

Hot water cylinder for DHW AFW, AFW-INOX

The AFW and AFW-INOX systems for the fast production of domestic hot water are composed of: a Flexy or Boil storage tank with a capacity of up to 2000l and an AFW kit. The AFW kit consists of a high efficiency brazed plate heat exchanger and a circulation pump on the domestic water circuit. Because of the possibility of combining the AFW kit with any kind of storage tank, we have a broad range of options for the fast production of domestic hot water in small or medium-sized buildings (houses, restaurants, hotels, sport centres, etc.). It is also possible to couple the storage tank with an external heat exchanger. This reduces the stress on the system and optimizes the equilibrium between the power of the heater (or heat generator) and the performance of the heat exchanger.

This makes it possible to:

- ✓ opt for a smaller tank than with a traditional water heater
- ✓ customize the combination of the storage tank's volume and the thermal capacity of the heat exchanger

With the SLC electronic control unit you can manage the system by using the pre-set hydraulic schemes, which makes it possible to optimize and control the functioning of the system.



❖ How to compose the AFW system you want?

1. take the code of the AFW kit with the desired power
2. take the code of the storage tank or the water heater you want to connect (see Flexy and Boil sections)
3. if desired, choose one of the accessories

The AFW kits consist of:

- ✓ a P4 brazed plate heat exchanger with a various number of plates depending on the power which has to be exchanged
- ✓ high efficiency recirculation pump
- ✓ chrome-plated brass pipe fittings

✓ Materials

The heat exchange unit, i.e. the brazed P4 heat exchanger, is made of corrugated AISI 316 stainless steel plates, soldered with pure copper. The body of the storage tank, the internal protective treatments and the available insulation are indicated in the sections on the Flexy and the Boil water heaters in this catalogue.

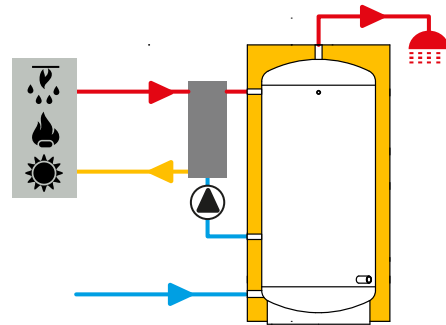
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Kit AFW



Flexy series p.108
Flexy Blue series p. 110
Flexy Inox series p. 112



Code.	Accessory	Price
843090015X	AFW insulation kit for heat exchanger and pipe fittings	
822120028	SLC electronic control unit (see. pag. 266)	

Size of the exchanger l	Power kW	Continuous DHW production L/h	dP Primary kPa	Couplings inch	Min-max power of the pump W	Tension V/Hz/ph	Min-max current A
P4/14	35 14*	859	18	1"1/4	3-140	230/50/1	0,04-1,1
P4/20	70 24*	1717	24	1"1/4	3-140	230/50/1	0,04-1,1
P4/30	115 34*	2862	33	1"1/4	3-140	230/50/1	0,04-1,1
P4/40	150 40*	3721	39	1"1/4	3-140	230/50/1	0,04-1,1
P4/50	200 53*	4866	39	1"1/4	3-140	230/50/1	0,04-1,1

Performance calculated with the following temperatures:
primary 80-60 °C and domestic water 10-45 °C * primary 55-50 and domestic water 35-45 °C

Size of the exchanger	Code	Price	Packed	
			Dimensions cm	Weight kg
P4/09	841060043X		105x41x27	12
P4/15	841060044X		105x41x27	12
P4/21	841060045X		105x41x27	12
P4/25	841060046X		105x41x27	12
P4/33	841060047X		105x41x27	12

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

Dimensions

The AFKX 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

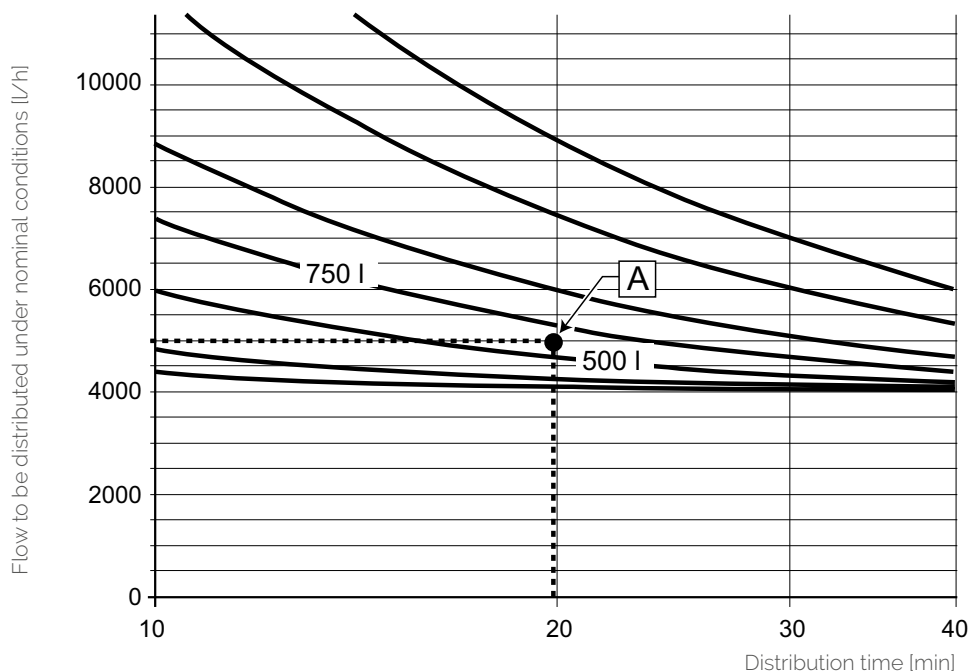
You have to distribute a DHW flow of 5000L/h at 40°C for a sampling period of 20 min. The inlet temperature of the circuit is 15°C and the available power from the heater is 150 kW with a flow at 80°C.

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

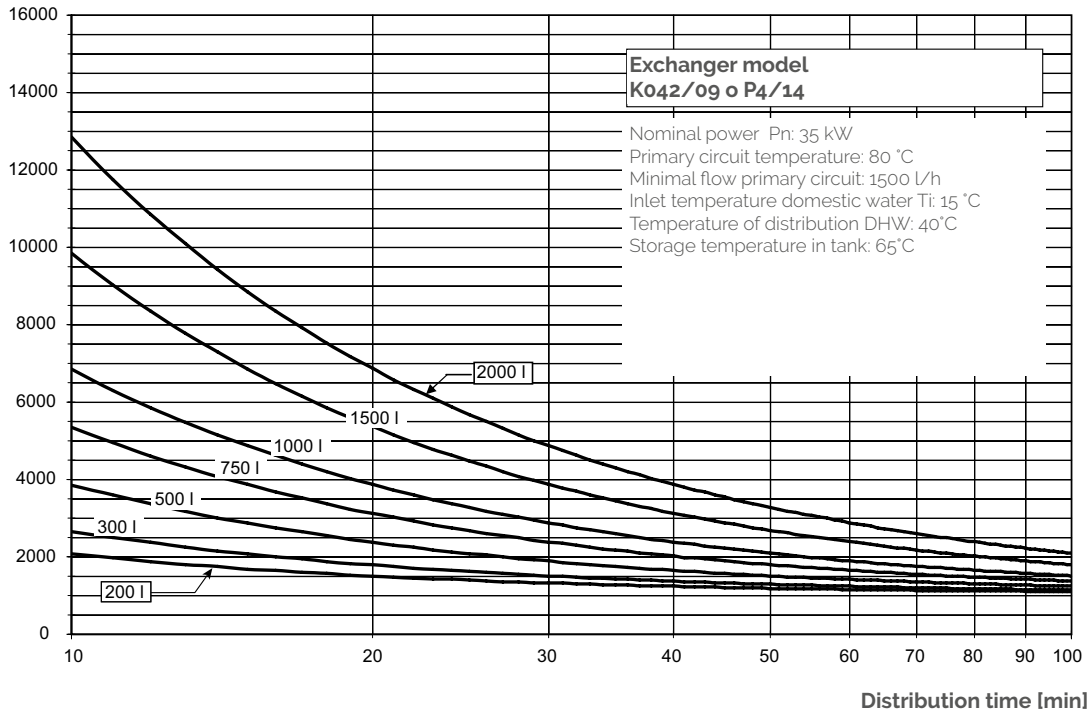
The correct heat exchanger should guarantee a thermal exchange equal to or superior to the power destined for the DHW production. Very important when choosing the heat exchanger is the flow temperature of the heat generator.



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

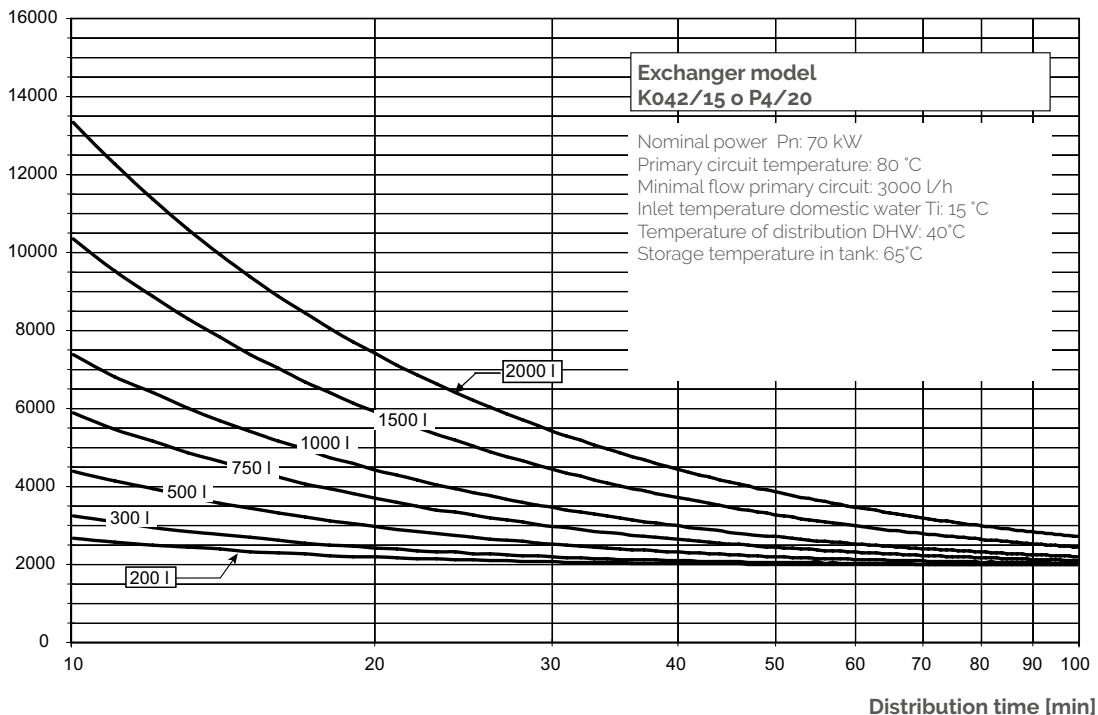
Performance with K042/09 plate heat exchanger

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



Performance with K042/15 plate heat exchanger

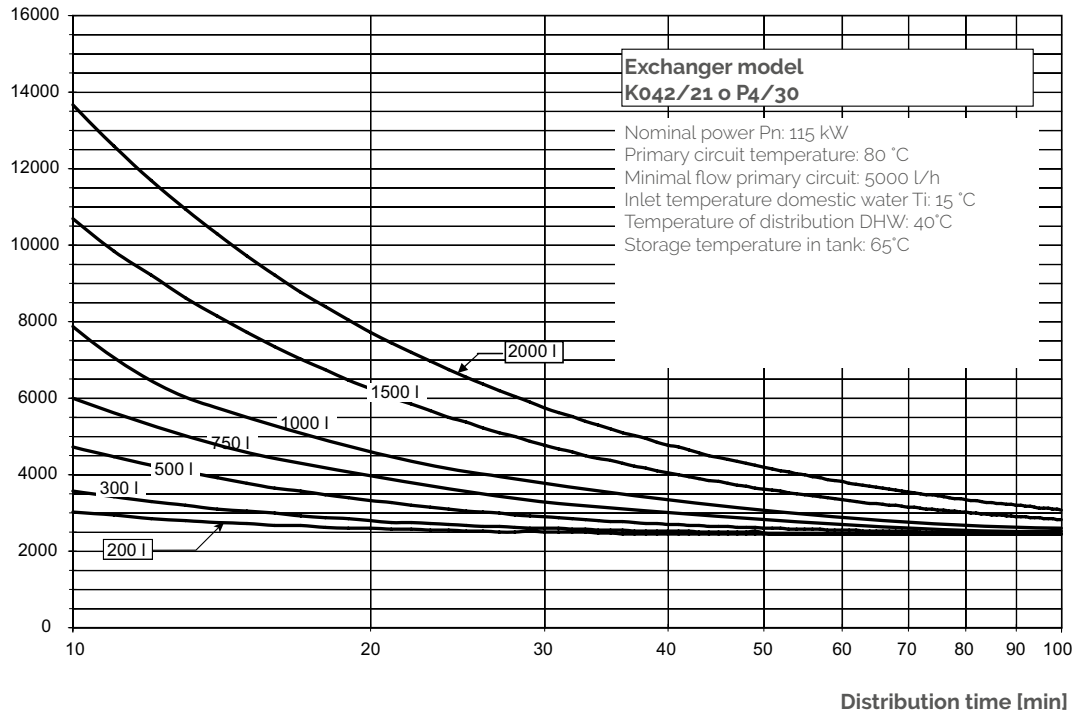
Flow to be distributed under nominal conditions [L/h]



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

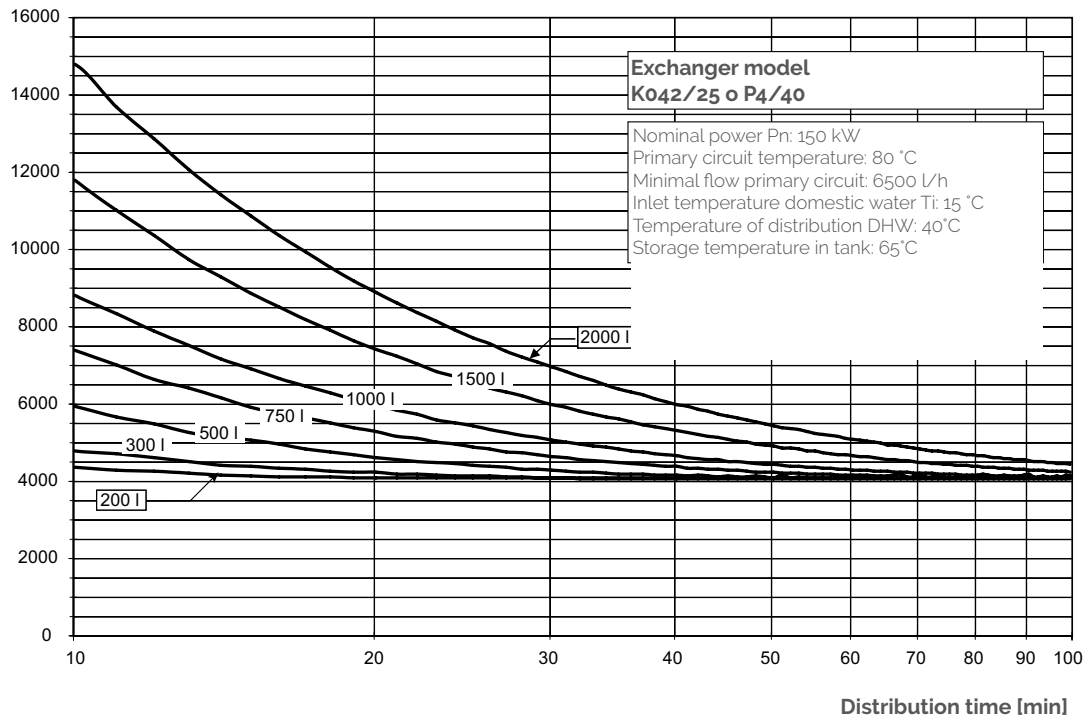
Performance with K042/21 plate heat exchanger

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



Performance with K042/25 plate heat exchanger

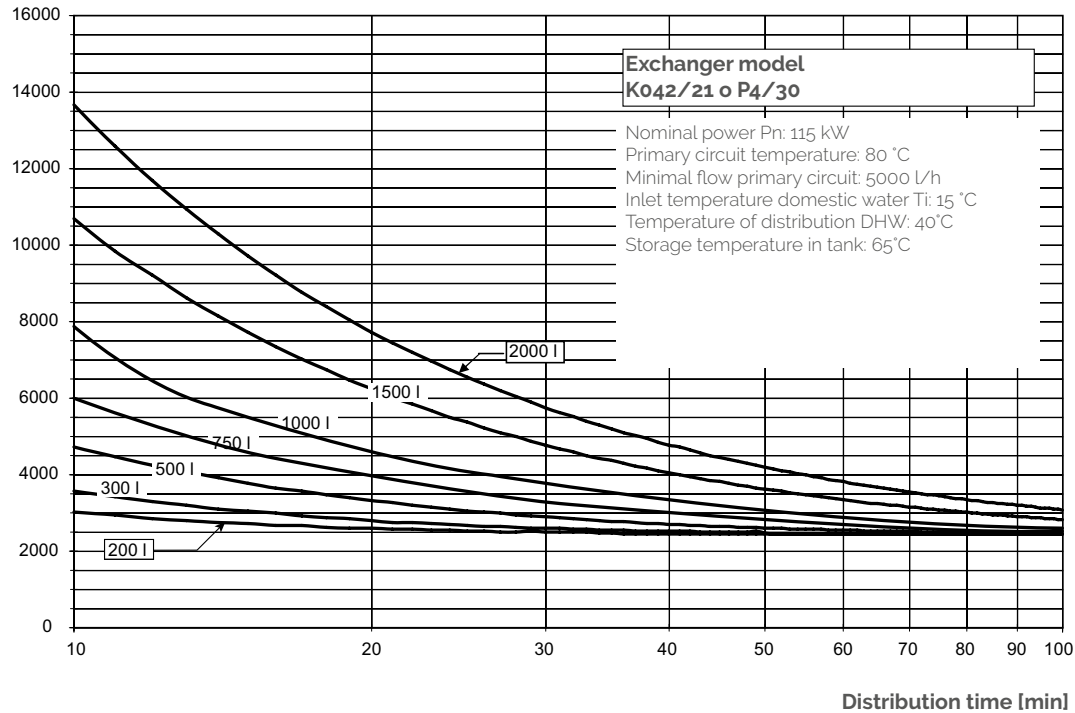
Flow to be distributed under nominal conditions [L/h]



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

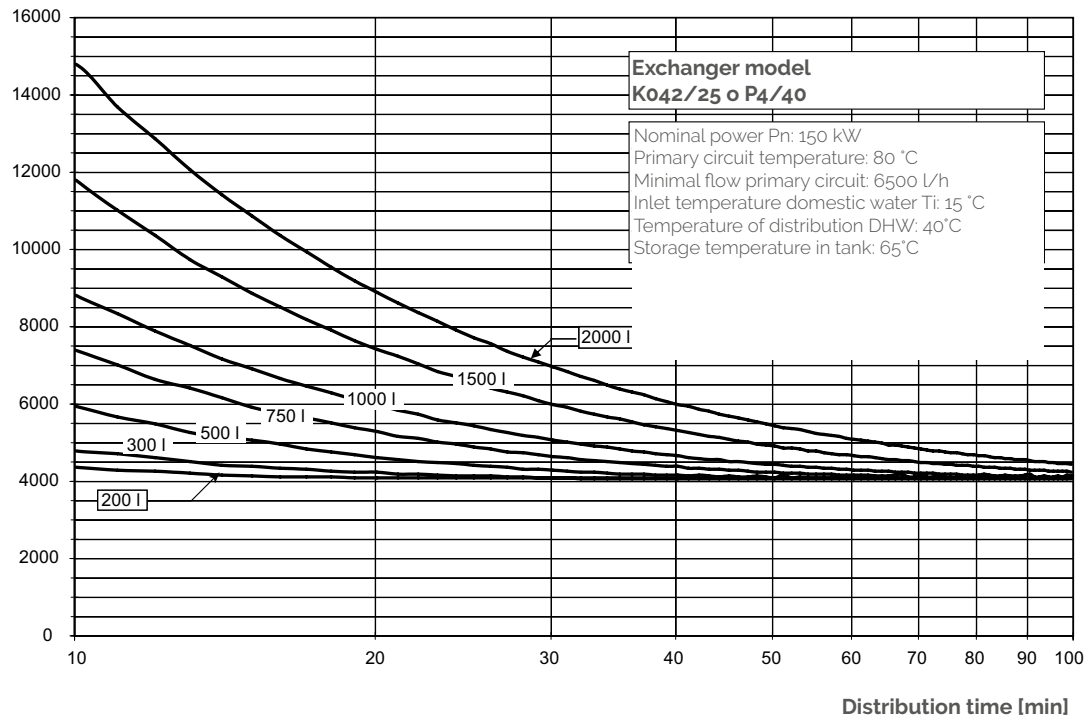
Performances with K042/21 plate heat exchanger

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



Performances with K042/25 plate heat exchanger

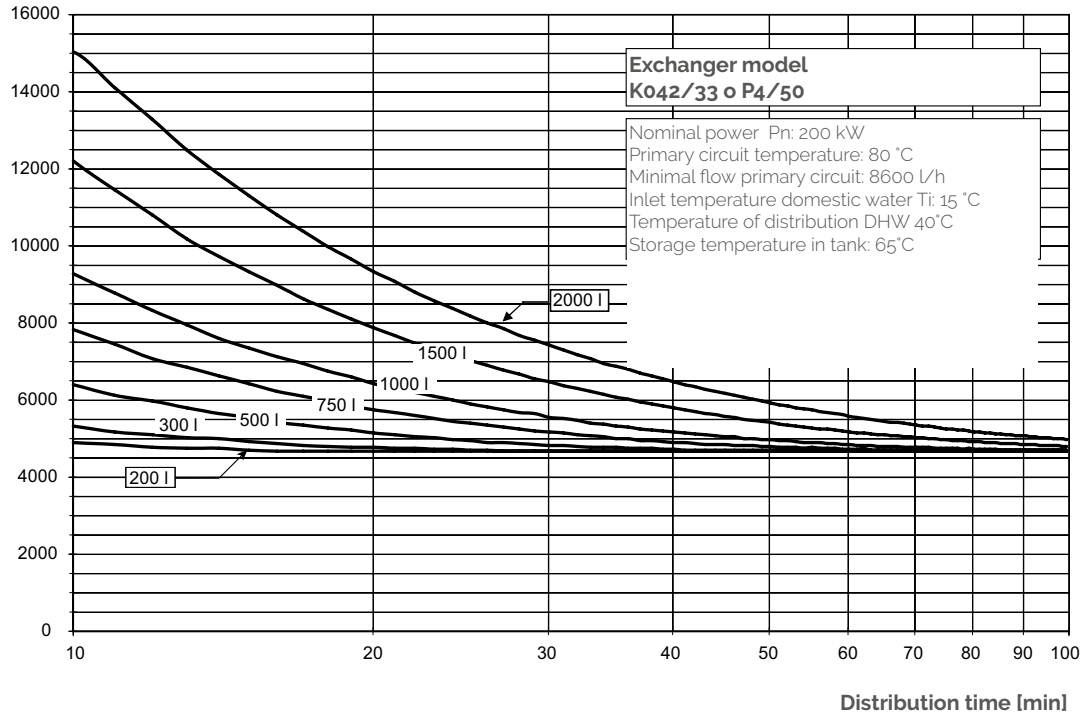
Flow to be distributed under nominal conditions [L/h]



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

Performance with K042/33 plate heat exchanger

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



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

Chart for fast selection

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 / P4/14	6	8	13	14	16	*	*
K042/15 / P4/20	12	16	22	23	25	28	*
K042/21 / P4/30	16	22	28	29	30	34	38
K042/25 / P4/40	30	40	51	51	52	54	58
K042/33 / P4/50	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 T_i : 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 / P4/14	7	10	14	16	18	*	*
K042/15 / P4/20	13	17	23	24	25	28	*
K042/21 / P4/30	16	22	28	29	30	33	36
K042/25 / P4/40	28	37	47	47	48	49	52
K042/33 / P4/50	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 T_i : 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		