



# Alfa Laval AquaFirst

A newly designed domestic hot water unit to save time and money

## Applications

Alfa Laval AquaFirst is an “easy to select” product designed to provide Domestic Hot Water (DHW) from 50kW up to 1000kW for:

- apartment blocks
- hospitals
- hotels
- retirement and nursing homes
- schools
- leisure centres...

Competitive, efficient and ready to be connected to any type of boiler, Alfa Laval AquaFirst has the possibility to connect to a local building Management System (slave ModBus).

## Benefits

- Easy and simple to select
  - 16 Direct versions: no storage tank required
  - 24 Indirect versions: to be combined with a DHW storage tank
- Low energy class A pump(s) on primary
- Reduced risk of limescale build up
- Hot water in a split second thanks to 15 seconds fast response control valves
- Network capable controller (ModBus)
- Robust components
- Drinking water material conformity thanks to stainless steel 316 plates & EPDM FF clip-on gaskets
- Possibility to increase capacity by adding plates
- Quick and easy maintenance

## Working principle

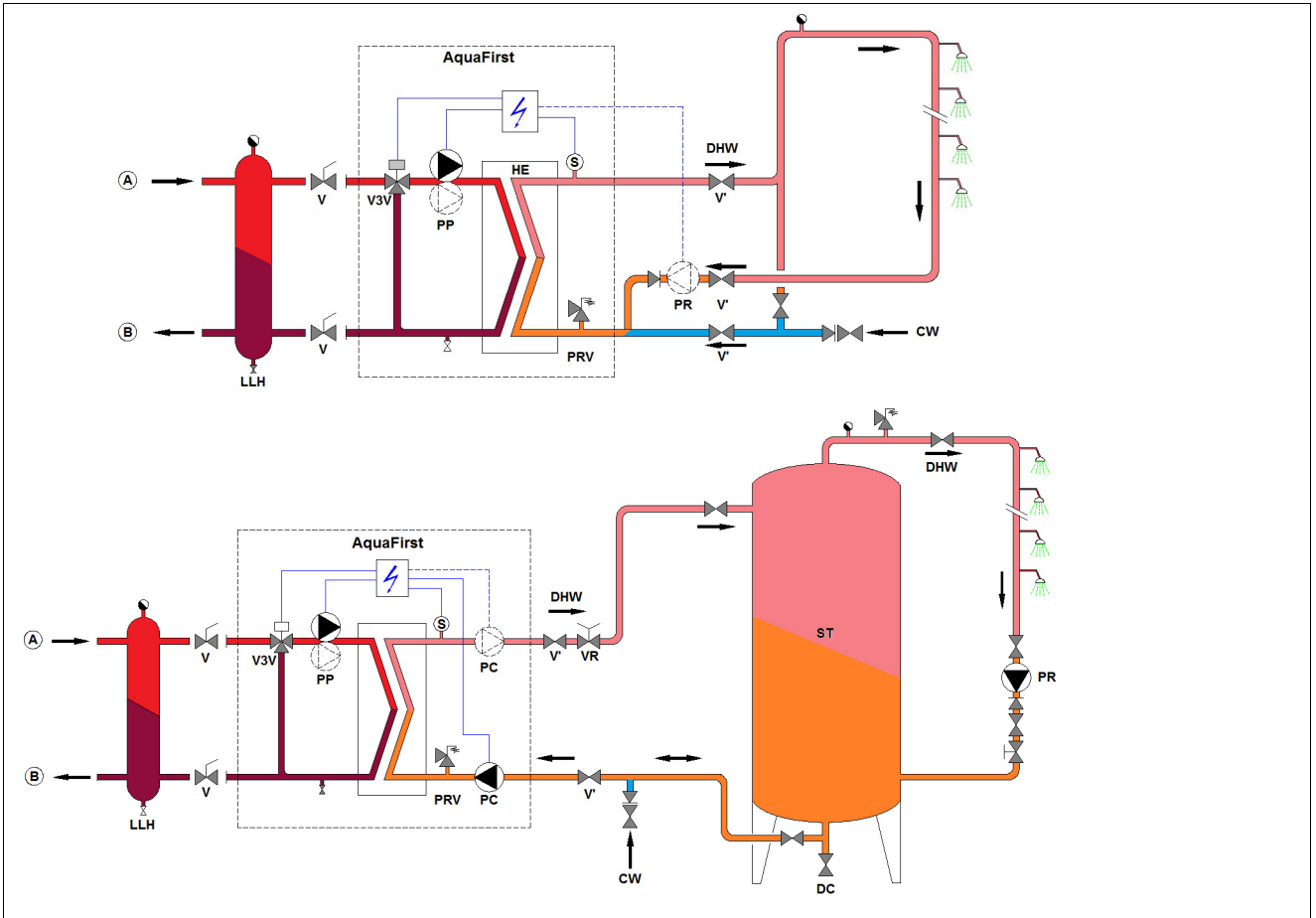
In the tap water system, energy is exchanged through a heat exchanger from the primary to the DHW side. On the primary side, the Alfa Laval AquaFirst has to be fed by a heating source that can be provided for example by a local boiler, a primary tank or a solar system. The temperature of the water entering the heat exchanger on the primary side is adapted to meet the demand detected on the domestic side. The mixing valve eliminates thermal shock in the heat exchanger and reduces the potential build-up of lime-scale on the secondary side.

On the secondary side, Alfa Laval AquaFirst Direct is connected to the main water circuit and provides domestic hot water to the distribution pipe-work when there is demand. A circulation pump - which is usually used to limit the time needed to deliver domestic hot water to the tap at the right temperature - maintains a minimum flow rate through the heat exchanger and through the distribution pipe-work.



For Alfa Laval AquaFirst Indirect a charging pump maintains - thanks to a constant flow rate - the supply of energy to the storage tank and the DHW network. This storage tank ensures DHW supply is met during peak demand periods.

## Flowchart AquaFirst Direct & Indirect

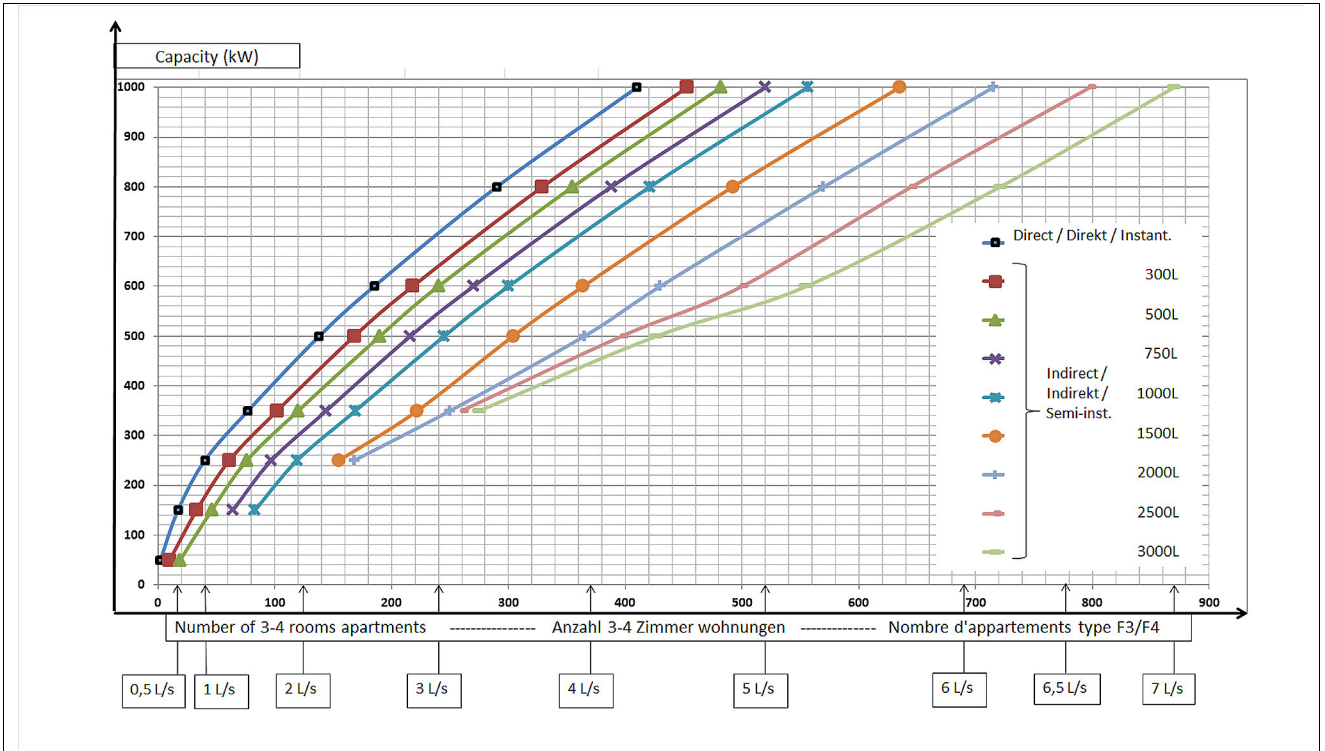


- |     |                                 |     |   |
|-----|---------------------------------|-----|---|
| A   | Primary inlet                   | PR  | Recycling pump (on installation)          |
| B   | Primary outlet                  | PRV | Pressure relief valve                     |
| CW  | Cold water inlet                | S   | DHW temperature sensor                    |
| DC  | Draining valve                  | ST  | Storage tank (Buffer vessel)              |
| DHW | Domestic Hot Water              | V   | Manual gate valve                         |
| HE  | Heat exchanger (PHE)            | VR  | Balancing valve                           |
| PC  | Charging pump (one or two)      | V3V | Mixing 3-port control valve with actuator |
| PP  | Primary pump (single or double) |     |   |

## Standard features

<b>Heat exchanger</b>	<ul style="list-style-type: none"> <li>- Plates &amp; Gasket heat exchanger; corrosion resistant stainless steel 316 plates &amp; EPDMFF clip-on gaskets</li> <li>- Insulation as an option</li> </ul>
<b>Control system</b>	<ul style="list-style-type: none"> <li>- 3-port mixing electronic control valve</li> <li>- 24V 0-10V, 15 second speed actuator</li> <li>- ModBus RTU RS 485 Controller</li> <li>- Multi functional IP54 control box</li> <li>- NTC20K temperature sensors on secondary outlet with stainless steel sleeve</li> </ul>
<b>Pumps</b>	<ul style="list-style-type: none"> <li>- Primary class A flooded rotor pump: single or double head</li> <li>- Stainless steel charging flooded rotor pump: single or double head for Indirect solutions</li> </ul>
<b>Valves</b>	<ul style="list-style-type: none"> <li>- Drain valve (primary)</li> <li>- Pressure relief valve (secondary)</li> </ul>

Selection chart (DHW flow rate: 10 - 60°C)



Quick selection table 1 – Direct version

Secondary: 10 - 55°C / free pressure available on primary: 5 Kpa

Primary flow rate m3/h	Prim. 90°C cap. kW	Secondary		Prim. 82°C cap. kW	Secondary		Prim. 80°C cap. kW	Secondary		Prim. 70°C cap. kW	Secondary		Prim. 65°C cap. kW	Secondary		Partnumber	
		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa	flow rate L/sec	pres. drop kPa
1,1	45	0,2	23	35	0,2	15	35	0,2	15	22	0,1	6	17	0,1	2	FI2007IS	FI2007ID
2,9	135	0,7	30	110	0,6	20	105	0,6	19	75	0,4	10	57	0,3	6	FI2017IS	FI2017ID
5,2	250	1,3	39	210	1,1	28	195	1,0	25	140	0,8	13	108	0,6	8	FI4027IS	FI4027ID
6,3	360	1,9	30	305	1,6	23	285	1,5	20	210	1,1	11	165	0,9	7	FI4045IS	FI4045ID
9,5	420	2,2	40	340	1,8	26	320	1,7	24	220	1,2	11	170	0,9	7	FI6011IS	FI6011ID
12	600	3,2	32	470	2,5	20	470	2,5	20	330	1,8	10	260	1,4	7	FI6017IS	FI6017ID
14	800	4,2	17	680	3,6	12	650	3,5	12	470	2,5	6	370	2,0	4	FI8031IS	FI8031ID
15,3	1000	5,3	10	850	4,5	7	800	4,3	7	600	3,2	7	485	2,6	3	FI8055IS	FI8055ID

Secondary: 10°C - 60°C / free pressure available on primary: 5 Kpa

Primary flow rate m3/h	Prim. 90°C cap. kW	Secondary		Prim. 82°C cap. kW	Secondary		Prim. 80°C cap. kW	Secondary		Prim. 70°C cap. kW	Secondary		Prim. 65°C cap. kW	Secondary		Partnumber	
		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa		flow rate L/sec	pres. drop kPa	flow rate L/sec	pres. drop kPa
1,1	40	0,2	15	30	0,2	9	30	0,2	9	18	0,1	4	12	0,1	2	FI2007IS	FI2007ID
2,9	125	0,6	21	100	0,5	14	95	0,5	13	60	0,3	5	42	0,2	3	FI2017IS	FI2017ID
5,2	235	1,1	29	190	0,9	19	175	0,8	16	115	0,6	8	80	0,4	4	FI4027IS	FI4027ID
6,3	340	1,6	23	280	1,4	16	260	1,3	14	175	0,8	7	125	0,6	4	FI4045IS	FI4045ID
9,8	400	1,9	29	320	1,5	19	295	1,4	16	185	0,9	7	120	0,6	3	FI6011IS	FI6011ID
12,2	565	2,7	23	460	2,2	16	430	2,1	14	260	1,2	5	180	0,9	3	FI6017IS	FI6017ID
14,3	770	3,7	13	640	3,1	9	600	2,9	8	400	1,9	4	280	1,3	2	FI8031IS	FI8031ID
15,4	950	4,6	7	790	3,8	6	750	3,6	5	520	2,5	3	380	1,8	2	FI8055IS	FI8055ID

Quick selection table 2 – Indirect version

Secondary: 10°C - 55°C / free pressure available on primary: 5 Kpa

Prim. flow rate m3/h	Prim. 90°C cap. kW	Secondary		Prim. 82°C cap. kW	Secondary		Prim. 80°C cap. kW	Secondary		Prim. 70°C cap. kW	Secondary		Prim. 65°C cap. kW	Secondary		Partnumber *		
		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa	flow rate L/sec	free pres. kPa	single/single pumps
1,1	45	0,2	50	35	0,2	59	35	0,2	59	22	0,1	69	17	0,1	73	FI2007SS	FI2007DS	FI2007DD
2,9	135	0,7	36	110	0,6	48	105	0,6	49	75	0,4	61	57	0,3	66	FI2017SS	FI2017DS	FI2017DD
5,2	250	1,3	14	210	1,1	30	195	1,0	35	140	0,8	52	108	0,6	60	FI4027SS	FI4027DS	FI4027DD
6,3	360	1,9	9	305	1,6	23	285	1,5	29	210	1,1	47	165	0,9	55	FI4045SS	FI4045DS	FI4045DD
9,5	390	2,1	5	340	1,8	16	320	1,7	21	220	1,2	46	170	0,9	55	FI6011SS	FI6011DS	FI6011DD
12	470	2,5	5	470	2,5	5	470	2,5	5	330	1,8	34	260	1,4	45	FI6017SS	FI6017DS	FI6017DD
13,1	700	3,7	5	680	3,6	7	650	3,5	13	470	2,5	49	370	2,0	65	FI8031SS	FI8031DS	FI8031DD
15,3	750	4,0	5	750	4,0	5	750	4,0	5	600	3,2	27	485	2,6	50	FI8055SS	FI8055DS	FI8055DD

**Secondary: 10°C - 60°C / free pressure available on primary: 5 Kpa**

Prim. flow rate m <sup>3</sup> /h	Prim. 90°C cap. kW	Secondary		Prim. 82°C cap. kW	Secondary		Prim. 80°C cap. kW	Secondary		Prim. 70°C cap. kW	Secondary		Prim. 65°C cap. kW	Secondary		Partnumber *		
		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa		flow rate L/sec	free pres. kPa	flow rate L/sec	free pres. kPa	single/single pumps
1,1	40	0,2	59	30	0,2	65	30	0,2	65	18	0,1	71	12	0,1	74	FI2007SS	FI2007DS	FI2007DD
2,9	125	0,6	47	100	0,5	55	95	0,5	57	60	0,3	68	42	0,2	71	FI2017SS	FI2017DS	FI2017DD
5,2	235	1,1	28	190	0,9	43	175	0,8	47	115	0,6	60	80	0,4	67	FI4027SS	FI4027DS	FI4027DD
6,3	340	1,6	23	280	1,4	37	260	1,3	41	175	0,8	56	125	0,6	64	FI4045SS	FI4045DS	FI4045DD
9,8	400	1,9	11	320	1,5	30	295	1,4	36	185	0,9	56	120	0,6	65	FI6011SS	FI6011DS	FI6011DD
12,2	520	2,5	5	460	2,2	16	430	2,1	22	260	1,2	51	180	0,9	60	FI6017SS	FI6017DS	FI6017DD
14,3	770	3,7	5	640	3,1	30	600	2,9	37	400	1,9	66	280	1,3	80	FI8031SS	FI8031DS	FI8031DD
15,4	820	3,9	5	790	3,8	8	750	3,6	16	520	2,5	53	380	1,8	70	FI8055SS	FI8055DS	FI8055DD

\* Charging pump(s) limited use: PH 6-9 and TH < 25°TH or 14°dH. Beyond these values please consult Alfa Laval.

**Description table**

Part number	Primary side			Heat exchanger		Secondary side		Electrical consumption		Dimensions L x W x H mm	Weight Kg
	Pump(s)	Control valve	Actuator	Number	Type	Pump(s)	Safety valve Barg	Pmax (W)	Imax (A)		
FI2007IS	MAGNA1			7	M3H	-	10	85	1.2	460x400x1040	70
FI2017IS	32-40	HNW V5833	HNW	17							
FI4027IS	MAGNA1	DN32 Kvs 16	ML7430E	27							
FI4045IS	32-80			45							
FI2007ID	MAGNA1D			7	M3H	-	10	85 / 160*	1.2 / 1.8*	460x400x1040	75
FI2017ID	32-40	HNW V5833	HNW	17							
FI4027ID	MAGNA1D	DN32 Kvs 16	ML7430E	27							
FI4045ID	32-80			45							
FI2007SS	MAGNA1			7	M3H	UPS32-80N	10	305	2.2	460x480x1040	75
FI2017SS	32-40	HNW V5833	HNW	17							
FI4027SS	MAGNA1	DN32 Kvs 16	ML7430E	27							
FI4045SS	32-80			45							
FI2007DS	MAGNA1D			7	M3H	UPS32-80N	10	305 / 380*	2.2 / 2.8*	460x480x1040	80
FI2017DS	32-40	HNW V5833	HNW	17							
FI4027DS	MAGNA1D	DN32 Kvs 16	ML7430E	27							
FI4045DS	32-80			45							
FI2007DD	MAGNA1D			7	M3H	2x UPS32-80N	10	305 / 380* / 500**	2.2 / 2.8* / 3.8**	460x480x1040	85
FI2017DD	32-40	HNW V5833	HNW	17							
FI4027DD	MAGNA1D	DN32 Kvs 16	ML7430E	27							
FI4045DD	32-80			45							
FI6011IS				11	M6M ML/MH	-	10	380	2.2	1000x500x1400	153
FI6017IS	MAGNA1	HNW V5833	HNW	17							
FI8031IS	40-100	DN40 Kvs25	ML7430E	31							
FI8055IS				55							
FI6011ID				11	M6M ML/MH	-	10	380 / 750*	2.2 / 3.8*	1000x500x1400	171
FI6017ID	MAGNA1D	HNW V5833	HNW	17							
FI8031ID	40-100	DN40 Kvs25	ML7430E	31							
FI8055ID				55							
FI6011SS				11	M6M ML/MH	UPS32-80N	10	600	3.15	1150x500x1400	161
FI6017SS	MAGNA1	HNW V5833	HNW	17							
FI8031SS	40-100	DN40 Kvs25	ML7430E	31							
FI8055SS				55							
FI6011DS				11	M6M ML/MH	UPS32-80N	10	600 / 751*	3.15 / 4.15*	1150x500x1400	179
FI6017DS	MAGNA1D	HNW V5833	HNW	17							
FI8031DS	40-100	DN40 Kvs25	ML7430E	31							
FI8055DS				55							
FI6011DD				11	M6M ML/MH	2x UPS32-80N	10	600 / 751* / 971**	3.15 / 4.15* / 5.15**	1150x500x1400	187
FI6017DD	MAGNA1D	HNW V5833	HNW	17							
FI8031DD	40-100	DN40 Kvs25	ML7430E	31							
FI8055DD				55							
				55		2x UPS32-100N		725 / 1095* / 1440**	3.67 / 5.32* / 6.84**	1150x500x1400	203
				55							226

\* with booster function activated

\*\* with safety function activated

Operating limits	Primary	Secondary
Maximum operating pressure bar	10	10
Maximum operating temperature °C	110	100

**How to contact Alfa Laval**

Up-to-date AlfaLaval contact details for all countries are always available on our website on [www.alfalaval.com](http://www.alfalaval.com)