SMART HP		
Capacity (l)	Couplings	
300	K2	K3
500	K2	K3
750	K2	K3
1000	K2	K3

SMART HP 2		
Capacity (l)	Couplings	
300	K2	K3
500	K2	K3
750	K2	K3
1000	K2	K3

Fast DHW heaters
FST

FST domestic hot water heaters are pre-assembled units which, together with a storage tank of the desired volume, make it possible to quickly produce and store large quantities of domestic hot water at a predefined temperature, ensuring space optimisation.



FST DHW heaters consist of a:
- ✔ Gasketed plate heat exchanger in AISI 316 stainless steel;
- ✔ High-efficiency electronic pump on the primary circuit
- ✔ High-efficiency electronic pump for DHW storage tank loading
- ✔ Height-adjustable electrical control panel, fully wired and connected to pumps, servomotor and probes fitted with an electronic control unit with graphic display, and anti-legionella function;
- ✔ Self-supporting frame.
- ✔ Insulation on pipes and fittings (standard), exchanger insulation (optional)
- ✔ Three-way motorised mixing valve (optional)

The FST units are also available in the following versions:
- ✔ 1P+1P: semi-fast DHW heater with single circulator on the primary and secondary circuits
- ✔ 0+1P: semi-fast DHW heater with single circulator on the secondary circuit

If there is no pump on the primary, it is not possible to install the mixing kit.

In short, the main advantages of the FST unit are the following:
- ✔ Very compact monoblock unit with reduced overall control panel dimensions;
- ✔ Easy maintenance owing to easy access to the components utilised;
- ✔ Easy installation;
- ✔ Option of increasing power by adding exchanger plates;
- ✔ Adjustable control panel for easier use.





Start-up: the first start-up is recommended. See page 361

Primary circuit		Secondary circuit	
max. temperature	max. pressure	max. temperature	max. pressure
95°C	10 bar	90°C	10 bar

360°

Line up the QR code
for a 360° video of the product

FST

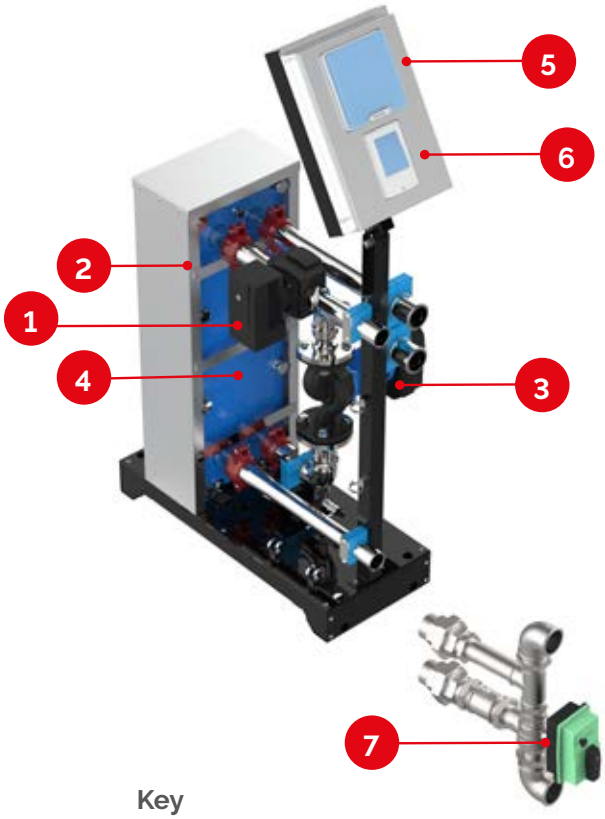
Codes and Prices

Model	Size	Code	Price	Packed	
				Dimensions cm	Weight kg
1P+1P	55	842010050X		100x65x110	68
	100	842010052X		100x65x110	71
	150	842010120X		100x65x110	73
	240	842010054X		100x65x110	78
	330	842010122X		100x65x110	83
	500	842010059X		100x65x150	231
	600	842010061X		100x65x150	236
	700	842010063X		100x65x150	252
0P+1P	55	842010140X		100x65x110	65
	100	842010142X		100x65x110	68
	150	842010143X		100x65x110	70
	240	842010146X		100x65x110	75
	330	842010148X		100x65x110	80
	500	842010152X		100x65x150	217
	600	842010154X		100x65x150	222
	700	842010157X		100x65x150	238

Accessories

Description	Code	Price
3WAY MIX VALVE FST 55 - FST 330	842040001X	
3WAY MIX VALVE FST 500 - FST 700	842040002X	
INSULATION FST 55 - FST 330	821080137X	
INSULATION FST 500 - FST 700	821080138X	

NOTE: The 3-way mixing valve cannot be used in 0P+1P setup.



Key

1	Plate exchanger
2	Heat exchanger insulation (optional)
3	Primary circuit pump
4	Secondary circuit pump (fast version)
5	Electrical control and monitoring panel
6	Regulator
7	Three-way motorised mixing valve (optional)

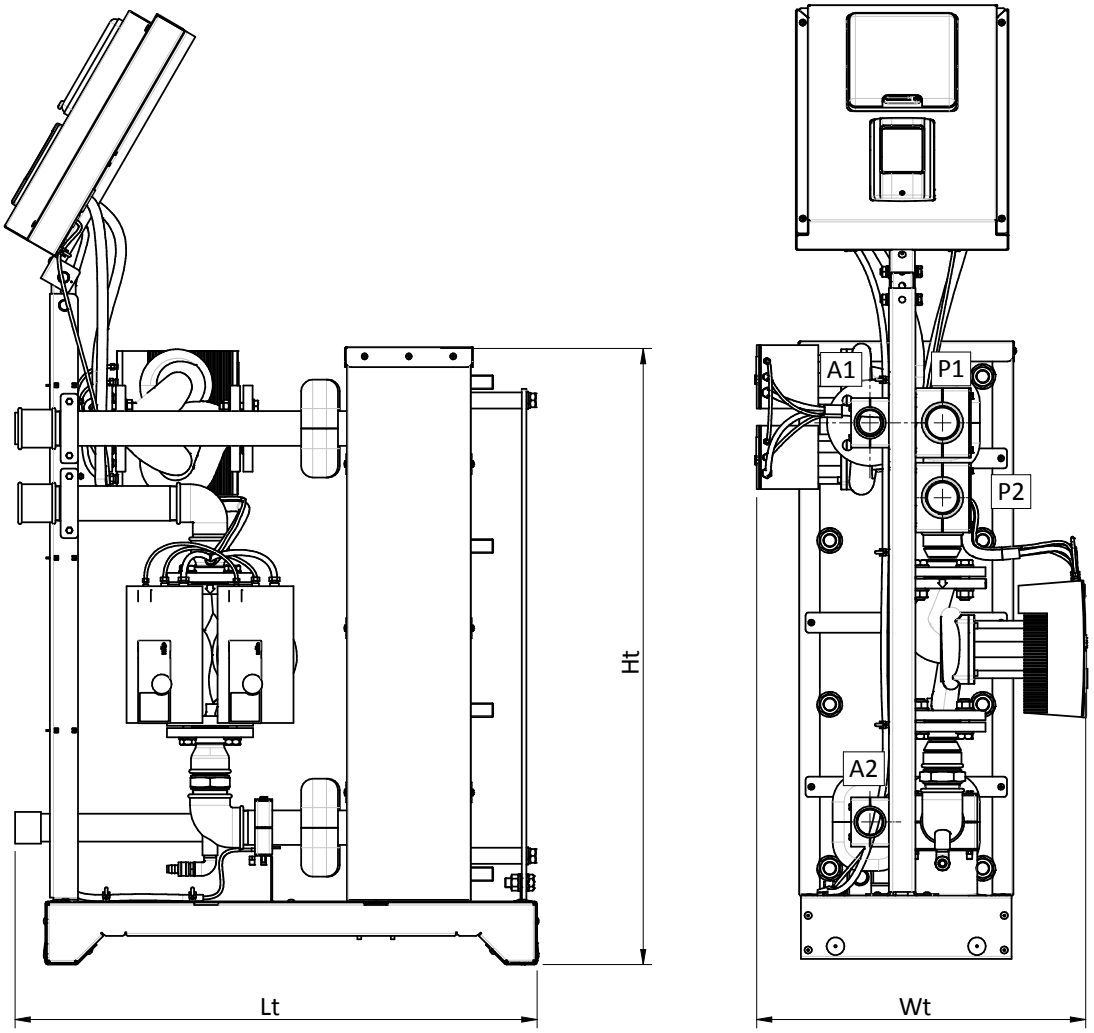
Features of the control unit

FST Fiorini units are equipped with an electronic control unit to control and command the device as follows:

- ✔ Adjust the temperature set-point based on different time bands;
- ✔ Adjust the circulator flow rate on the hot water side to optimise the stratification of the DHW storage tank;
- ✔ Control the primary and secondary circuit pumps, shutting them off them when the set-point is reached;
- ✔ Programme the anti-legionella process using thermal shock treatment;
- ✔ Display an on-screen notification when the anti-legionella treatment is running;
- ✔ Provide an error alert in the event of a unit malfunction;
- ✔ Control a DHW recirculating pump (pump not supplied)
- ✔ Compatibility with MULTIGATEWAY, the module for remote management see p. 256



FST
Components and dimensions



Legend

A1	DHW inlet
A2	DHW outlet
P1	To energy source
P2	From energy source

Technical features

Version	size	Ht mm	Lt mm	Wt mm	A1 mm	A2 mm	P1 mm	P2 mm	A1 inch	A2 inch	P1 inch	P2 inch
1P+1P	55-330	650	910	365	475	95	610	515	1"	1"	1"1/4	1"1/4
	500-700	1070	910	445	932	238	932	802	1"1/2	1"1/2	2"	2"
0P+1P	55-330	650	910	365	475	95	475	95	1"	1"	1"1/4	1"1/4
	500-700	1070	910	500	932	238	932	802	1"1/2	1"1/2	2"	2"

FST performance

Nominal power in kW under different temperature conditions

	Nominal power in kW under different temperature conditions							
Temp. primary inlet	FST 55				FST 100			
°C	10-65 °C	10-60 °C	10-55 °C	10-45 °C	10-65 °C	10-60 °C	10-55 °C	10-45 °C
80	50	58	68	86	100	117	133	165
70	20	35	45	65	50	70	90	124
60	-	-	20	40	-	-	40	82
50	-	-	-	19	-	-	-	40

	Nominal power in kW under different temperature conditions							
Temp. primary inlet	FST 150				FST 240			
°C	10-65 °C	10-60 °C	10-55 °C	10-45 °C	10-65 °C	10-60 °C	10-55 °C	10-45 °C
80	115	135	154	190	185	215	245	245
70	55	80	105	145	95	130	165	200
60	-	-	45	95	-	-	80	150
50	-	-	-	46	-	-	-	74

	Nominal power in kW under different temperature conditions							
Temp. primary inlet	FST 330				FST 500			
°C	10-65 °C	10-60 °C	10-55 °C	10-45 °C	10-65 °C	10-60 °C	10-55 °C	10-45 °C
80	250	295	330	380	365	438	500	500
70	130	180	225	300	180	255	333	450
60	-	-	110	190	-	-	158	290
50	-	-	-	103	-	-	-	144

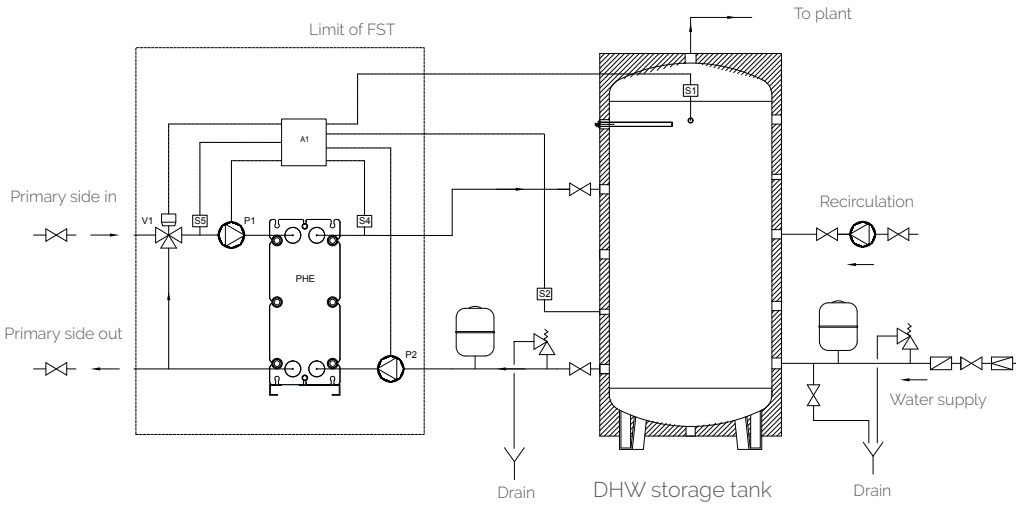
	Nominal power in kW under different temperature conditions							
Temp. primary inlet	FST 600				FST 700			
°C	10-65 °C	10-60 °C	10-55 °C	10-45 °C	10-65 °C	10-60 °C	10-55 °C	10-45 °C
80	452	540	613	650	560	665	740	740
70	225	330	412	560	330	410	505	620
60	-	-	185	371	-	-	280	430
50	-	-	-	176	-	-	-	255

Installation diagrams

1P+1P version

Key

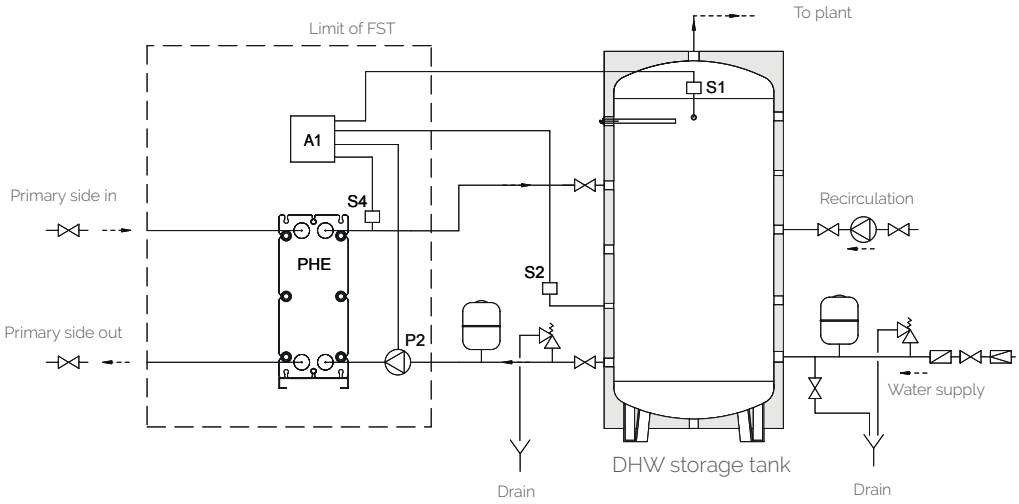
PHE	Plate exchanger
P1	Pump on primary side
P2	Pump on secondary side
V1	3-way mixing valve (optional)
S1	Temperature probe (supplied unassembled)
S2	Temperature probe (optional)
S4	Temperature probe
S5	Temperature probe (optional with V1)



0P+1P version

Key

PHE	Plate exchanger
P2	Pump on secondary side
S1	Temperature probe (supplied unassembled)
S2	Temperature probe (optional)
S4	Temperature probe



Installation and use

Install the product on a flat surface which is suitable for supporting the weight of the product and its content (see data plate with technical specifications).
Connect the circuit supply and return pipes so that they do not weigh on the product and allow access and the dismantling of accessories, if present.
Fit a safety valve on the installation with a suitable working pressure, in accordance with Directive 97/23/EC and an opening with a suitable diameter.
When storage tanks are used, equip the installation or the tank with expansion vessels in compliance with Directive 97/23/EC, with a maximum working pressure that is no lower than that of the storage tank itself and with a capacity commensurate with the volume and temperature of the installation to protect the latter from possible overpressures.
The electrical connections must be carried out by authorised personnel in compliance with the regulations in force.

Maintenance

It is recommended that the following maintenance tasks be performed to ensure that the FST heat exchange units function correctly:

- A periodic check of the water hardness values which must be between 10 and 15° F
- A periodic check that the safety valve on the installation is functioning;
- A periodic inspection of the expansion vessel load pressure;
- A periodic check that there are no leaks;
- A periodic cleaning of the exchanger using suitable solutions available on the market (contact us for further information);
- A periodic anti-legionella heat treatment to disinfect the installation

WARNING

Disconnect the heat exchanger from the system before carrying out any electrical welding on installation pipes.

CE mark

The product bears the CE mark in accordance with the specific European Union directives.



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