

# 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 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.

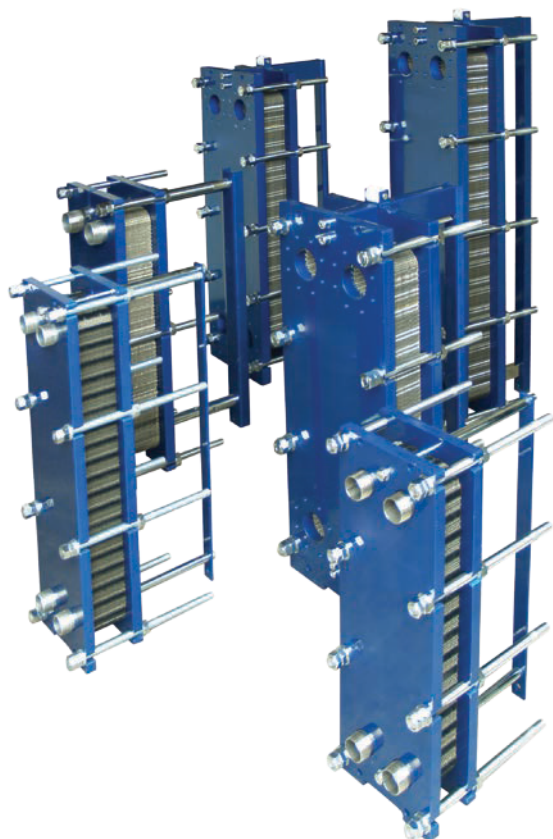
### Gasketed exchangers

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

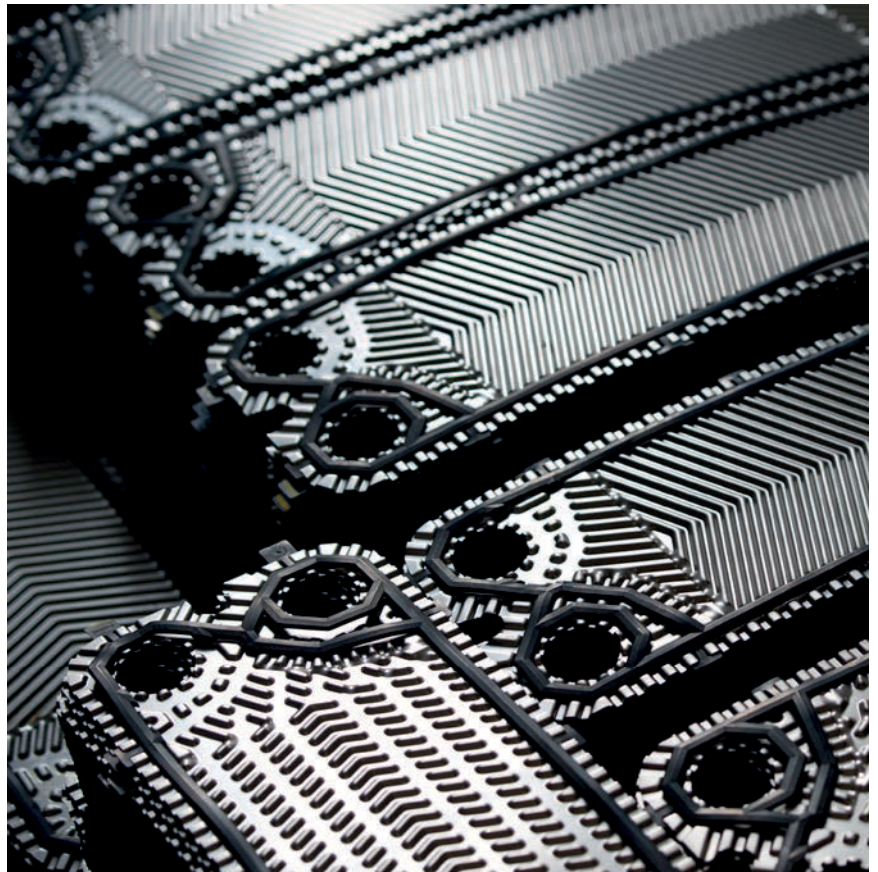
The quality of the parts, as well as the brazing process makes it possible to attach the plates without using gaskets. This is a huge advantage because it makes the exchanger compact and resistant to high temperatures and pressure.



# 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

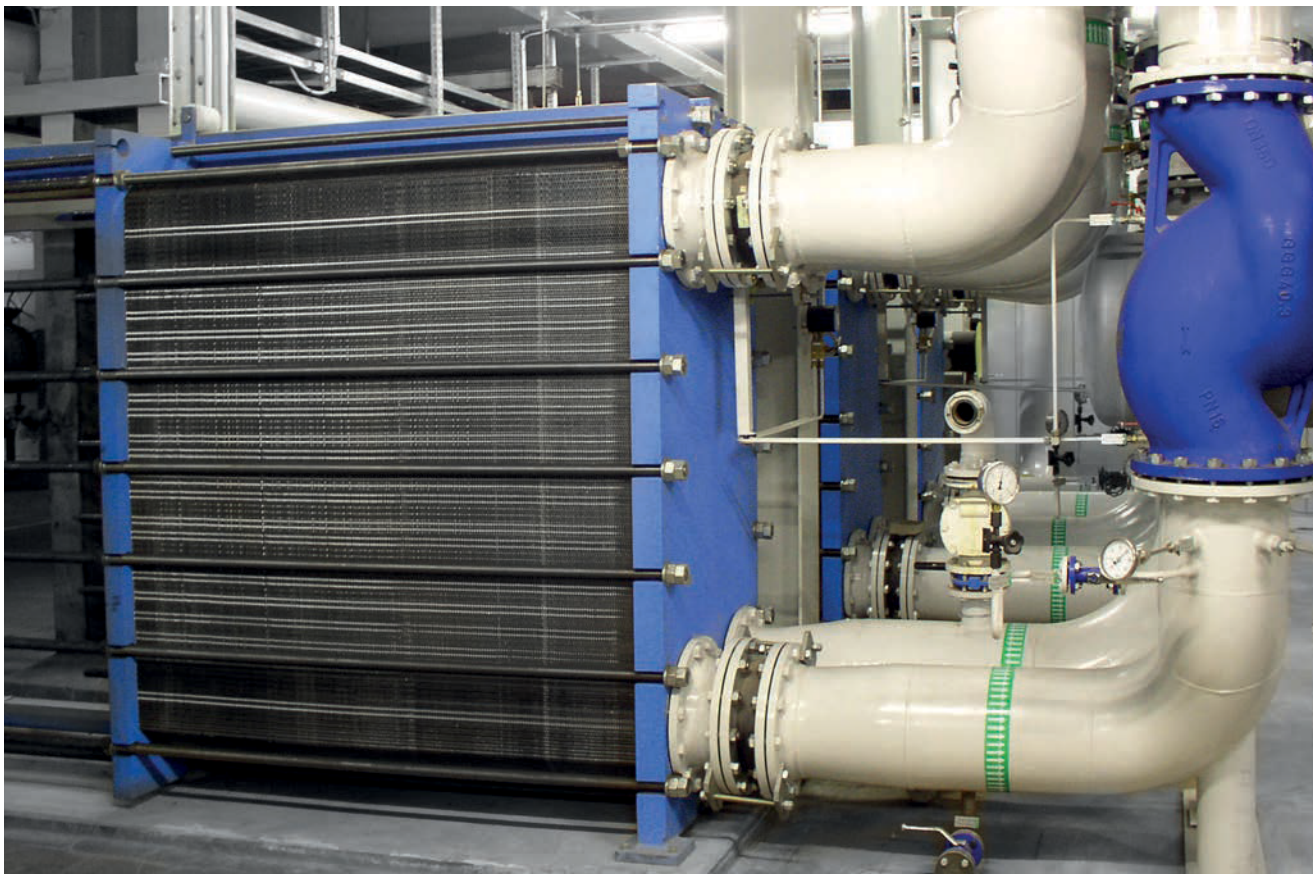
Wherever a heat exchange between two fluids takes place, the Fiorini plate heat exchangers guarantee a series of significant advantages:

- 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).

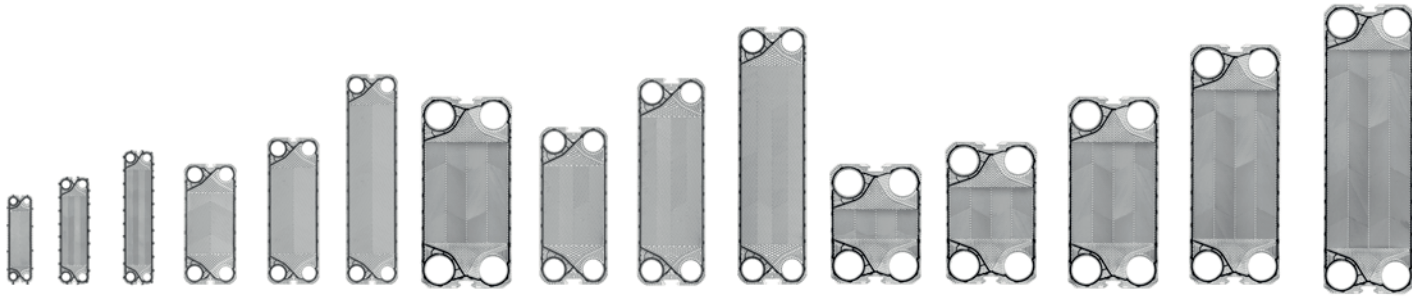
They offer the best options for numerous applications, such as:

- 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



# Gasketed plate heat exchangers

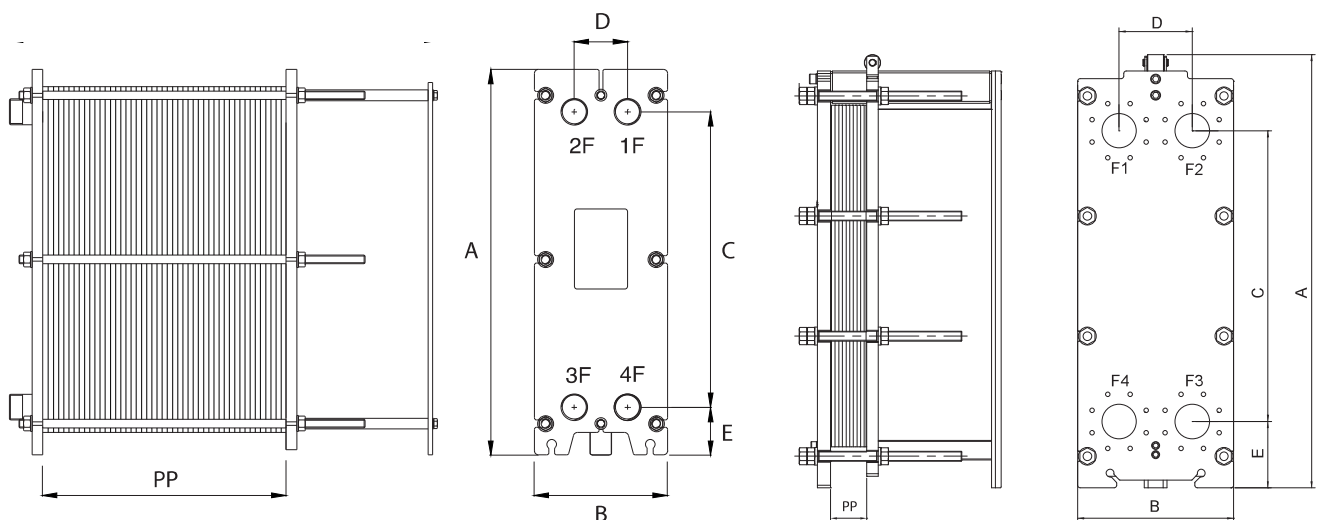
## Our range



model	DN 32	DN 40	DN 50		DN 100				DN 150	
	Ko42	Ko80	F16	F22	F206	F31	F50	F71	F 41-42	F60-F62
Plate surface (m <sup>2</sup> )	0,042	0,085	0,15	0,22	0,21	0,30	0,50		0,40	0,60
Available corrugations	H	H - V	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	
Coupling on request	A-B-C-D-E**	A-B-C-D-E**	A-B-C-D-E**		F-G**				F-G**	
PP (mm)	NPx3,1+2	NPx3,05+2	NPx 2,9+3	NPx 2,9+3	NPx 3,1 *	NPx 3,1 *	NPx 3,1 *		NPx 3,5 *	NPx 3,5 *
A (mm)	470	725	932	1132	1160	1132	1826	2320	1470	1835
B (mm)	200	250	310	310	480	480	480	480	620	620
C (mm)	380	68	694	894	719	894	1388	1882	941	1306
E (mm)	555	100	126	126	225	225	225	225	290	290

\* With rubber liner add 1,5 mm

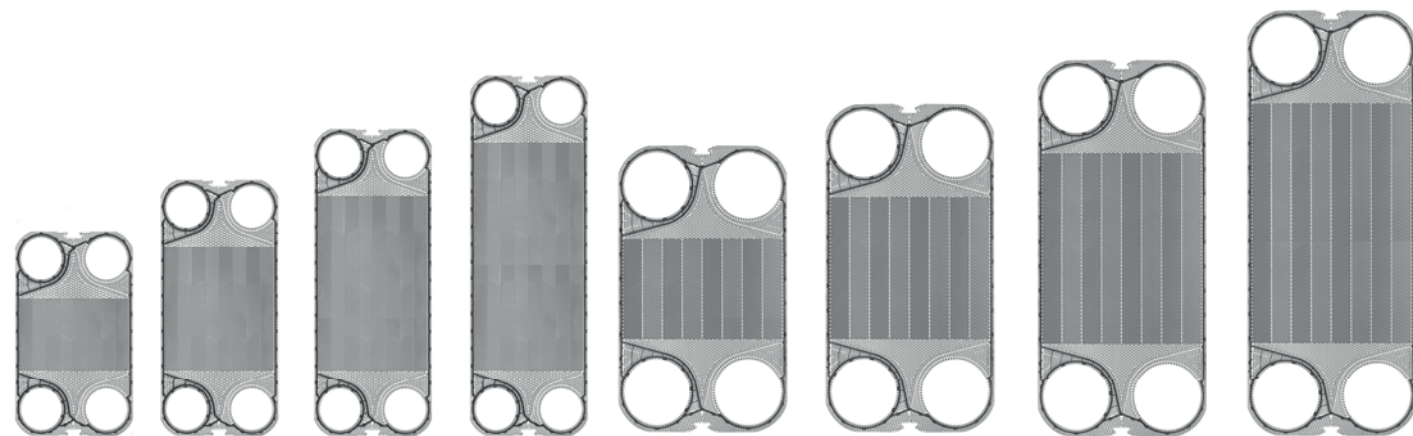
\*\* See p. 20



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
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			
F-G**		F-G**				F-G**				F-G**			
NPx 3.5 *		NPx 3.1 *	NPx 3.1 *	NPx 3.1 *	NPx 3.1 *	NPx 3.8 *	NPx 3.8 *	NPx 3.8 *	NPx 3.8 *	NPx 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

### 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



### 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:



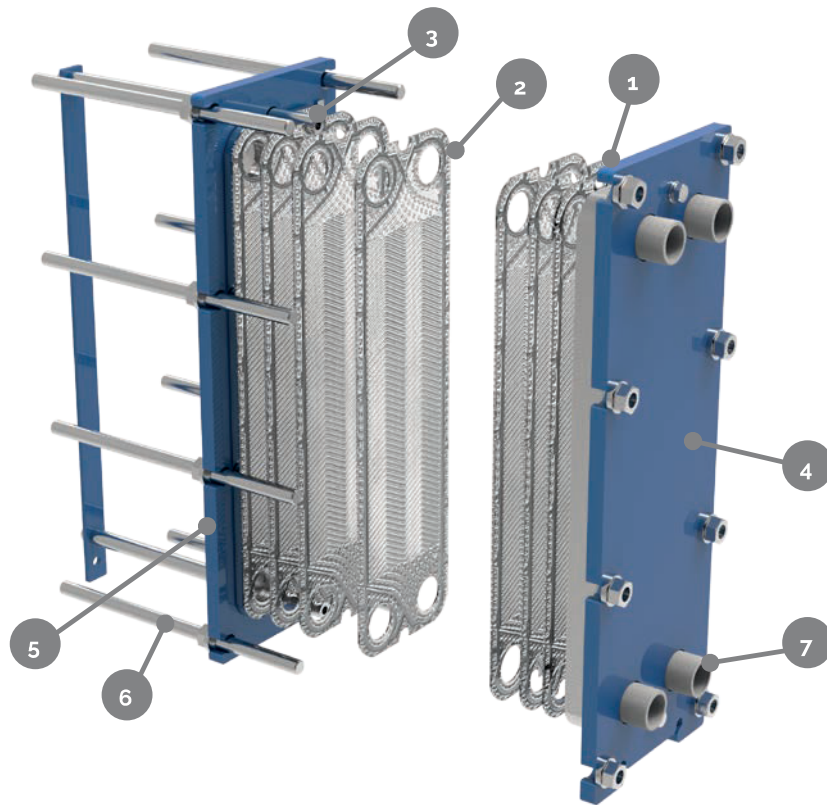
**NBR** (nitrile rubber): generally used with water, other liquids, oily mineral liquids T max 130C

**EPDM** (ethylene-propylene rubber): broad range of use, such as with non-mineral oils, water and steam T max 150C

**VITON** (fluoro rubber) extremely resistant to chemical substances or aggressive fluids (sulfuric acid, vegetal oil) and high temperatures (Tmax 195C)

# Gasketed plate heat exchangers

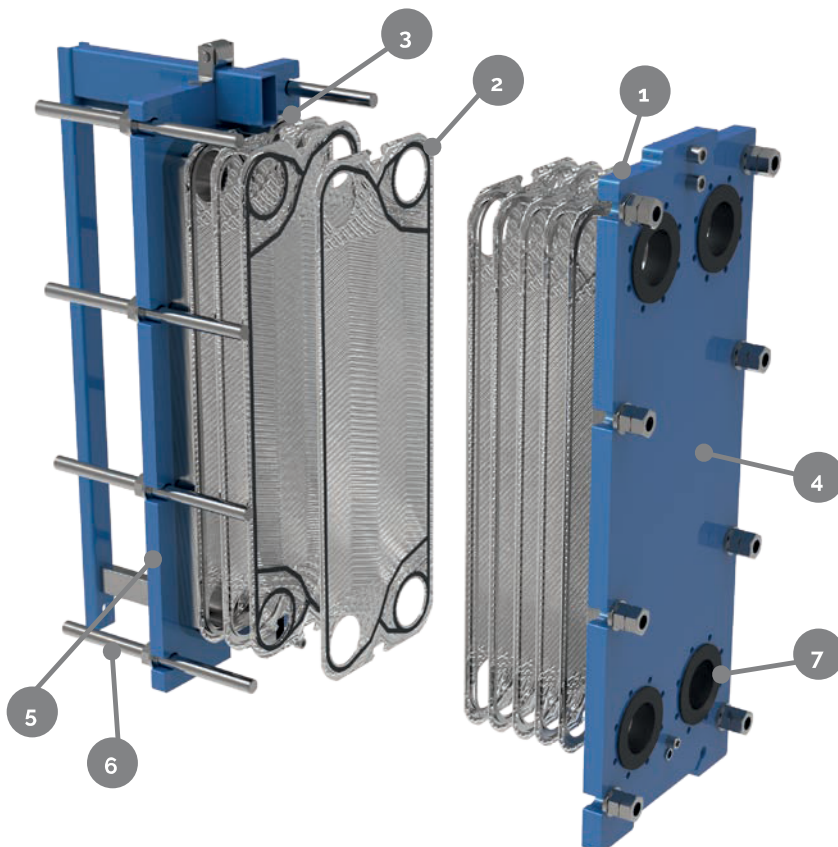
## Main components DN32/40/50



### Legend

- 1. anterior plate
- 2. mid plate
- 3. posterior plate
- 4. anterior shaft
- 5. posterior shaft
- 6. link
- 7. coupling

## Main components DN100 and bigger



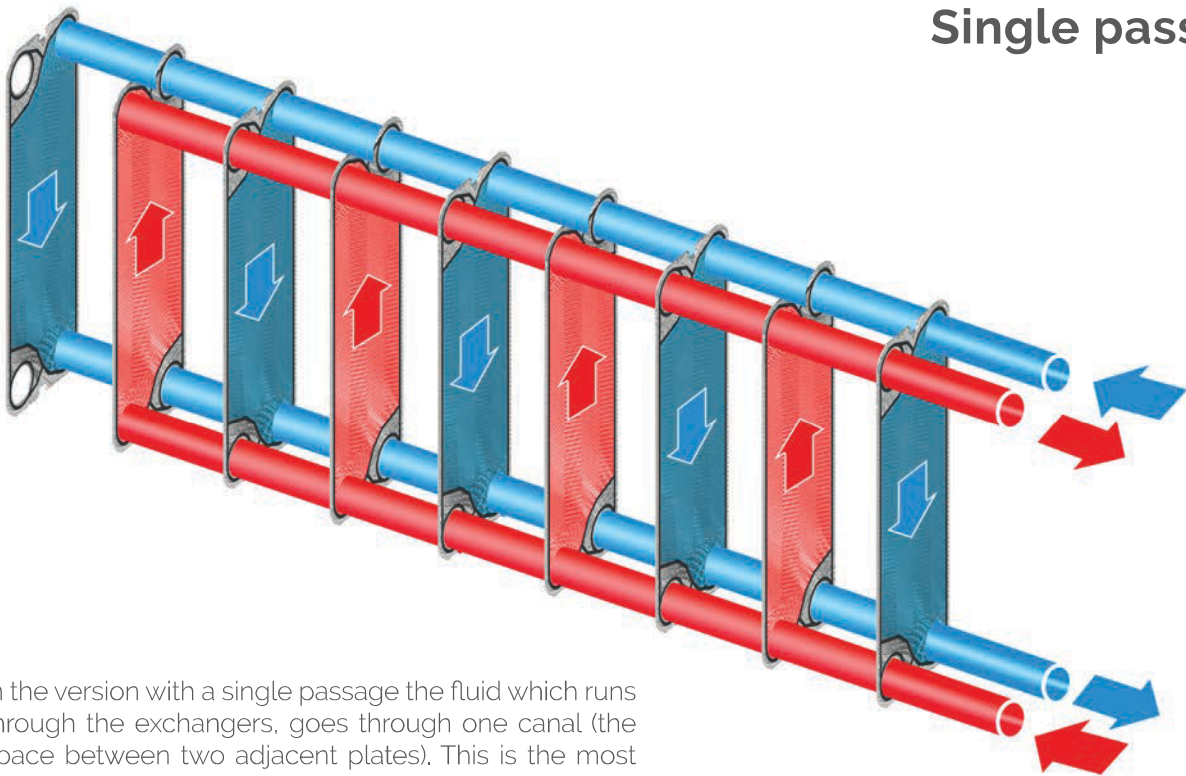
### Starting from DN100

### Legend

- 1. anterior plate
- 2. mid plate
- 3. posterior plate
- 4. anterior shaft
- 5. posterior shaft
- 6. link
- 7. coupling

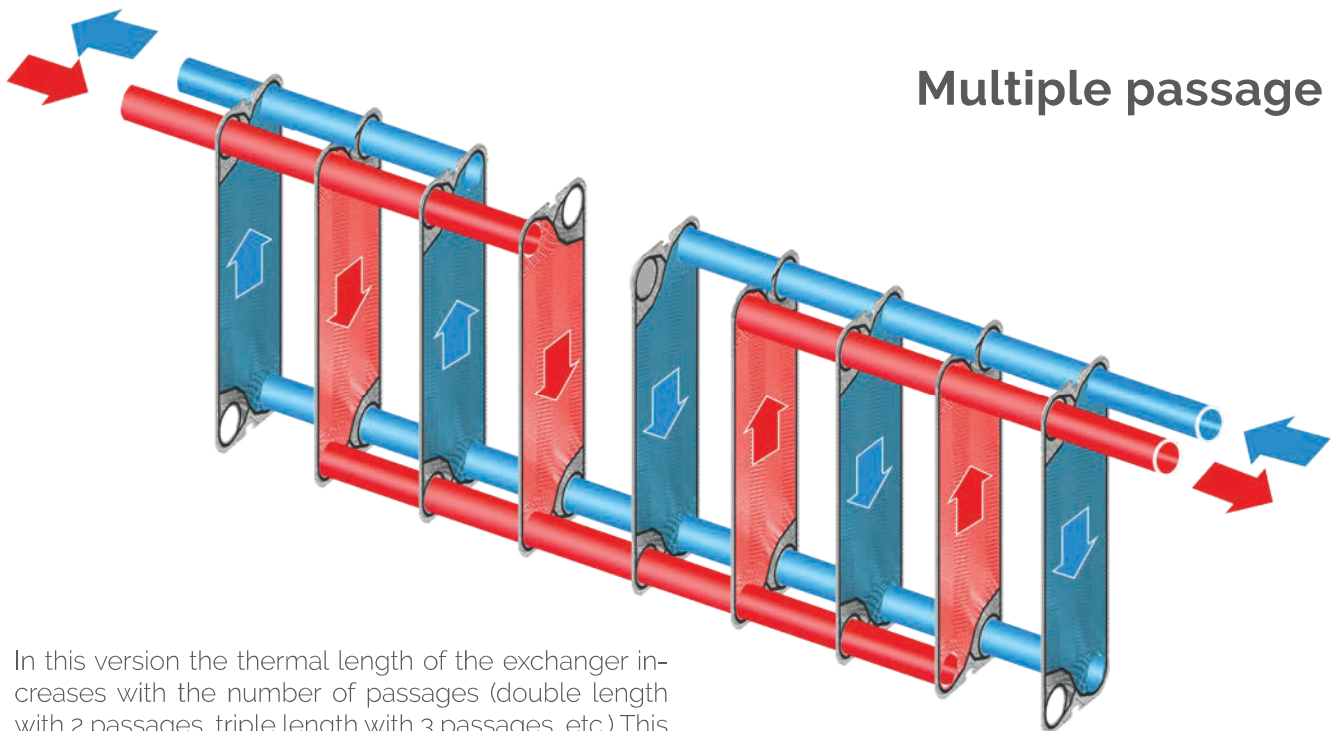
# Principles

## 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.

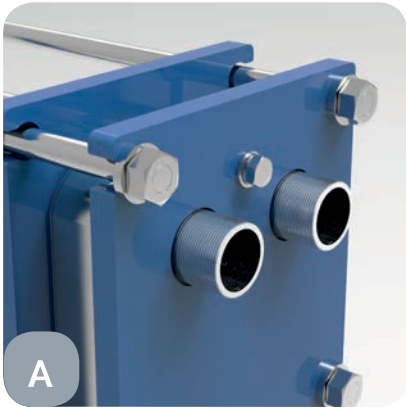
## Multiple passage



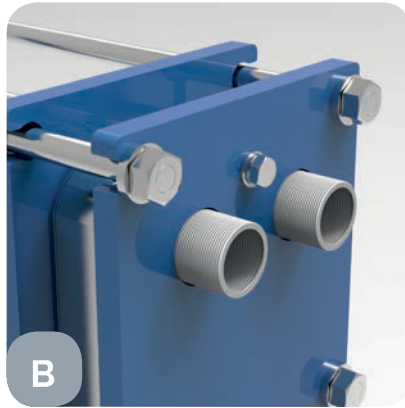
In this version the thermal length of the exchanger increases with the number of passages (double length with 2 passages, triple length with 3 passages, etc.) This solution is necessary when there is a very low temperature difference between the primary and the secondary circuit.



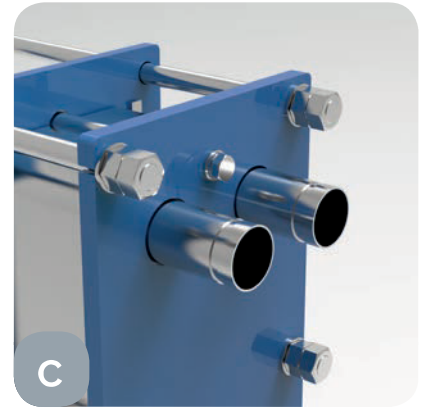
# Couplings



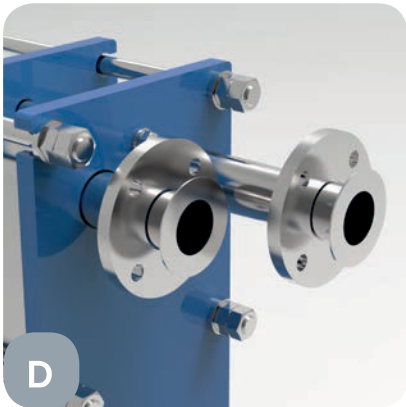
**A**  
Threaded coupling



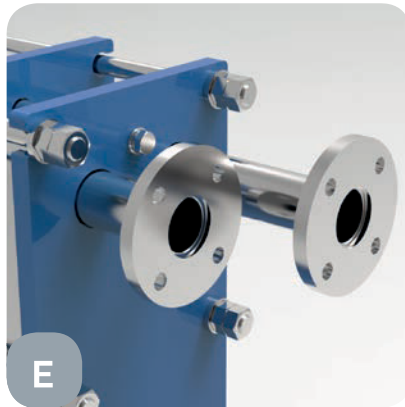
**B**  
Nylon threaded coupling



**C**  
Victaulic coupling



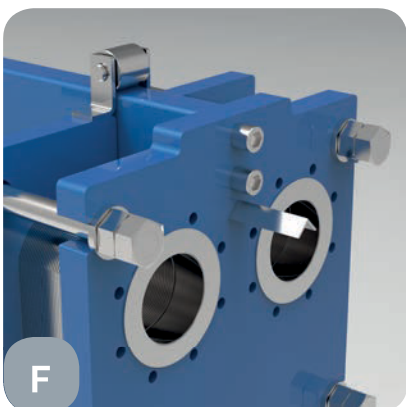
**D**  
Free flange coupling



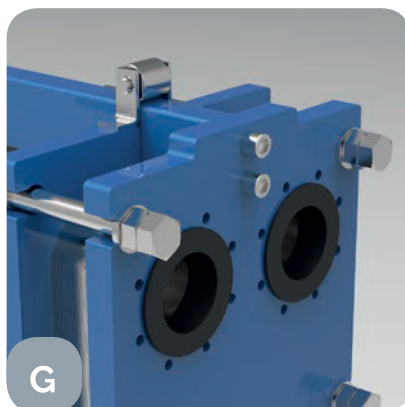
**E**  
Welded flange coupling

Our gasketed plate heat exchangers can be manufactured with numerous kinds of couplings: threaded, with a free flange, with a welded flange and with liners. This means that the coating of the crossing of the frame can be manufactured in various materials such as iron or rubber.

In the chart on page 16-17 of this catalogue, the available couplings for all gasketed plate heat exchangers are indicated.



**F**  
Metal Liner coupling



**G**  
Rubber liner coupling

# Insulation



The insulation box is an accessory which is available for all our exchangers. It is made from steel (which can be easily inspected thanks to openings hooks) and coated with insulating material ( $\lambda = 0,0333 \text{ W/m } ^\circ\text{C}$ ), in order to reduce thermal loss. Also available is a tub to collect the condensation, which can be useful in cooling systems..

## Compatibility

	AISI 316L plates	AISI 304 plates	Titanium plates	Nitrile gaskets NBR	EPDM gaskets	AISI 304 stainless steel fittings	AISI 316 stainless steel fittings	Nylon fittings (Tmax 50°C)
water (t < 110°C)	✓	✓*	✓	✓	✓	✓	✓	T max 50°C
water (t > 110°C)	✓	-	✓	-	T max 150 °C	✓	✓	-
glycolate water (glicole < 30%)	✓	✓*	✓	✓	✓	✓	✓	T max 50°C
glycolate water (glicole > 30%)	✓	✓*	✓	-	✓	✓	✓	T max 50°C
propylene glycol (glicole < 30%)	✓	✓*	✓	✓	✓	✓	✓	T max 50°C
propylene water (glicole > 30%)	✓	✓*	✓	-	✓	✓	✓	T max 50°C
demineralized water	✓	-	✓	✓	✓	-	✓	T max 50°C
sea water	-	-	✓	✓	✓	-	-	T max 50°C
pool water	✓	-	✓	✓	✓	✓	✓	T max 50°C
steam < 4 bar	✓	-	✓	-	T max 150 °C	✓	✓	-
oil iso vg	✓	-	✓	✓	-	✓	✓	-
oil sae	✓	-	✓	✓	-	✓	✓	-
olive oil	✓	-	-	✓	✓	-	✓	-
milk	✓	-	-	✓	✓	-	✓	-
wine	✓	-	-	✓	✓	-	✓	-
beer	✓	-	-	✓	✓	-	✓	-

\* Only for closed circuits and with a chloride concentration less than 25 ppm and Tmax 80C

In the table, some guidelines for the correct combination of materials are outlined. Should you want other configurations, please contact our technical office.

# Gasketed plate heat exchangers

## Options > instantaneous DHW

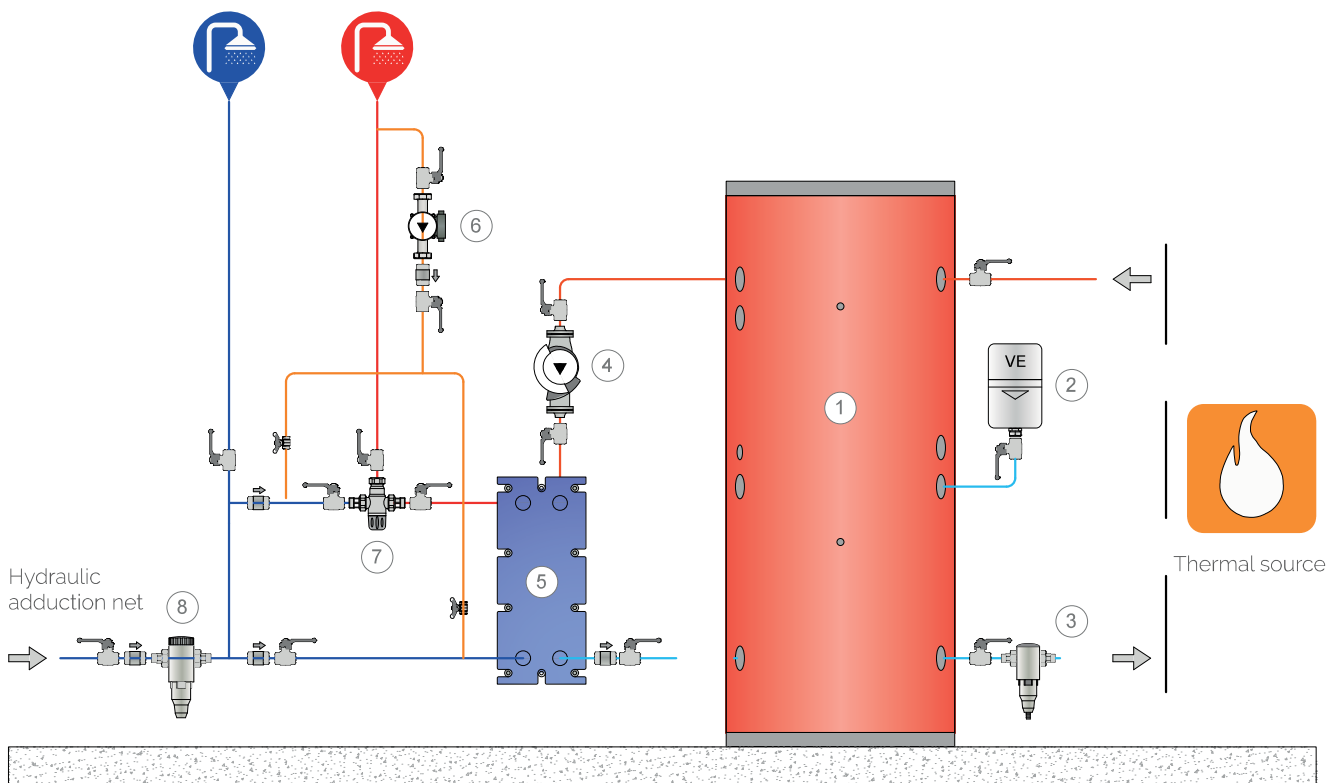
The hygienic option for the production of domestic hot water

In this type of installation, the exchanger is installed between the thermal source (heater, stove, solar power system, heat pump, etc.) and the hydraulic adduction net.

This makes it possible to instantaneously produce domestic hot water without using a storage tank. This ensures:

- ✓ Elevated hygienic circumstances
- ✓ Reduction of bacteria spreading (anti legionella)

The device can be coupled with a storage tank for technical water if there are peaks in the need for DHW. The device can also be coupled with discontinuous generators (solar power, biomass, etc.)



### Legend

1. Fiorini PFA puffer
2. Expansion vessel
3. Dirt separator
4. Sanitary charging pump
5. Fiorini plate heat exchanger
6. Sanitary recirculation pump
7. Thermostatic DHW mixer
8. Bacteriostatic cold water filter





# Tables for fast selection

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
30	1325	12	865	6	50x25x35	30	821K042AHNN009		A
50	2210	33	1440	16	50x25x35	30	821K042AHNN009		A
75	3310	33	2164	16	50x25x35	31	821K042AHNN013		A
100	4415	34	2885	16	50x25x45	32.5	821K042AHNN017		A
125	5520	35	3605	16	50x25x45	34	821K042AHNN021		A
150	6630	36	4330	17	50x25x45	35	821K042AHNN025		A
175	7730	37	5050	17	50x25x45	36.5	821K042AHNN029		A
200	8835	38	5770	18	50x25x45	38	821K042AHNN033		A
300	13225	35	8660	20	80x29x55	84	821K080AVNN023		B

- › Primary circuit: 80-60 °C
- › Secondary circuit: 15-45 °C

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
15	1310	13	430	1.5	50x25x35	30	821K042AHNN009		A
20	1750	22	580	3	50x25x35	30	821K042AHNN009		A
25	2190	34	720	4	50x25x35	30	821K042AHNN009		A
30	2625	31	865	4	50x25x35	31	821K042AHNN011		A
40	3500	38	1155	5	50x25x35	31	821K042AHNN013		A
50	4375	35	1440	4	50x25x45	32.5	821K042AHNN017		A
60	5250	40	1730	5	50x25x45	33	821K042AHNN019		A
70	6125	37	2020	5	50x25x45	35	821K042AHNN023		A
80	7000	35	2310	4	50x25x45	36	821K042AHNN027		A

- › Primary circuit: 55-45 °C
- › Secondary circuit: 15-45 °C

kind of box	insulation	code	price	packaging	
				dimensions cm	weight kg
A	insulating box	821080007		80x60x65	10
	tub	829090894X			
B	insulating box	821080004		80x60x95	12
	tub	829091546X			

description	code	price
set with feet for K042 model	821070049X	
set with feet for K080 model	821070051X	

# Gasketed plate heat exchanger

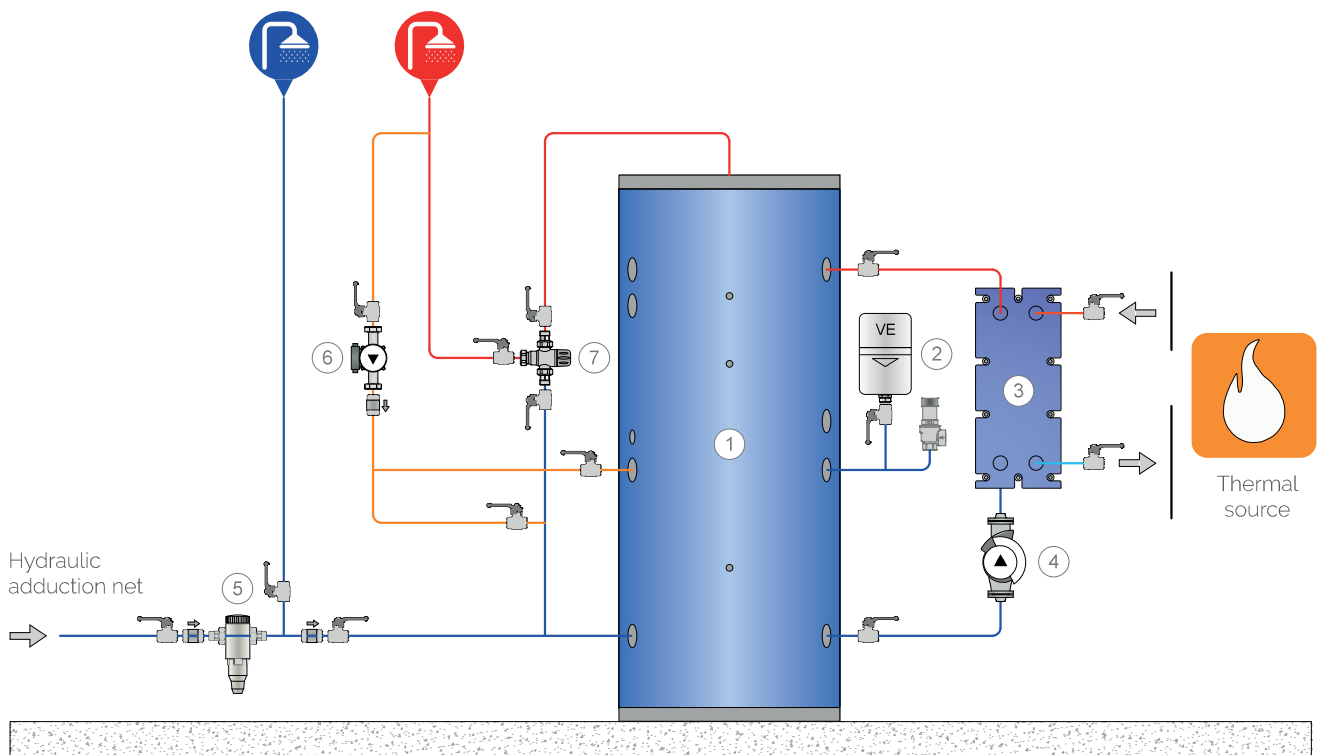
## Options > DHW with storage tank

The ideal solution for big users

In this kind of installation, the exchanger is installed between the thermal source (heater, stove, solar power system, heat pump, etc.) and the DHW storage tank. A circulation pump makes the sanitary water continuously circulate between the storage tank and the plate heat exchanger, in this way rapidly heating the water in the storage tank. The option can:

- ✓ cover high peaks in consumption
- ✓ rapidly reach the needed temperature in the tank
- ✓ guarantee maximal modularity and transfer all power from the thermal source,

in this way it can cover the needs of users, such as accommodations, sport centers, health centers and of central devices of large dimensions which need elevated volumes of hot water.



### Legend

1. Fiorini sanitary storage tank
2. Safety unit
3. Fiorini plate heat exchanger
4. Sanitary charging pump
5. Bacteriostatic cold water filter
6. Sanitary recirculation pump
7. Thermostatic DHW mixer



# Tables for fast selection

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
30	1325	12	865	6	50x25x35	30	821K042AHNN009		A
50	2210	33	1440	16	50x25x35	30	821K042AHNN009		A
75	3310	33	2165	16	50x25x35	31	821K042AHNN013		A
100	4420	34	2890	16	50x25x45	32.5	821K042AHNN017		A
125	5520	35	3605	16	50x25x45	34	821K042AHNN021		A
150	6630	36	4330	17	50x25x45	35	821K042AHNN025		A
175	7730	37	5050	17	50x25x45	36	821K042AHNN029		A
200	8835	38	5770	18	50x25x45	37.5	821K042AHNN033		A
300	13255	35	8660	29	80x29x55	84	821K080AVNN023		B

- › Primary circuit: 80-60 °C
- › Secondary circuit: 15-45 °C

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
15	2630	31	370	1	50x25x35	30.5	821K042AHNN011		A
20	3500	38	495	1	50x25x45	31	821K042AHNN013		A
25	4380	34	620	1	50x25x45	32.5	821K042AHNN017		A
30	5255	39	740	1	50x25x45	33	821K042AHNN019		A
40	7010	35	990	1	50x25x45	35.5	821K042AHNN027		A
50	8761	38	1235	1	50x25x45	37.5	821K042AHNN033		A
60	10510	38	1480	1	50x25x55	40	821K042AHNN041		C
70	12265	39	1730	1	50x25x55	43	821K042AHNN049		C
80	14020	36	1980	1	80x29x55	85	821K080AVNN025		B

- › Primary circuit: 55-50 °C
- › Secondary circuit: 10-45 °C

kind of box	insulation	code	price	packaging	
				dimensions cm	weight kg
A	insulating box	821080007		80x60x65	10
	tub	829090894X			
B	insulating box	821080004		80x60x95	12
	tub	829091546X			
C	insulating box	821080008		80x60x65	10
	tub	829091409X			

description	code	price
set with feet for K042 model	821070049X	€ 23,00
set with feet for K080 model	821070051X	€ 23,00



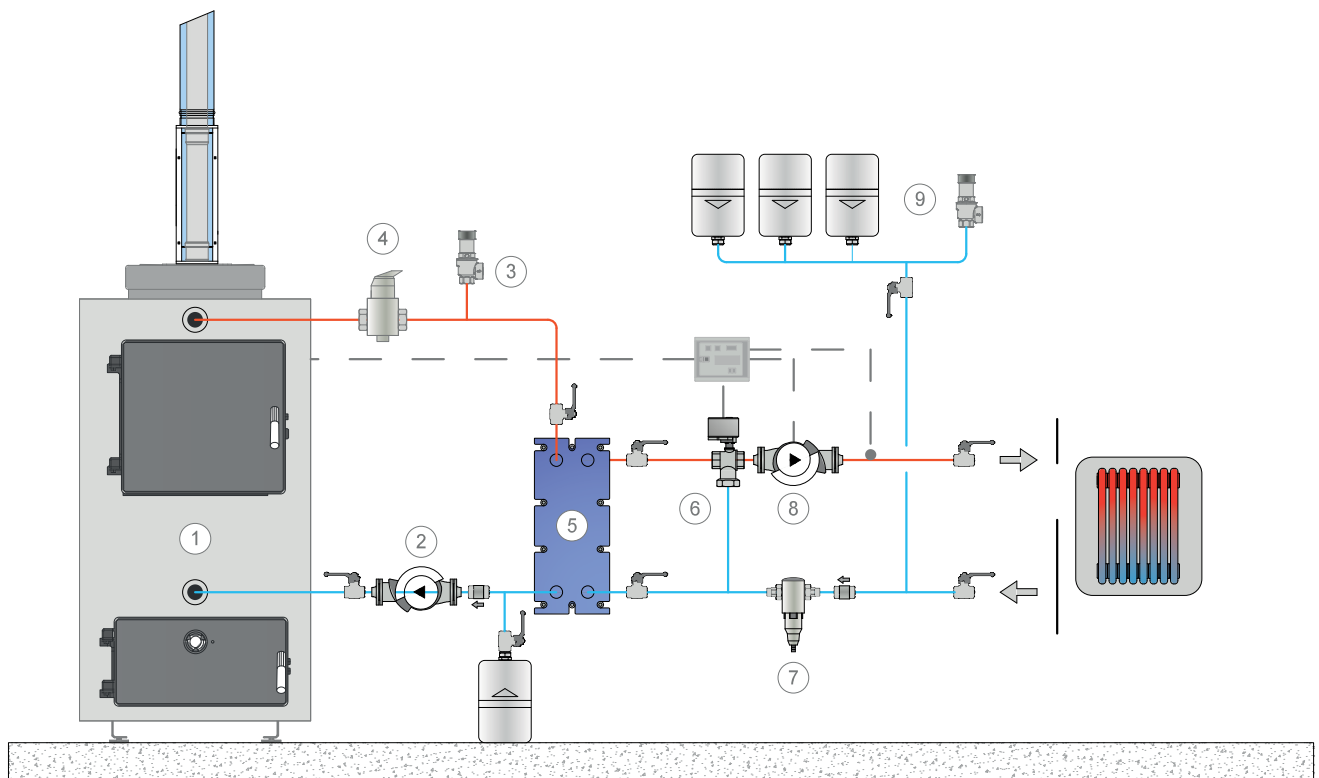
# Gasketed plate heat exchangers

## Options › Separation between thermal source and device

### The ideal protection for every thermal source

In this kind of installation, the exchanger is installed between the thermal source (heater, stove, solar power system, heat pump, etc.) and the heating device. In this way, possible inconveniences to the thermal source can be averted. It is protected against risks due to the direct connection to the device, such as the fouling caused by impurity, corrosion, overpressure or water hammering. This option:

- ✓ ensures maximal protection for the heat generator
- ✓ prolongs the life span of the heat generator
- ✓ makes the installation of condensation heaters in existing devices possible



#### 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



# Tables for fast selection

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
30	2655	31	2640	31	50x25x35	30,5	821K042AHNN011		A
50	4430	34	4405	34	50x25x45	32,5	821K042AHNN017		A
75	6640	35	6610	36	50x25x45	35	821K042AHNN025		A
100	8855	38	8812	38	50x25x45	37,5	821K042AHNN033		A
125	11070	37	11015	38	50x25x55	41	821K042AHNN043		C
150	13285	39	13220	39	50x25x55	44	821K042AHNN053		C
175	15500	35	15420	33	97x33x75	132,5	821F016AN017-1HL05LL03N		D
200	17710	37	17625	35	97x33x75	134	821F016AN019-1HL06LL03N		D
300	26570	40	26440	39	97x33x75	140,5	821F016AN027-1HL06LL07N		D

- › Primary circuit: 80-70 °C
- › Secondary circuit: 60-70 °C

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
15	880	3	1315	6	50x25x35	31	821K042AHNN013		A
20	1170	3	1750	6	50x25x45	32,5	821K042AHNN017		A
25	1470	3	2190	7	50x25x45	33	821K042AHNN019		A
30	1760	3	2630	7	50x25x45	34	821K042AHNN023		A
40	2350	17	3510	38	80x29x55	76	821K080AHNN011		B
50	2935	14	4385	30	80x29x55	78,5	821K080AHNN015		B
60	3520	16	5260	34	80x29x55	80	821K080AHNN017		B
70	4110	17	6140	37	80x29x55	81	821K080AHNN019		B
80	4695	18	7015	39	80x29x55	82	821K080AHNN021		B

- › Primary circuit: 70-55 °C
- › Secondary circuit: 50-60 °C

kind of box	insulation	code	price	packaging	
				dimensions cm	weight kg
A	insulating box	821080007		80x60x65	10
	tub	829090894X			
B	insulating box	821080004		80x60x95	12
	tub	829091546X			
C	insulating box	821080008		80x60x65	10
	tub	829091409X			
D	insulating box	821080019X		80x60x115	18
	tub	829091094X			

description	code	price
set with feet for K042 model	821070049X	
set with feet for K080 model	821070051X	
set with feet for F16 model	821070031X	

# Gasketed plate heat exchangers

## Options > Systems for swimming pools

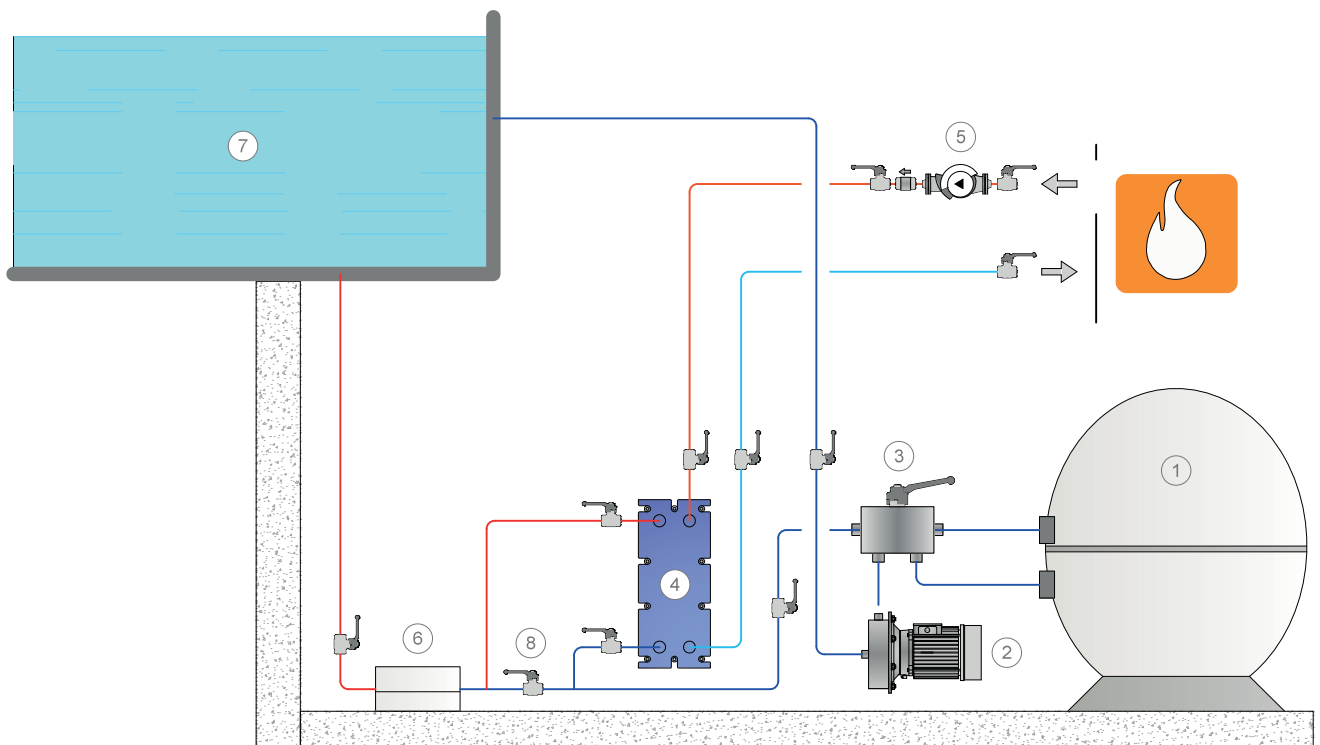
The option which ensures efficiency and a long life span

In this kind of installation, the heat exchanger is installed between the thermal source (heater, stove, solar power system, heat pump, etc.) and the swimming pool. The Fiorini heat exchanger protects the thermal source from the corrosive effect of the chlorate water.

The device ensures:

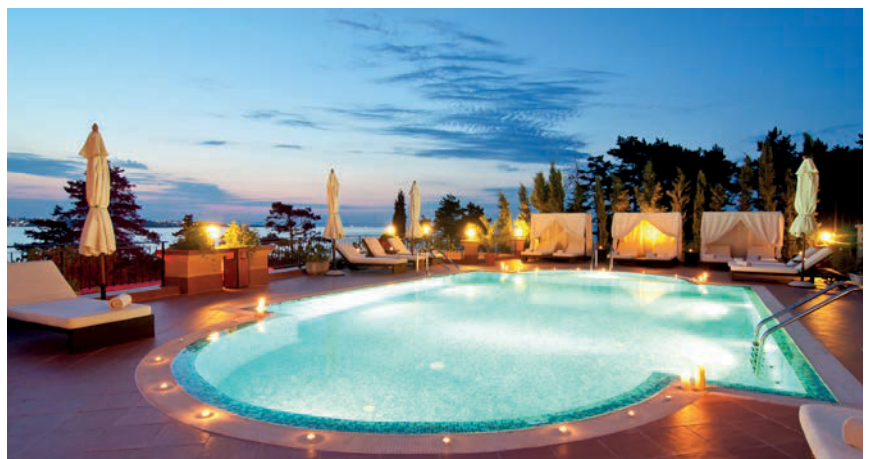
- ✓ A long life span of the device
- ✓ Possibility to maintain and expand

Moreover, a bypass is placed between the inlet and outlet of the heat exchanger, which reduces the water flow in the exchanger. In this way, the dimensions of the exchanger can be reduced in relation to its performance.



### 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





# Tables for fast selection

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
30	1320	4	2605	17	50x25x45	32	821K042AHNN015		A
50	2200	5	4340	20	50x25x45	34	821K042AHNN023		A
75	3300	5	6510	18	50x25x45	39	821K042AHNN037		A
125	5500	5	10850	20	80x29x55	87.5	821K080AVNN029		A
150	6595	5	13020	19	97x33x75	132	821F016AN017-1LL08XX00N		D
175	7695	6	15190	19	97x33x75	135	821F016AN021-1HL03LL07N		D
200	8795	5	17360	20	97x33x75	137	821F016AN021-1LL11XX00N		D
300	13191	5	26043	20	97x33x75	155	821F016AN041-1HL04LL16N		D

- › Primary circuit: 70-50 °C
- › Secondary circuit: 30-40 °C

power kW	primary circuit		secondary circuit		packaging		heat exchanger		kind of box
	flow L/h	p.d.c. kPa	flow L/h	p.d.c. kPa	dimensions cm	weight kg	code	price	
15	1310	20	1300	20	50x25x35	30	821K042AHNN009		A
20	1750	20	1735	20	50x25x35	30,5	821K042AHNN011		A
25	2190	20	2170	20	50x25x35	31	821K042AHNN013		A
30	2625	20	2605	20	50x25x45	32	821K042AHNN015		A
40	3500	20	3470	20	50x25x45	33	821K042AHNN019		A
50	4375	20	4340	20	50x25x45	34	821K042AHNN023		A
60	5250	20	5210	20	50x25x45	36	821K042AHNN029		A
70	6125	20	6075	20	50x25x45	37,5	821K042AHNN033		A
80	7000	20	6945	20	80x29x55	39,5	821K042AHNN039		C

- › Primary circuit: 55-45 °C
- › Secondary circuit: 30-40 °C

kind of box	insulation	code	price	packaging	
				dimensions cm	weight kg
A	insulating box	821080007		80x60x65	10
	tub	829090894X			
D	insulating box	821080019X		80x60x115	18
	tub	829091094X			

description	code	price
set with feet for K042 model	821070049X	
set with feet for F16 model	821070031X	